

Published by authority of the Society.

The ...
Western
Horticultural 
Society.

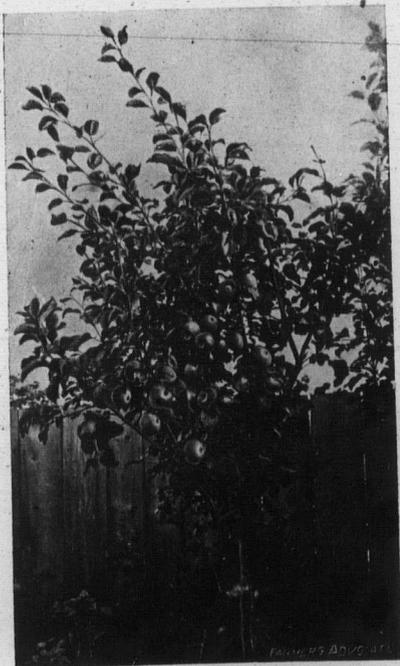
 **The Annual Report,**
AND
The Papers Read
During the year
March, 1898—March, 1899.



McIntyre Bros., Publishers, Winnipeg.
1899.

The Annual Membership Fee is \$100, which
should be sent to Mr. A. F. ANGUS, Secretary of
the Association, P.O. Box 1422, Winnipeg.

00, which
secretary of



Apple Tree in Mr. Lyall's Garden, Portage la Prairie.

SEE PAGE 26.

THE
Western Horticultural Society.



The Annual Report and the Papers
Read during the year

March, 1898—March, 1899.



PUBLISHED BY AUTHORITY OF THE SOCIETY.



Winnipeg :

MCINTYRE BROS. - PUBLISHERS.

1899.

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Officers of the
Western Horticultural Society,
1899,

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PRESIDENT :

REV. PROFESSOR BAIRD :

VICE-PRESIDENTS :

JOHN CALDWELL, Virden, Man.
S. A. BEDFORD, Brandon, Man. A. P. STEVENSON, Nelson, Man.
ANGUS MCKAY, Indian Head, N.W.T.
THOMAS FRANKLAND, Stonewall, Man.
ST. CLAIR MCGREGOR, Mekiwin, Man.

SECRETARY :

A. F. ANGUS, Winnipeg.

TREASURER :

W. G. SCOTT, Winnipeg.

COUNCILLORS :

H. C. WHELLAMS. DR. GEO. BRYCE. G. H. GREIG.

AUDITOR :

DAVID HORN, Winnipeg.

LIST OF MEMBERS.

Rev. Andrew Baird	Winnipeg.
Rev. George Bryce	Winnipeg.
A. F. Angus	Winnipeg.
S. A. Bedford	Brandon.
Angus McKay	Indian Head.
Wm. G. Scott	Winnipeg.
G. H. Greig	Winnipeg.
A. D. Hastings	Winnipeg.
George Harcourt	Winnipeg.
A. B. Stovel	Winnipeg.
John Caldwell	Winnipeg.
Wm. Blackwood	Winnipeg.
H. C. Stovel	Winnipeg.
Wm. Clark	Winnipeg.
W. A. Black	Winnipeg.
M. Bull	Winnipeg.
E. F. Hutchings	Winnipeg.
Miss E. Cora Hind	Winnipeg.
Thomas Frankland	Winnipeg.
W. G. Fonseca	Winnipeg.
Wm. Laughland	Hartney.
L. O. Patterson	St. Francois Xavier.
H. C. Whellams	Kildonan.
Gregor S. McGregor	Mekiwinn, Man.
F. Bolton	Calf Mountam.
W. L. Lyall	Portage la Prairie.
E. H. G. G. Hay	Portage la Prairie.
R. L. Lang	Oak Lake.
C. J. Thompson	Virden.
A. P. Stevenson	Nelson.
E. A. Struthers	Russell.
W. H. Tomlin	Kildonan.
Mrs. T. T. Baird	Pilot Mound.
P. C. McIntyre, M.P.P.	Winnipeg.
J. F. McIntyre	Winnipeg.
C. J. Brown	Winnipeg.
Thomas Large	Balmoral.
David Horn	Winnipeg.
F. Bradfield	St. James.
W. E. Emmons	Winnipeg.
Alex. Taylor	Winnipeg.
H. E. Philpot	Winnipeg.
T. W. Taylor	Winnipeg.
John Wemyss	Neepawa.
A. Macdonald	Winnipeg.
John Renton	Deloraine.
Wm. Whyte	Winnipeg.
R. H. Agur	Winnipeg.
E. F. Stephenson	Winnipeg.
G. F. Carruthers	Winnipeg.
A. J. Andrews	Winnipeg.
R. R. Taylor	Winnipeg.
Hugh J. Macdonald	Winnipeg.
J. H. Ashdown	Winnipeg.
Rev. Thomas Hart	Winnipeg.
J. W. Duddles	Winnipeg.
C. S. Richardson	Winnipeg.
J. R. Waghorn	Winnipeg.

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Western Horticultural Society.

Annual Meeting.

The Annual Meeting of the Western Horticultural Society was held in the City Council Chamber, Winnipeg, on Friday, the 10th day of February, 1899, commencing at 2 p.m. Professor Andrew B. Baird, the President, occupied the chair.

After welcoming the members of the Society the President read the

ANNUAL REPORT.

The principal thing for the Executive Committee to do in presenting its annual report is to review the main features of its work during the past year. Taking up matters in their chronological order the first to be noted is the public meeting of the Society which was held on the 18th of March, one month after the annual meeting. At this meeting Mr. H. C. Whellams read a paper on the "Cultivation of Strawberries," and Mr. A. F. Angus one on "Dahlia's." Each paper was well received, elicited an animated discussion, was published at length in the city papers and some of the country papers and was incorporated in the transactions of the Society.

This publication of the Society's transactions was the principal undertaking of the year, and marked a new stage in the growth of the organization, although it is hoped that hereafter the publication will be an annual affair. The pamphlet is a handsome volume of 120 pages, and includes

the Constitution, the list of members, the annual reports and the papers read. The Provincial Government gave assistance to the extent of \$100. Inasmuch, however, as the printing alone cost \$205, and the stenographic reports, illustrations, and mailing costs about \$30 more, your Committee felt warranted in approaching the Government again and asking that the grant for this year be made \$200. The Minister of Agriculture looked with favor on our request, and probably it will be acceded to. We expect that the chief influence we exert upon the country will be through the agency of this annual publication.

Last autumn our Society was asked by the Ontario Fruit Growers' Association to co-operate with the other Provincial Horticultural Societies in pressing upon the Dominion Government the need of an inspector of fruit, who should stop the sending of fruit to the Old Country or to Manitoba which could not arrive in good condition, and who should also grade and mark with an official stamp the packages which are allowed to be exported. Your Executive Committee cordially approved of the proposal and took part in pressing it upon the attention of the Dominion Government, with the hope that a measure such as is desired will be introduced during the coming session of Parliament.

Your Committee have also given attention to two other matters of a legislative character, which will be laid before you in detail at a later stage in the proceedings.

One is the need of the withdrawal, so far as Manitoba and the North-West Territories is concerned of the Dominion Act passed last year, which prohibits the importation of nursery stock from the United States into Canada on account of danger from the San Jose scale. This law makes it a hardship to every one of us who plants shrubs and trees, because there is no danger now from the San Jose scale, and because it shuts us out from what is our nearest market, and on account of similarity of climate and conditions, our best market.

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The other matter to be brought before you is the advisability of extending the Provincial game laws so as to put insectivorous and vermin-killing birds under the care of the game guardians, and so secure as far as possible that they be free from molestation.

It is a pleasure to note that the membership which stood at 50 last year has reached 60 this year, and it is confidently expected that as this Society comes to be better known and its work more thoroughly understood it will attract a much larger membership.

All of which is respectfully submitted,

ANDREW B. BAIRD,
President.

WINNIPEG, Feb. 9th, 1899.

Mr. S. A. Bedford moved the adoption of the report of the Executive Committee.

Mr. A. McKay seconded the motion, and it was carried unanimously.

Mr. W. G. Scott, the treasurer, presented his report, as follows:

TREASURER'S ANNUAL REPORT.

RECEIPTS.

1897.		
Feb. 1.	Balance per last statement—Jan. 31, '98	\$18 14
June 30.	Grant, Provincial Government of Manitoba	100 00
Jan. 31.	Membership Fees, during the year	58 00
		\$176 14

EXPENDITURE.

1898.		
Feb. 19.	Rev. A. B. Baird, Postage	\$3 50
Feb. 22.	Manitoba Free Press, Printing	6 00
June 29.	McIntyre Bros. on account of printing	100 00
Aug. 18.	Toronto Type Foundry—Electro Cuts	6 00
Oct. 28.	Winnipeg Industrial Exhibition Assn—Prizes	5 00
Oct. 28.	R. D. Richardson & Co. — Services of Stenographer	8 00
1899.		
Jan. 14.	Man. Free Press Co.—Printing & Advertising	15 35
Jan. 14.	The William Weld Co.—Advertising	4 00

Jan. 31.	Richard, Alston—Premiums.....	50
Jan. 31.	Fort Rouge Greenhouses—Premiums.....	40
Jan. 31.	G. H. Greig, Postage	2 25
Jan. 31.	A. F. Angus, Secretary, Postage	4 00
	Vouchers Nos. 13 to 24.....	155 00
Jan. 31.	Balance—Cash on hand	21 14

\$176 14

Certified correct,

DAVID HORN,
Auditor.

W. G. SCOTT,
Treasurer.

MR. SCOTT said four members who wished at the last annual meeting to affiliate with the Minnesota Horticultural Society left 50c. each with me for that purpose. I found out that it was not possible to affiliate for that amount, and I have the fees. I will either return them to the members or they can pay the additional 50c. each, and I will forward the fees to the Minnesota Society.

MR. A. P. STEVENSON, NELSON, and MR. ST. CLAIR MCGREGOR, respectively moved and seconded the adoption of this report, together with the Society's thanks to Mr. Horne for his services, which was carried unanimously.

MR. SCOTT said in reference to the deficit on account of printing that it should not occur again if he had to go out and canvass for members himself.

PRESIDENT. The Government was only asked for \$100, as we thought with the information we then had that that would be ample. When we came to print the report we found it would cost a good deal more than we had anticipated. It was no doubt a mistake not to have asked the Government for more, but we have guarded that point for another year. We thought it best to go on and have the work well done. We advertised that the report would be sent to every one joining the Society and paying their \$1.00, and thought that in this way we should get a large number of members. This did not result as we anticipated.

MR. BEDFORD. I think the only way to increase the number of members is by personal canvass. I find that the Minnesota Society depends on this very largely. Each year they ask their members to canvass for new members, and furnish them with copies of the Annual Report to hand to new members. A large part of their revenue is derived in this way.

MR. SCOTT. The Executive has in the past offered premiums in the way of plants, but this was not successful. There is a book, "Green's Amateur Fruit Grower," which I think can be got for 25c., bound in cloth. I think it would be well to offer something of this kind.

MR. MCGREGOR. I think this is a valuable suggestion.

MR. A. P. STEVENSON. The book mentioned by Mr. Scott is particularly valuable to those attempting to grow fruit in northern latitudes, and is a first rate book for reference. I think it would be a very good thing to offer it as a premium.

PRESIDENT. Will you make that a motion?

MR. STEVENSON. Yes, I move that "Green's Amateur Fruit Grower" be offered for new members in the Western Horticultural Society, with the understanding that it can be procured at a low figure. Mr. Bedford seconded this motion, which was carried without opposition.

At this stage an opportunity was given for the payment of fees and a considerable number of old and new members came forward and handed their subscriptions to the treasurer.

ELECTION OF OFFICERS.

The next item of business was the election of officers, which resulted as follows:

<i>President</i>	PROF. A. B. BAIRD.....	Winnipeg.
<i>Vice-Presidents</i>	JOHN CALDWELL	Virden.
	S. A. BEDFORD.....	Brandon.
	A. P. STEVENSON.....	Nelson.
	ANGUS MCKAY.....	Indian Head.
	THOMAS FRANKLAND....	Stonewall.
	ST. CLAIR MCGREGOR....	Mekiwin.
<i>Secretary</i>	A. F. ANGUS	Winnipeg.
<i>Treasurer</i>	W. G. SCOTT	Winnipeg.
<i>Councillors</i>	H. C. WHELLAMS.....	Kildonan.
	DR. GEORGE BRYCE.....	Winnipeg.
	G. H. GREIG	Winnipeg.
<i>Auditor</i>	DAVID HORN	Winnipeg.

NEW BUSINESS.

PRESIDENT. Before the passage of the San Jose Scale Bill we had a presentiment that such a bill might become law and we passed a resolution strongly deprecating the passage of so drastic a measure

as was proposed. Whether it was the result of this resolution or not, the bill when passed was not so drastic as anticipated. Still the measure is very hard upon us in Manitoba and the Territories as we cannot import even a hothouse rosebush. This shuts us out from our nearest and most natural market for buying trees. We hope that before long we will have shrubberies and nurseries at home sufficient to supply all requirements, but at present we have not anything like a sufficient supply to meet the demand. The Dakotas are our nearest and most natural market, the climate being very similar to our own, while in Ontario the season is longer and the rainfall much heavier than it is in Manitoba. Besides this, Minnesota and the Dakotas are free from this scale, while in Ontario, from which by this Act we are compelled to buy our trees, the scale has already considerable foothold. I have drawn up a rough skeleton of a resolution covering this matter which may serve as a basis for discussion, but before reading it I may say that your Executive have consulted several experts as to the desirability of getting trees from the Dakotas and Minnesota rather than Ontario. We have opinions from Mr. Angus McKay, Superintendent Experimental Farm, Indian Head, The Jewell Nursery Company of Lake City, Minn., Mr. A. P. Stevenson and Mr. Alston. Mr. McKay's opinion reached me in the form of a letter which I will read.

INDIAN HEAD, ASSA., 13th January, 1898.

PROFESSOR BAIRD, WINNIPEG.

DEAR SIR,—

I have your letter of the 10th instant in which you do me the honor to ask my opinion of the advisability of allowing trees and shrubs to be imported into the Northwest from Minnesota and Dakota.

Permit me to say in reply that I feel certain no harm can be done in importing the varieties of trees and shrubs from these two states that are of any use for this country.

One variety especially, the American Cottonwood "*Populus Monilifera*" is proving to be a valuable addition to our limited number of forest trees, and any restriction to its importation should be reduced as much as possible. With proper inspection at the port of entry there will be no danger from the San Jose Scale or any other pest that may infest trees in more southern States than Minnesota or Dakota. In any case I am sure our own climate is proof against any serious injury from imported pests of any sort. Permit me also to say that in our experiments with trees, shrubs and seeds, I have found those varieties that are grown in the Northern parts of Minnesota and Dakota much more suitable for the Northwest than those raised in Ontario. I have for years relied on North Dakota seed corn for the

ensilage we make and use on the farm, and the tree above mentioned is without doubt the fastest growing variety we have in the country, and one that is likely to be extensively used in the future on our open plains, in fact the demand is so extensive now that there is no possibility of meeting it from our own resources.

I have no desire to say a word against Ontario grown trees, and would much prefer seeing the trade go in that direction, but the distance is against them as well as the milder climate they are grown in.

I trust the Government may be induced to permit forest trees and shrubs to be imported from at least the two states so near our own borders.

I remain, yours respectfully,

ANGUS MCKAY,

Supt. Experimental Farm.

PRESIDENT. I will now call upon Mr. A. P. Stevenson, of Nelson, to give us his opinion in this matter.

MR. A. P. STEVENSON. It is not my intention to dwell at any length upon this question, but I feel like stating a few of the objections to eastern grown nursery stock, drawn from experience and observation.

In the first place the distance is an objection. It is a well known fact that the stock most likely to succeed with any one is that got from the nearest responsible nursery, as the conditions under which it is grown will approach most closely to that of its permanent position. Less time will be taken in transit also, and the stock will arrive in better condition.

Then I notice that the majority of eastern nurseries are located in the southern part of Ontario, making the conditions more unfavorable than they might otherwise be. Let us review briefly the difference in the behaviour of eastern and northern grown stock with us.

With small fruit, such as currants, the difference is perhaps not so marked, but for the crabapples, as grown and sent out here by eastern nurserymen, I have very little use. They are invariably grown after the pattern of a whipstock seven feet high, and forced in the nursery. Is it any wonder they are sun-scalded to death under our blasting sun in March?

In recent years the growing of plums has occupied the attention of our people to some extent. From the fact that the wild plum grows so abundantly with us it is inferred that by wise selection these could be greatly improved, but this work takes some time. In Minnesota, the state adjoining us on the south, this work has been going on for thirty years, with the result that a large number of varieties of what

is known as the Improved Native Plum are now offered for sale by their nurserymen. A large number of these improved native plum trees have been planted in various portions of our province and are giving good satisfaction both as to hardiness and quality of fruit. Under existing conditions it is now impossible to import these hardy and desirable plums from Minnesota. Eastern grown varieties are of no value whatever here, and our expectations of a plum orchard in the near future look somewhat doubtful.

I also note the following facts in favor of northern grown trees and shrubs. All the climbing honeysuckles from eastern nurseries have been a total failure, being too tender to stand our winters, while that from Minnesota gives good satisfaction. I also found it impossible to grow the "Snowball" until I got it from Minnesota. The same with the Cottonwood. One year old trees from eastern nurseries planted seven years ago have been every winter killed to the ground, while those from the State south of us, planted at the same time, are now twenty feet high. Bushes of the sand cherry, eastern grown, are annually killed to the ground, while northern grown bushes planted at the same time carry loads of fruit. Another fact, and then I have done. Ten years ago a number of Ontario grown "Soft Maple" (*Acer dasycarpum*) were planted. They were killed back every winter nearly to the snowline. At the same time trees from Minnesota of the variety were planted and are now over twenty feet high, healthy and vigorous.

PRESIDENT. We will now hear from Mr. Richard Alston.

MR. ALSTON. On account of the San Jose Scale Act, passed 18th March, 1898, we Canadians have been deprived of the privilege of importing trees, shrubs, plants, vines, grafts, cuttings or buds, commonly called nursery stock, from the United States, and this I deem is a very great loss to us in Manitoba, as the stock that we have to secure from eastern Canada is not nearly so hardy as that which we bring in from Minnesota.

Therefore I consider this a great draw back to horticulture in Manitoba, and think it would be advisable for this Society to take some action whereby this act, prohibiting the importation of nursery stock to Manitoba, be amended so that we could import therefrom, under inspection, all nursery stock.

We are in the coldest part of the American continent, which necessitates our importations in this line to be from the most northern latitudes that they can be secured from.

PRESIDENT. Your Executive further talked over the way in which it would be best for us to proceed, and we thought that we should adopt some such resolution as the one I am about to move at this meet-

ing, and send it with a strong deputation to the Local Government, and perhaps we might be able to get the Government at Regina to join with our own Local Government in bringing pressure to bear on the Government at Ottawa in regard to this matter. I feel that the chief business of this Society is to give information in such matters, and I therefore move that:

Whereas Manitoba and the Northwest Territories are not yet in a position to raise a full supply of their own nursery stock, such as ornamental shrubs, fruit trees, shade trees, and small fruit bushes, and they must rely, for some years at any rate upon importations from beyond their own borders,

And whereas the San Jose Scale Bill passed at the last session of the Dominion Parliament prohibits the importation of such nursery stock into Canada from the United States, which includes Wisconsin, Minnesota and the Dakotas, our nearest and most natural sources of supply,

And whereas the effect of this bill is to oblige us to buy our nursery stock from Ontario, which on account of its greater humidity of climate, greater rainfall, longer growing season and less severe winters, presents conditions of climate and of growth so different from our own that nursery stock imported from Ontario is much less likely to succeed than that brought from the North-Western States, as is abundantly borne out by the experience of all who have made tests in this matter,

And whereas there is no danger of importing the San Jose Scale from the North-Western States,

Be it resolved that the Western Horticultural Society use all its influence to secure an amendment to the San Jose Scale Bill so as to allow, under proper conditions and inspection, nursery stock to be imported into Manitoba and the Northwest Territories from the States of Minnesota, Wisconsin and the Dakotas, and so free this western country from the hardship of submitting to a law which under the pretence of keeping San Jose Scale out of the country shuts us out from the markets of Minnesota and the Dakotas, which are free from scale and obliges us to buy in the Ontario market, which is seriously infected by the pest.

And be it further resolved that this resolution be referred to the Executive Committee to put in shape and present to the Local Legislature.

THOMAS FRANKLAND, Stonewall. I second that motion, as I consider it a great hardship that we should be compelled to buy our stock from Ontario.

A. P. STEVENSON, Nelson. I would further endorse the resolution.

THOMAS FRANKLAND, Stonewall. I would like to ask Mr. McKay whether he has any stock from Bangor and how it has succeeded on the Experimental Farm at Indian Head?

MR. MCKAY. I could not say as to whether we have or not.

THOMAS FRANKLAND. Have you tried the Gibson crab from Wisconsin? Answer: Yes, to some extent.

MR. MCKAY. I would like to see the restriction removed. There is no doubt that it is very hard on Manitoba and the Northwest Territories, more especially in the matter of forest trees. The American Cottonwood, which is in great demand, is prohibited among the rest. We cannot begin to supply one hundredth part of the orders that have come to the Experimental Farm for this tree since this act was passed. For my own part I have no hesitation in saying that there is not the slightest danger in importing nursery stock under proper inspection. Even if some of these pests got in they would not remain. We have had the potato bug and the currant worm but after experiencing one winter they invariably left on the first train, and should a San Jose Scale be so foolish as to venture so far north I have no doubt he would very speedily follow their example. I say again that I would very much like to see this restriction removed, especially in regard to forest trees.

MR. WHELLAMS. We might also look at the action of the Ontario Fruit Growers' Association in asking for a higher tariff on fruit at a time when the Government were prepared to lower the tariff. It was a mean attempt to get a better chance for their own fruit. After what Mr. Alston and Mr. Stevenson have said in regard to Ontario grown nursery stock I think the least we can do is to ask for relief in this matter.

MR. MCKAY. We had some of the native maple taken to Wisconsin. The trees were grown there and then taken to Ottawa and raised, and when we brought that stock up here it was frozen down every time.

MR. CALDWELL, Virden. Under these circumstances, and more especially as we have reliable authority that the scale does not exist in the States from which we desire to import and could not live in this climate, I think we should ask to have this restriction removed at once.

PRESIDENT. What we propose to do is to import from Minnesota and the Dakotas where there is no scale. I think myself that the scale could not exist here. There is no embargo on the importation of peaches, indeed the Government would find it very difficult, if not impossible, to pass such an act, and yet we are credibly informed that the scale can be imported on peaches as readily as on trees. I would not wish to run the slightest risk in such a matter, and all that we propose is to import from States where there is no scale, and that only under careful inspection. If there is no further discussion I will now put the question.

The motion carried unanimously.

PRESIDENT. Is there any other new business.

Q. Why does not the Society make an exhibit at the Industrial Exhibition? A. We did not think it wise to attempt it last season owing to our being in debt. I should like to see a fall flower show. I hoped we would have a paper from Mr. Middleton of Brandon on the Flower Show which they held last season, and I am sorry he is not present.

MR. BEDFORD. I think Mr. Middleton will be here for the evening meeting. With regard to our flower show I would say that the Brandon Horticultural Society undertook it in fear and trembling, but it was a most surprising success. This was largely due to the interest taken in it by Mr. Middleton, and others associated with him, who gave very much time to it. You know in Brandon we have not so many members in our Society or so many owners of flowers as you have in Winnipeg. I must say I was very much surprised at the interest taken by those who had only a few window plants to show. We held it in the Opera House, and it overflowed into the City Council Chamber. I do not think you need have any hesitation in attempting one in Winnipeg, but I would say make it largely an amateur affair; do not make it professional. Have a good exhibit from the professionals, but let the amateurs understand you are depending upon them. The prizes do not need to be at all large, but there should be no charge for the privilege of exhibiting.

MR. FRANKLAND. I would favor the holding of a flower show, as the time at which our Industrial Exhibition is held, about the middle of July, the products of our gardens and orchards are not available. I would like to ask Mr. Bedford if he would confine the exhibition to members of the Society?

MR. BEDFORD. I think all who exhibit should join the Society. In this way you will reach people which otherwise you may not be able to touch, and you will largely increase your membership.

MR. STEVENSON. From what Mr. Bedford has said I think we should take the matter of holding a flower show into serious consideration. It should be held late enough in the season to show what we can do in the way of growing crabapples and plums and not too late for the garden flowers.

D. D. ENGLAND. I would be strongly in favor of holding a flower show. I do not think there need be any trouble about amateur and professional. The two classes can be kept quite separate.

MR. MCKENZIE, Brandon. I might say that we had no expense for the opera house and very little for tables and lumber and such things. With regard to prizes I might say a word. We offered prizes for both amateur and professional classes. We also gave prizes for the best kept and cultivated gardens and lawns. In regard to getting members I may say that before the flower show was talked of we did not have very big meetings, sometimes not more than six or seven would be present. When we decided on the show one gentleman went round and got seventy-two members in two afternoons.

MR. BEDFORD. Let me say that Mr. McKenzie was of very great assistance in developing the show.

PRESIDENT. I am much interested in these accounts and would like to have a flower show in Winnipeg, but I have a painful recollection of one gotten up in the McIntyre rink some few years ago. The number of entries was large, the expenses were thought to be kept within a reasonable figure, the attendance was very large, and yet not one cent of the prizes offered was ever paid, and the promoters claimed that they were bankrupted.

E. H. G. G. HAY, Portage la Prairie. I would like very much to see a flower show held, and I think it could be done, but I think it would be necessary to offer fairly good prizes. Those exhibiting from outside points would certainly not be willing to do so for a prize of ten or fifteen cents.

H. G. GREIG, Winnipeg. I think the whole matter should be left to the Executive Committee, as it is impossible to decide now whether it would be possible to hold a successful exhibition or not.

MR. BEDFORD. I think that is a good suggestion. The matter will really have to be left to the Executive Committee, as they will have all the responsibility of carrying it out.

MR. ALSTON, Winnipeg. I think it was in the year 1886 that we formed a Society. It was when we had the exhibition over in St. Boniface. In 1887 we had a flower show of our own. We got a grant from the Government, and we got a good deal of money from the

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citizens. The attendance was very large. We had an additional attraction in the shape of seven Siamese Princes who were passing through and who were induced to attend. As the result of all our work and the time spent there was just \$13 in the treasury when we got through.

THOMAS FRANKLAND, Stonewall. I move that the Western Horticultural Society regard the holding of a Flower Show as likely to increase the interest in horticulture during the coming season, and that they ask the Executive to look into the matter and carry out this idea if possible.

MR. BEDFORD, Brandon. I second that motion. Carried.

PRESIDENT. We will now have a paper from Mr. Bedford on hedges.



Hedges.

S. A. BEDFORD, BRANDON.

The observant Manitoban, when travelling in the eastern parts of the Dominion, is often favorably impressed with the fine Norway Spruce and Cedar hedges, all kept closely pruned and so dense that scarcely a squirrel can penetrate them, and at this season of the year we vividly recall the protection they afford from the cold blasts of winter. If such hedges are desirable for Ontario they are doubly so here, where the wind sweeps over a treeless prairie. We should not expect such quick results here as are obtained in the moist and milder climate of the east, still sufficient has been done by private effort and on the Experimental Farm to show that many varieties of shrubs and trees, hardy in this climate, will make excellent hedges.

Naturally rather more pains will have to be exercised in the selection and care of the plants. Only small plants and trees should be used for this purpose, and all should be

severely cut back when first set out. This encourages the making of side branches close to the ground, one of the most desirable features of a good hedge.

With our comparatively light rainfall it is folly to expect success without frequent cultivation; this is particularly true on the stiff soil of the Red River Valley, where the clay loam quickly bakes after a shower, and soon kills the plants if not at once loosened up.

Hedges can be divided into three classes, depending on the purpose for which they are used, and each kind requires a distinct class of tree or shrub.

On the Experimental Farm there are forty-four different plants used for hedges, varying in height from a foot to fifteen feet, but time will only permit of my mentioning a few of the most promising for the different kinds of hedges mentioned.

First. We have the tall and often coarse hedge used for a wind break on the exposed side of a belt of trees, or to protect farm buildings from fierce winds and drifting snow. This class of hedge requires a large and rapid growing tree, and one not liable to break down readily with the weight of snow or ice. The following are suitable for this purpose and are given in the order of preference: American White Willow, Sharp-leaved Willow, Cottonwood and Ash-leaved Maple. The three first mentioned are grown from cuttings and the last from seed. Three feet apart is the proper distance to set any of these trees for hedge purposes, and very severe pruning is not necessary, one cutting a year being sufficient. Among the second class is included such hedges as are most suitable for division fences between town lots, or for the purpose of screens, dividing the front and rear portions of town properties. This class of hedge requires a finer and better tree or shrub, and more frequent pruning. For the taller hedges of this class our native White Spruce is one of the best trees. It stands pruning well, is very handsome

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even in winter, and if properly treated is quite healthy and a fairly rapid grower. It can be obtained from the woods in many parts of the province. Only small, shapely trees should be used, and they stand transplanting best if a block of soil is taken with them.

The larger kinds of Caragana or Siberian Pea are excellent for this purpose. The foliage is delightfully soft and velvety early in the season, and later on it is covered with bright yellow blossoms. This is grown altogether from seed, small quantities of which can be obtained free from the Experimental Farms.

The Lilac is another suitable shrub for this purpose and is perfectly hardy here. The dark glossy leaves of the common variety and the lighter foliage of the Alba make excellent back grounds for the masses of blossoms which are so often associated with our earliest recollections. Lilacs are propagated from seed and suckers, generally from the latter.

Some of the native shrubs suitable for the purpose are the wild Manitoba Rose, Red Willow (*Cornus*) and White Wolf Willow; plants of all these can be obtained from the woods or prairies.

All of the foregoing shrubs should be planted from 18 to 24 inches apart.

The next class of hedges to be considered are those used for strictly ornamental purposes, such as bordering garden walks, flower beds, etc. Only low shrubs with very fine branches and handsome foliage should be used, and even these will require frequent and severe pruning for the best results.

One of the most suitable for this purpose is the Asiatic Maple (*Acer Ginnala*). The foliage of this tiny maple is very handsome indeed, varying from dark brown to bright crimson. It grows as freely from seed as the native maple.

The smaller Caraganas such as *Mollis Glabra*, *Pigmea*, etc., adapt themselves readily to this purpose, and among the

dozen or so varieties of this shrub almost any size plants can be found, many of them being a solid mass of yellow blossom in early summer. The best native plant for a border hedge is the snowberry (*Symphoricarpos*), which has very fine foliage, bears pruning well, and the snow-white berries are quite attractive.

Another useful native is the Willow-leaved *Spiræa*. It is a free bloomer, the flowers being light colored spikes; these two natives are found in nearly all parts of the province, and bear transplanting well. These small shrubs should be planted from twelve to eighteen inches apart.

In conclusion, I can see no reason why each farm homestead, town and village lot should remain without an ornamental or shelter hedge. They can be grown with very little expense or labor, and will prove a comfort and source of interest for all time if properly taken care of.

DISCUSSION.

MR. STRUTHERS. Have you tried the English Hawthorn.

MR. BEDFORD. We have used some of the family. They look very well so far, but are not large enough yet to say how the hedge will look when fully grown.

A. P. STEVENSON. How about the Barberry.

MR. BEDFORD. It is not quite hardy with us. It is no use having anything for a hedge unless it is hardy.

PRESIDENT. How far apart should the White Spruce be planted.

MR. BEDFORD. About three feet.

PRESIDENT. What would be the effect of its being planted as close as eighteen inches. Will the trees die at the bottom?

MR. BEDFORD. It would be liable to do so. I think it would be best to plant it three feet apart.

MR. WHELLAMS. Have you been troubled with insects in the spruce?

MR. BEDFORD. A little, but not much, and we have not had nearly as much trouble with them in hedges as in single trees.

MR. WHELLAMS. What do you do for them?

MR. BEDFORD. Use Paris Green, carefully, of course.

Question. When is the best time to move Spruce trees?

MR. BEDFORD. Just as the buds are beginning to show?

MR. STEVENSON. Another plant which is good for hedges is the Russian Tree Honeysuckle. Have you tried that?

MR. BEDFORD. We have tried it, but it is too early yet to say how it will do, though it looks well. We cannot always tell at first which trees will make the best hedges.

MR. THOMAS FRANKLAND. I have had good success with Persian Lilacs.

Question. Does the Russian Honeysuckle require much pruning?

MR. STEVENSON. About twice a year, and it makes a beautiful hedge. The foliage is fine and it bears an abundance of blossom. It is perfectly hardy and will grow to a height of fifteen feet.

MR. MCKAY. The Caraganas are our finest hedge; we also find the Asiatic Maple give good results, and also Artemesia or Southern Wood. It should be planted about the last week in April or the first week in May and clipped about twice in the season. The nicest low hedge is the native Snowberry. It grows about eighteen inches high. Lilacs are also successful with us and make a very nice hedge. The Caraganas should not be clipped too late in the season, as they will look mean for the balance of the year. Box Elder should not be pruned after July. Willow Boralensis is perhaps our best hedge. We find that low hedges prevent frost, and this is the most important thing we have learned this past year. We are trying a great many hedges of which we cannot speak definitely as yet.

MR. LIVINGSTONE, Cypress River. What is the best time to prune, and if pruning is not done at that time what will be the result?

MR. BEDFORD. It depends on the kind of hedge. It is very difficult to say just when pruning should be done. We like to prune just when there has been some growth. If you do not prune your hedge gets ragged and thin at the bottom.

MR. CALDER, Virden. How does Mr. Stevenson propagate the Russian Honeysuckle?

MR. STEVENSON. We propagate by cuttings, taking them in the fall.

MR. BEDFORD. You can propagate from layers.

MR. STEVENSON. It is also very rapidly grown from seed.

MR. HAY. I take a great interest in shrubs, and if I was going to grow this one I should grow it from seed. It may take about a year longer, but you get a better tree. I can recommend this Honeysuckle both for a hedge and as a shrub, as it is very beautiful when in bloom. I can also recommend the Caraganas. They grow readily from seed. I have tried the Hawthorn, even getting the seed from England, but it is never a success. Personally I do not care for the Snowberry, the flowers are poor. It is not so with the Caraganas which are one mass of blossom.

MR. GUNN. Have you tried the Five Finger ?

MR. BEDFORD. Yes, it is one of my favorites. We have done a good deal with it, and are now trying it in a hedge, but it is not high enough yet to know how it will do. Silver Berry we have also tried, but it suckers pretty badly.

PRESIDENT. This discussion is most interesting, but I think we will have to draw it to a close and call upon Mr. W. G. Fonseca for his paper on "Apple Growing in Winnipeg."



Apple Growing in Winnipeg.

BY W. G. FONSECA.

My experience in apple culture has been limited to three crabs, the Transcendant, Tetofsky and Hyslop, also the following standards: Wealthy, Duchess of Oldenburg and five Ironclads. The latter have proved unsatisfactory. Up to this time I know of no success with Russian apples. Of the crabs none have given grander results than the Transcendants, which promise to be very generally cultivated in Manitoba. Its economic value is a sufficient incentive to stimulate its culture on a large scale. At the present time this fruit is imported by the carload, for which a large amount of money annually goes out of the country.

My trees were grown in Minnesota on Lake Minnetonka. I was always impressed with the idea that to give Manitoba a fair trial we should have stock grown under similar climatic conditions to our own. The unnatural attempt to transplant trees grown in a humid atmosphere to our dry crisp climate has proved disastrous. Rochester, N.Y., is the depot from which most of the stock is supplied to nursery firms in the east. They send out agents here to solicit orders. The result is pecuniary loss, and this creates a want of confidence in our Province as an apple growing region, and is detrimental to its interest as an immigration seeking province. Hoping to do something, in a limited way, to counteract this state of things I secured an agency in the Minnetonka Nursery and distributed considerable stock. The Archbishop of Rupert's Land, among others, got several trees. The Archbishop has taken the liveliest interest in the culture of apples. The trees in every case proved true to their kind in fruitfulness and quality. Some of them have grown to a considerable size. His Lordship informs me that he has five or six standard apple trees which have borne large apples. I could not get the names or any information as to where the trees came from. This success is very encouraging and hopeful. Mr. Ashdown, about ten years ago, ordered trees from Fairbault which turned out to be Transcendents. They have attained considerable size and produce fine fruit yearly.

Mr. W. Scott cultivated several of the same trees in his garden on Alexander Street, which were great bearers, but owing to over production one year they wilted and died. This happened to other trees. My best tree died from the same cause the same year.

One tree on Notre Dame Avenue has been the admiration of all who have seen it in its fruited beauty. I cannot say where it came from or by whom it was planted.

W. C. Wellband is the fortunate owner of a tree on Lizzie Street which for symmetry, healthiness and beauty is not excelled by its sister trees in Winnipeg. The apples borne

by this tree were larger than usual, beautifully flecked, and without a single speck or defect. I could not trace its origin although I tried to do so. Mr. G. A. Glines is an enthusiast on the subject of apple culture, but has been unsuccessful, although his trees came from Northern Minnesota. But one promises to reward his care.

Several farmers of Kildonan have tried apple culture with success, especially Mr. McKay, who is devoted to gardening. Mr. W. B. Hall, of Headingley, is, however, the largest apple grower within a radius of twenty miles. His stock also comes from Minnesota and consists of Transcendents and Siberian crabs. His apples are marketed here, and are preferred to the imported fruit. The characteristic feature of all these trees is hardiness; my trees do not suffer in the least from frost. The terminal buds on the highest branches twelve to fourteen feet from the ground, bloom and produce fruit.

PLANTING.

On the proper treatment of the roots, a knowledge of their functions, and skill in planting, depends in great measure your hopes of success. "Not knowing how" has entailed disappointment and soured the temper of many a farmer against apple culture.

My method of planting is as follows: To make the hole sufficiently large to give ample space to spread out the roots. Where there is a purely clay subsoil pave the bottom with bricks, bone and stones, the object being to force the roots to move laterally in seeking food, and to avoid touching the clay, which chills and checks assimilation. Upon this I sift the damp earth mixed with leaf mould or well rotted manure six inches crowning. The roots, which have been kept well moistened, are spread out with great care so as not to injure any of the thread rootlets, for by these the minerals necessary to the life of the tree are dissolved and assimilated. Earth is sifted as fine as possible on the roots three inches deep,

the tree in the meantime is moved up and down gently, this motion imbeds the roots. I then water and fill in more earth, pressing down firmly to exclude all the air. The surface finish is left loose to prevent evaporation. Trees so treated are given every encouragement so live.

The top is cut down sufficiently to keep a balance between the roots and the trunk.

Branches trained to grow recumbent afford protection to the body. In our climate also it is necessary to check early budding. This is done by beating down the snow around the roots; upon this mulch heavily and beat down to solidify the mass and prevent mice gnawing the bark.

INSECTS.

The canker worm, so far, is the only pest that has attacked my trees. Three sprayings are necessary, using Paris green in proportion of one pound to 200 gallons of water, mixing in either flour or lime to counteract the caustic effect of the mineral, and also to make the poison adhere to the leaves. Spray first when the buds appear, then when the bloom is well developed and again when the fruit is as large as marbles. The mixture must be kept in motion, as the Paris green is insoluble. This treatment will destroy all insects. Apple culture is worthy of every effort. It is monarch in the realm of domestic economy. It enters largely into our mercantile interests, as for instance:

In 1896 the U.S. alone raised 70,000,000 barrels.

In 1897 " " 40,000,000 "

In 1898 " " 27,000,000 "

The falling off in 1898 was owing to the damage by excessive rainfall washing away the pollen.

The existence of this Association is an earnest that apple culture will be a live interest in the Province of Manitoba.

DISCUSSION.

MR. BEDFORD. Are you troubled with sunscald?

MR. FONSECA. Not on the Transcendants, but on the ordinary apples they have always to be sheltered.

MR. W. G. SCOTT. I plant'd the trees on Alexander street of which Mr. Fonseca has spoken. They were planted in 1875. I brought the trees from Minnesota, in which State I had resided from 1866 to 1873. I might say for the encouragement of those who are trying to grow apples in this country that when I resided in Minnesota it was thought that apples could not be successfully grown there at all, but last year I see they raised 176,000 bushels.

Mr. G. H. Greig passed round a photograph of Mr. Lyall's tree Duchess of Oldenburg, showing forty-five fine apples.

Question. Where did this tree come from?

MR. HAY. The tree was imported by Mr. Lyall from Rochester, New York.

MR. STEVENSON. It depends a great deal on the age at which you get the tree. If you get the more southern stock when it is very young it does not make so much difference.

MR. WAUGH. I took a wallet of crabs from Mr. Fonseca's trees to the State Fair at Iowa, and Professor Budd said the most inferior crab amongst them was as good as their best, and Mr. Fonseca's Transcendants were simply out of sight.

MR. STEVENSON. There is no doubt that Manitoba grown fruit is very much better than eastern grown.

PRESIDENT. Mr. Wyman Elliott, of Minneapolis, ex-president of the Minnesota State Horticultural Society, has sent us a paper on "Early Difficulties in Apple Growing in Minnesota."

Early Difficulties in Apple Growing in Minnesota.

BY WYMAN ELLIOTT, MINNEAPOLIS.

It is impossible for me to spare the time to prepare a paper that would do the subject assigned me justice. I can simply say a few words of encouragement to the grower of small fruits in your country.

The experiences of the pioneers of horticulture, in our State were much like those you are now experiencing, but you have this advantage, we did not know forty-five years ago that we could not grow the same varieties of the apple, plum, cherry and pear that our fathers had grown in the eastern States, and consequently our first plantings were nearly all killed by the hard winter, leaving only here and there a chance seedling to lend hope to the enthusiastic horticulturist who "never says die." We have had our successes and failures, and out of the ruins of the early failures we have builded much better than many of us dared to hope. We can only say go on in this good work persistently, seeking knowledge from every available source, and I firmly believe you will create and gather varieties, from far and near, that will give you rich reward for the time and money expended in developing the fruit industries of Manitoba. If I should attempt to tell you of our innumerable failures, in the middle and northern part of Minnesota, since the white man came among the savages of this western wild, it would be utterly impossible, but this one thing we do know that we have gained a vast amount of knowledge by past experiences, and that our experimenting has done some good to the world

at large and to the individual in particular, for these reverses have only been incentives to redoubled efforts and greater diligence in seeking for varieties that would withstand the vicissitudes of a rigorous climate.

Neither did we have the splendidly equipped experimental stations you now have to do the work, the individual had then to do, if done at all. Forty-five years of progress along horticultural lines has done much towards increasing the intelligence of our people, and many of our young men are profiting by the experience of their fathers and not buying trees of any agent that comes along with fine samples and enlarged fruit plates, but are consulting their own home nurserymen, who have a reputation to sustain, and procuring trees grown in the same latitude and under the same conditions as where they are to be planted. If you desire a word of encouragement from me I can only say, situated as you are, so far north, you will find but few varieties, at present, that will succeed, but I believe the time will come when you will have many varieties, that with new methods of protection, cultivation and care, will produce abundant crops of fine fruits.

Excuse these few rambling remarks, but it would be a great pleasure to me if they should help any of your people to renewed efforts in horticultural lines. I hope you will have a very pleasant and profitable meeting.

MR. STEVENSON. I consider the experimental stage of crab growing passed in the Pembina Valley district. Large quantities are raised each year. During the past season Mr. Bedford's brother sold seventy baskets from his orchard alone, and I know that in Morden no imported fruit can be sold while there is any of the home-grown to be had. In my opinion it is only time and labor lost to attempt to grow apples on the prairie without first providing some sort of protection for the trees.

MR. FRANKLAND. What side of the orchard would you protect?

MR. STEVENSON. That is rather a large question. I notice in the Western States the west and south side. Our shelter is on the north and open to the south.

Question. What form do you favor growing the trees in.

MR. STEVENSON. I think the bush form is probably best for both apples and crabs in this country, but in our district we have to grow them in single trees. I am sure it is necessary to give protection. They have always found it so in Minnesota, more especially if you want the trees to last a long time. Our oldest tree is nineteen years old and about twenty-two feet high.

MR. WAUGH. How does Mr. Parkinson at Portage la Prairie grow his trees?

MR. HAY. Mr. Parkinson grows his out in the open. We do not on the Portage Plains go in much for protection. I would say, however, that if I were going to give protection it would be from the south, and not from the north.

In respect of the class of apples, I got four from the Experimental Farm at Ottawa. They were very little things, but have been growing nicely for three or four years. They will bear almost any amount of pruning. I cannot say anything yet as to the fruit but the wood is very hard, the hardest I have yet seen. I prefer the small trees, as I think they are the best. We grow a great many crabs in Portage la Prairie. One tree I saw last fall was sixteen feet in diameter at the top. It think it is best to get the trees from Minnesota.

MR. WAUGH. My impression is that Mr. Parkinson objects to protection.

Answer. Yes he does.

Question. Does Mr. Stevenson fill up the box round the tree with earth, and if so, why?

MR. STEVENSON. Yes, I fill the box with earth. It is to protect the trunk from sunscald and also to prevent the tree getting black heart. Sunscald does not take place until the tree is a good size. The filling up of the box makes a difference of about 20 degrees in the temperature.

MR. FRANKLAND. In regard to the boxing of trees I may say that some growers in Minnesota are opposed to this plan, as they think it will have the effect for a time, but that if it is once begun it will have to be continued and that it entails a great deal of labor.

MR. STEVENSON. Of course it is true that if you start it you must keep it up, but it is generally admitted that protection is necessary. There are various ways of doing it, the boxes, burlap or paper, but I claim that some kind of protection is necessary. Trees grown without do not last so long, but die in sixteen or eighteen years, while those that have been protected, regularly are strong and healthy at twenty-five.

Question. Are the boxes removed during the summer?

MR. STEVENSON. Yes, as spring advances the boxes are removed and the earth spread round the root of the tree.

PRESIDENT. I think we must now adjourn until 8 p.m., when I hope there will be a full attendance.

EVENING SESSION.

Mr. S. A. Bedford, Brandon Experimental Farm, in the chair.

MR. BEDFORD. I have been asked by your President to take the chair. It is getting late, and I will not take the time of the meeting with any remarks, but will at once call upon Mr. P. Middleton, Hon. Secretary of the Brandon Horticultural Society, for a paper on the Brandon Flower Show, which was to have been given this afternoon.

MR. P. MIDDLETON. Mr. Chairman, Ladies and Gentleman. I was pleased to hear that Mr. Bedford and Mr. McKenzie gave this question some momentum this afternoon, as the notes I have prepared were put together hurriedly, and I may have to amplify as I go on.



The Brandon Flower Show.

BY P. MIDDLETON.

In compliance with your request to give a few brief notes to account for the comparative success of our autumnal exhibition of plants, flowers, fruits and vegetables, held on the 26th of August last, in Brandon, it may not be out of place to state that it was very late in the year before we got into practical form and our prize list issued. Consequently, like all other rudimentary functions, much imperfect work was the result,—although we heard little of its crudeness. We owe much to an intelligent, appreciative and sympathizing public. Like all other British institutions where the dollar was not immediate or prospective, the idea was first laughed at, then sneered at, but finally adopted, and it is fair to say

of Brandon citizens, that as soon as they saw it was a fact, they generously, in every possible way, lent their aid in making the Flower Show, both horticulturally and socially, a success. And it was not the fault of the citizens that it was not a financial success also, but it may be attributed to the shyness of the committee. Yet, through the generosity of the City Council and other love-working members, we were able on Tuesday last, at our annual meeting, to show a balance on the right side of the balance sheet.

We are further encouraged by the fact that our exhibition has brought out not a few kindred spirits, which will materially enhance the consolidation of our Society for carrying out the work for which it was instituted, viz: For the general advancement of Horticulture and kindred subjects.

1st. Specifically to assist and advise our City Council in improving the City and its environments by tree planting, &c.

2nd. To assist by advice and otherwise the Prairie Home Farmers in improving their surroundings.

3rd. To stimulate and encourage all towns and villages within our reach to form like Societies.

4th. To have an annual exhibition of plants, fruit, flowers, vegetables and cottage industries, to be held at the exact season favorable to the fullest completion and highest development of vegetation, in connection with which to have garden and lawn competitions, also competitions in window gardening and other outside displays, also farm garden competitions.

5th. To have monthly meetings for reading papers, exchanging plants, cuttings and seeds; to offer prizes for any production out of season for the general show, and to give certificates of merit for any meritorious production.

Our membership for 1898 was 146. The Exhibition brought out over 70 competitors and exhibitors. We offered about \$300 in prizes in 11 sections of 150 classes, of which

126 classes were competed for. The exhibit entries numbered over 350.

The best contested section was cut flowers, all classes being full except roses. The next section was vegetables; all classes were fully contested. Plants and fruits came next, but were surprisingly well contested. It was very noticeable how few unmeritorious productions there were, considering the first attempts of many competitors. It was also a great surprise to the citizens to find they had such admirably cultivated specimens of plants. Some of the amateur plants showed high-class window culture, and would have been creditable to a professional with his best resources, and showed what enthusiastic care and unremitting attention it must have cost their owners, in such a trying climate all the year round.

The flowers and vegetables in the professional classes were very fine, but in some classes the amateurs more than equalled them. The premier exhibits in size and quality were all that could be possibly looked for. In the farmers' classes some excellent collections of vegetables, plants and fruits were tabled, and the range of their collections may be imagined when five well developed dishes of Salsifis-Scorzoner, Khol Rabi and Brussels Sprouts were among them.

One of the best and healthiest competitive features of our show was the friendly rivalry for the "best laid out and cultivated grounds, to include trees, shrubs, flower beds, borders and lawns," also in "lawns," "best cultivated vegetable garden," "best composite garden—not exceeding 2 lots" "and not exceeding 5 lots." All these brought severe competition. The judges found it no sinecure, on account of the variable but excellent taste and perfect keeping and cultivation.

The contest in windows of plants was very close, and all displayed excellent taste and admirable cultivation.

In the farmers' section the best cultivated and laid out garden brought out an excellent competition, and some fine

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cultivation was found, and not a little taste in some arrangements. This section our Society mean to give some attention, as we believe the embellishment of the farm home is an element to be encouraged, and the taste and high intelligence of the majority of the prairie farmers we are sure would rally round any village and town for an annual horticultural show and fete.

In fruits we were, naturally, weak in competition, but some excellent dishes of red and black currants and gooseberries were shown, and also several meritorious collections of fruit, including plums and raspberries. In all we had twenty-four competitions in the fruit classes.

Outside the competitive classes we had a truly splendid exhibition of plums, apples, pears, quinces and blackberries from the horticultural department of British Columbia Experimental Farm, and also plums, pears, apples, &c., from six or seven fruit growing districts of British Columbia, some of the plums being of very superior size and quality, especially that excellent culinary variety "Pond's Seedling."

From eastern Canada we had a small but most interesting collection of apples from the Horticultural Department of Ottawa Experimental Farm, as we had asked for some representation of their hardiest apples, from the Experimental Farm and fruit growers through which we might be able in the more immediate future to found our Manitoba orchards. But from the object lesson given us we are afraid the solution of this problem is relegated to the "dim and distant future." So far as the possibility of growing apples here, we found, on visiting gardens in the City, in two gardens, about the middle of August, healthy trees bearing apples, between two and three inches in diameter, which, on this high altitude, is a most encouraging sign. About 600 extra exhibits were made.

One of the most valuable features of the show was a splendid collection of vegetables put up by Mr. Bedford from his Horticultural Department. It included a finely developed

collection of potatoes of one hundred varieties. This was a rare sight, and the selection and display was highly creditable. The gourd class were of huge dimensions. The cabbage were of fine quality and size, and the cauliflowers were perfect. All demonstrated that the mud of the old Assiniboine, with some skill, is capable of the very highest results, not second to the most highly favored districts of the globe.

The Committee, in seeking means to encourage free competitions, observes that the common practice of feeing each entry on all classes was a great deterrent and a severe tax on many willing competitors. We resolved on a slight membership fee to cover certain advantages and all competition, and this we found not only simpler but also proved to bring out competition freely. Some members entered in over 20 classes and several over 30.

Another item in our arrangements which we thought would be contributing to success, was in limiting the area of the Society's competition, so as to have some control over exhibitors in making bona fide exhibits. This is calculated to give greater confidence and a keener interest to exhibitors in general.

The series of papers which were prepared and to be delivered at our monthly meetings, were "Sap Circulation in plants," "On City Tree Planting," "The Potting and Shifting of Window Plants," "The Points of Merit to be Observed in Staging Plants, Fruit, Flowers and Vegetables for competition," "On Selection of the best Prairie Flowers for garden cultivation." I am sorry to say that these are still in the portfolios of their authors, and from a variety of fortuitous circumstances sufficient numbers did not turn up to encourage their delivery, but we are now making more successful arrangements.

At our annual meeting, last Tuesday, we discussed the idea, which we are to carry out, of communicating with all the towns and villages within a certain area to ascertain

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their altitudes and positions of exposure. Also to get meteorological reports, and to make arrangements for observers to have reliable instruments to enable them to give correct records. This, we think, will elicit much valuable information as to climatic influences on vegetation, and may help to solve practical problems some of us may have in view.

We desire this year to get into communication with all towns and villages within our reach, with the view of encouraging and assisting them to form societies to promote horticultural productions. No matter how small the towns, they are all capable of having a flower and vegetable competition in the fall of the year, and school rooms are well adapted for holding such rudimentary competitions. The better class of these competitions would go to increase the more central and larger exhibitions and bring out productions of great merit.

We are also anxious to append some natural science subjects as auxiliary adjuncts to horticulture, viz: phytology, entomology, ornithology and zoology. During the past season two of our consultants in these departments have been of service, and we have appointed gentlemen to be responsible for information on the various subjects mentioned in their relation to horticulture. We are on the lookout to attach any natural science students to our Society, so as to diffuse correct knowledge and dispel superstitions and mistaken notions and ideas.

The more pronounced social part of the show was the promenade concert on the evening of the first day, when the mayor opened this part with an encouraging speech, and announcing the principal awards of the garden competitions. The band and groups of competitive plants, filled the orchestra forming a picturesque scene; and with the opera hall crowded by a brilliant and elegant assembly of ladies and gentlemen, amongst the long rows of tables packed with fruit, plants, flowers and vegetables, formed a very pleasing rational and enjoyable spectacle. The capacious Council

room was also filled with the British Columbia collection and the whole under a full complement of electric light gave the utmost satisfaction.

DISCUSSION.

MR. BEDFORD. Mr. Middleton had the largest part of the work, and it was due to his energy and enthusiasm that the affair was so marked a success.

Question. About what amount was given in individual prizes?

MR. MIDDLETON. Gardens, \$3.00 and \$2.00; cut flowers, 50c.; single window plants, \$1.00 and 75c.; balcony boxes, \$1.00 and 75c.; groups of plants, \$12.00 and \$5.00; for farm section, \$5.00 and \$3.00.

PROFESSOR BAIRD. What was the revenue coming from entrance fees to hall.

MR. MIDDLETON. I could not say exactly. The use of the hall, tables, etc., were donated.

MR. BEDFORD. We will now have a paper from Mr. Thomas Frankland, Stonewall, on "Cultivation of Plums for Manitoba."



Cultivation of Plums for Manitoba.

BY T. FRANKLAND, STONEWALL, MAN.

Along the banks of the Assiniboine and Red rivers, and in scattered timber lands all over the country, plum thickets are found, from which the aborigines and early settlers got their supply of fruit, ranging in quality from bitter, better and best. The early settlers, however, unaware of the fact that the flower buds of the *Prunus Domestica* are not hardy enough to develop fruit in this climate, and sighing for the Lombards, Damsons and Gages of their former home, imported trees, or listened to the siren notes of the eastern tree pedler, paid their money, and in the succeeding spring increased their brush pile. The Lombards, Damsons and

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Gages of neighboring thickets, indigenous to the climate, were unappreciated—perhaps because they could be procured so cheaply from the Indians for stale bread and old clothes. The blocking out of prairie farms, and the unrestrained inroads of settlers' cattle, caused many of these plum patches to disappear altogether, and many more to be badly demoralized. In occasional wanderings after stray cattle the dairy maid or careful house wife would make a discovery and carefully tie the apron string to the tree bearing the best plums, and John would remove the same in a very mutilated condition to the garden patch the following spring, along with other trees growing in the neighborhood. Very many of these indiscriminate plantings proved failures—perhaps from careless planting, or more likely from the fact that many varieties of the plum are deficient in pollen bearing flowers. A few thoughtful observers in the Northwest remedied the difficulty however, by carefully planting selections from the woods intermixed with seedlings and importations from neighboring localities, and succeeded in establishing groups that for productiveness (and shall I say for quality) leave the product of the *Prunus Domestica* altogether in the shade. Such success has thus far been achieved by the Northwest plum growers that Prof. Goff, in October, 1897, published Bulletin No. 63, in which are listed about 200 named varieties of plum, and says "People who have been accustomed to fine European plums of our markets generally pronounce the native plum as greatly inferior to them * * but those who have become accustomed to the finer sorts of native plums and have learned their value for culinary use think differently," and again "the thickness and harshness of the skin is, perhaps, the most serious objection to the native plum. But when divested of the skin the flesh of the finer sorts is scarcely surpassed in richness by that of any of the stone fruits." In size, perhaps the native plum may not be able to compete with imported kinds, yet last fall I saw exposed for sale in the Hudson's Bay Co's and other stores here plump crimson and yellow beauties, whose sun-kissed

cheeks blushed the rather from native modesty than from conscious inferiority to their purple and tawny neighbors grown under cloudier skies, and for solidity of flesh, richness of flavor and general culinary utility, many housekeepers in the City of Winnipeg will bear testimony to the fact that not a few of them are up to the standard and superior to most of the British Columbia, Washington, Oregon and California fruit, whose tooth-pierced or heat-burst, inflated skins only give forth insipid drinks of perfumed water.

Properly planted plums will succeed in almost any kind of good soil in rows say 10 ft. to 12 ft. apart, 6 ft. to 8 ft. in the row, alternating the different varieties for the purpose of supplying pollen to infertile kinds. They should be kept clear of weeds and grass for some distance about their roots, and in their early life hoed crops should be grown between the trees, but not too close to them. Trees after coming to bearing, whose fruit is found not desirable, may be grafted with the better kinds, and so in a few years the orchard can be made a profitable one. When once established in bearing, a good mulch annually of fresh barn yard or chip manure will be all that is necessary to keep up the fertility of the soil and check the weeds.

Broken or bruised limbs, as a rule, are all that is necessary to be removed by way of pruning, and this should be done either late in the fall with grafting wax covering of cut portion, or early in the spring before the buds begin to swell. Low-branched trees, say two or three feet from the ground, seem to succeed best; and where there is a danger of heavily laden large limbs splitting from the trunk, a good sized nail, bolt or stout prop will usually tide over the difficulty. The Curculio, so far as my experience goes, is unknown. Plum Aphis some seasons puts in full work denuding the trees of leaves and stopping expansion of fruit. For the prevention of this, as soon as the leaves are about half grown, and before they begin to curl, kerosene emulsion is recommended. This is made as follows: Place one pint of kero-

sene in a tin can that is provided with a screw top or tight cork, then dissolve one-fourth pound of good hard soap or one quart of soft soap in two quarts of boiling water; pour the boiling soap solution into the can; close it quickly and shake it violently for one minute; before using dilute the emulsion with an equal bulk of cold water. Spraying should be done so as to get the emulsion on the underside of the leaves. Where there are only a few trees each tree may be enveloped by a canvas tent or other material and fumigated with burning tobacco refuse. The black knot is a prevalent disease in the woods, and must be sternly fought in the plum grove. Unspraying use of the knife is the surest remedy. Shot hole fungus is also bad, but as the bearing capacity of the trees does not seem to be materially affected thereby nothing has been tried for its abatement. If, however, on further trial, any signs of weakness show themselves, re-grafting the limbs and burning the severed ones will, no doubt, decrease the evil, or perhaps spraying with Bordeaux mixture in the early spring would less affect the vitality of the tree and be as effective. Plum pocket on early flowering kinds is very prevalent some seasons, but often is rather a benefit to the crop in thinning out the fruit than otherwise, as many varieties of plums now under cultivation are not out of the experimental stage (though probably some of them may be found to be better fruit than the following list). Perhaps for the present it is wise only to recommend for Manitoba the most popular kinds that have for some years been in bearing and succeeding well here. There are De Soto, Forest Garden, Rollingstone, Weaver, Hawkeye and Cheney.

In conclusion permit me to add recipes which, if followed, will do more to boom the native plum than any eulogies of mine could possibly be expected to do:

To enable those unfamiliar with the qualities of the native plums to make the best use of them, Prof. Goff submits recipes for the various preparations to which they are

adapted. The recipes have been contributed by several ladies who have had long experience in using the native plums. The native plums, especially those with firm pulp, after being treated by any of the methods mentioned below are well adapted to all purposes for which the foreign plums are used. As a rule more sugar is required for native plums, but the preparations are richer in proportion. The harshness of the skin and stone of some native plums is rapidly removed by steaming them in an ordinary cooking steamer until the skin cracks; or pour over them boiling water to which has been added common baking soda in the proportion of half a teaspoonful to a quart. The thicker skinned varieties may be readily peeled by placing them in boiling water for two or three minutes.

STEWING.—Use ripe fruit and stew in just water enough to keep them from burning, until nearly soft, then add sugar to suit the taste.

CANNING.—Pick the fruit when well colored, but a little hard, steam or cook in a porcelain-lined kettle until tender, put in cans that have first been treated to boiling water, and cover with boiling syrup made of equal parts of granulated sugar and water, filling the can to the top; then run a silver knife around the can inside to let out the air, and seal at once. Plums cooked in the syrup are likely to be tough. Canned plums may be used for pies and for mixing with or flavoring other fruits. Plums are often canned without sugar to be used in the winter for making fresh plum butter. The juice of canned plums makes excellent jelly.

DRYING.—De Soto, Wyant, and doubtless other varieties, may be pared, pitted, spread on plates, lightly sprinkled with sugar and dried, first in the oven and later in the sun. Cook like dried peaches.

PLUM JELLY.—The fruit should be gathered when only part ripe—about half colored. This point is very essential. Put plums in a large granite or porcelain kettle—the latter the best—with barely enough water to cover them. Cook

until tender, but not until they are a pulpy mass. Having previously covered a large jar with a cloth, strain the fruit in and let the juice drip through, but do not squeeze. When all has drained through, strain once or twice more through another cloth until the juice is perfectly clear. To one measure of juice provide one measure of granulated sugar, but do not put together at once. A very important point in the making of all jelly is that only a small quantity should be cooked at one time. Into a medium-sized kettle put, say, 4 tumblers of juice; let it boil briskly for 15 or 20 minutes, then add the 4 tumblers of sugar, and in a short time—usually from 3 to 10 minutes—the jelly will be finished, light, clear and delicious. To test the jelly, dip a spoon into the boiling juice and sugar and hold it up; when the jelly clings to the spoon in thick drops, take it off quickly and put into jelly glasses. The plum pulp which is left can be put through a colander and used for plum butter.

The following point is regarded as important by one contributor: The earlier in the morning and the clearer the day the better will be your jelly. A cloudy day makes dark jelly, and if not made early in the day the juice requires boiling so much longer that the jelly is dark, and sometimes it is almost impossible to get it to jelly.

Another correspondent writes: "It is well to test it after (boiling) 15 minutes, taking a teaspoonful at a time into a saucer and standing in a cool place for a moment; scrape it on one side with a spoon, and if it is done the surface will be partly solid; then roll the tumblers in boiling water quickly and fill them with the jelly. On the top, while it is still hot, drop a lump of clean paraffine which will melt and cover the top thickly, preventing all molding. If prepared in this way it will not need to be tied with brandied paper or other special care taken."

PLUM BUTTER, JAM OR MARMALADE.—Boil the fruit in clear water until nearly done; remove from the stove and put through a colander to remove the pits; then rub through

a sieve to make pulp fine; place pulp in kettle with about half as much sugar as pulp, or if you wish to have it very rich, nearly as much sugar as pulp, and boil down to the desired thickness; stir almost constantly to prevent sticking to the kettle.

Another recipe.—To make very nice plum butter out of De Soto, Wyant and other freestone pulp pare and take out pits, put in granite kettle or pan and sprinkle heavily with sugar, and let stand over night. In the morning there will be juice enough to cook them. Stir constantly while cooking and add more sugar if not sweet enough. This way preserves the grain of fruit, and which, with the De Soto plums makes a butter equal or superior to the peach butter. If put in glass and canned, less cooking is required than if kept in open jars.

A third correspondent would add: "Do not attempt to make a fine quality of either plum butter jam or marmalade without first steaming the fruit.

PLUM PRESERVES.—Use plums that will peel, like Wild Goose or Pottawattamie. No water is required if the sugar is allowed to remain on them long enough to draw out the juice. Boil until the syrup is clear and as thick as honey.

Another recipe.—Take equal weights of fruit and sugar, place in stone jar; a layer of fruit then a layer of sugar—alternate thus until quality required is reached; let stand over night; in morning drain off the syrup that will have formed into a porcelain-lined kettle; place some over the fire and let syrup come to a boil, then pour it over the fruit in jar again; repeat this every other day until the fourth heating when fruit and syrup are both put in the kettle and boiled for a few minutes; place same in glass jars while hot; seal and put away in some cool and perfectly dark place.

Still another recipe.—To each pound of plums add a pound of sugar; put the fruit into boiling water until the

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skin will slip; peel and sprinkle sugar upon each layer of fruit in the bowl, allowing them to stand over night, then pour off the juice, bring quickly to a boil, skin and add the plums; cook very slowly till tender and clear, which will take about half an hour; take them out carefully and put into a pan; boil the syrup a few minutes longer till it thickens; pour it over the fruit; seal or tie them up.

SPICED PLUMS.—Make a syrup, allowing 5 pounds of sugar to 1 pint of vinegar to each 7 pounds of plums; to this add a teaspoonful of allspice, 1 of cloves, 2 of cinnamon and half ounce of ginger root, tying these spices into muslin, cooking them in the syrup; when it boils add the plums, bringing all to a boiling point, then simmer slowly for 15 minutes, and stand in a cool place over night. Next drain the syrup from the plums, put the plums into stone or glass jars, and boil the syrup till quite thick, then pour it over the fruit and set away.

Another correspondent recommends pouring the boiling spice syrup over the plums in a stone jar, bringing it off and boiling it every other day and pouring it over again until it has been heated five times, after which the fruit and the syrup are placed in the kettle and boiled slowly for five minutes and sealed hot in glass jars. This is to preserve the plums whole.

Other ways of using native plums.—The choicest varieties, peeled, and served fresh are equal to the finest peaches. By simply covering the fresh plums with cold well water they may be kept for three weeks or longer, and the water removes all harshness from the skin and pit. They may be kept in good condition for use until winter or the following spring by placing in a barrel or jar and pouring boiling water over them.

DISCUSSION.

MR. BEDFORD. I heartily approve of all that Mr. Frankland has said in favor of the native plum. We have more difficulty in plum growing in Brandon than Mr. Frankland has at Stonewall, and I may say that we find the Cheney and De Sota about the same with us.

PROFESSOR BAIRD. I would like to ask Mr. Frankland what plum trees he would recommend for city gardens?

A. The Cheney and De Sota.

MR. WAUGH. I do not see Mr. McIntosh here, but I am sure the De Sota plums did not ripen with him last year.

MR. BEDFORD. How do you like the Cheney?

MR. FRANKLAND. I like it very well, but the cold weather in bloom time affected them more than the native plums.

MR. WHELLAMS. If you take the trees from the woods is it not necessary to prune a great deal from them?

MR. FRANKLAND. I have not done much in bringing trees from the woods, but in moving trees it is best not to take the largest; the smaller ones do much better.

MR. WHELLAMS. I do not mean the roots, I mean the branches.

MR. FRANKLAND. All trees taken from the woods need a good deal of cutting.

MR. WHELLAMS. If you did bring trees from the woods what size would you choose?

MR. FRANKLAND. Oh, almost any size, as long as you were careful to take up all the roots, but the larger the tree the further you would have to take up the soil; perhaps three or four feet from the roots. I would not bring trees from the woods; I think it is much better to plant the seed.

MR. MUNROE. Is it advisable to plant plum pits direct in the fall?

MR. FRANKLAND. That is a point well taken. Plum pits should be washed thoroughly, spread out to dry, and when quite dry put them in a box alternating with layers of sand until the box is full. Cover with a lid and freeze thoroughly; when they are thawed out they are ready to plant. The washing is a very important part of the operation, as if they are not washed they may not germinate for two years. Prepared in the way I have described, and put in the ground early in the spring, they will begin to come up in the latter part of May or

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early in June. But you may find all you plant cut down in a single night with cut worms.

MR. MUNROE. I visited Professor Gough's place in Minnesota last fall, and he was planting plum pits then. He had washed them first. He told me he had the same experience as you had with the cut worms.

MR. STEVENSON. In our part of the country pits are likely to be heaved out of the ground by the frost, and I think you will find the advantage of a little mulch.

MR. BEDFORD. I think we must conclude this discussion and call for Mr. Stevenson's paper on "What the Past Year Has Taught Us."



What the Past Year Has Taught Us,

BY A. P. STEVENSON.

The mild winter of the past year naturally led to the belief that a good crop of fruit would be gathered, but we were grievously disappointed, our crop of small fruit being the poorest reaped in twelve years. As spring advanced it soon became evident that the red and yellow raspberries would be an entire failure, as the canes were all killed to the ground. The reasons for this wholesale destruction are not altogether clear, but I have no doubt our dry fall and the lack of good covering of snow is responsible to some extent for the injury. With us six varieties of red raspberries are under cultivation. All were equally killed down. During the past summer these have all made extra strong growth of canes, which indicates that the roots had been in no way injured.

All black raspberry canes are laid down every fall and partially covered with earth. This, with the usual fall of

snow we have every winter, has been generally found sufficient protection to secure a fair paying crop. But last winter proved the fallacy of this plan, as the canes were all more or less injured, while in a few cases, where a full covering was given, very little injury was noticeable. The lesson learned here will not be forgotten. No half covering with earth will be practised in the future.

It was also interesting to note the various degrees of hardiness of the different varieties of Blackcaps. Under the same conditions the canes of the Gregg were entirely killed; Shaffers, two-thirds; Hilborn, one-half; Older, one-quarter; Golden Queen (yellow) raspberry canes were killed to the ground even with full protection, but without covering of snow. From observations made last spring, I consider this to be the most tender of all varieties grown with us.

Our yield of black raspberries I estimate at half a crop. The fruit was below the average in size and quality.

For the first time also a fair amount of fruit was picked from wood of the present year's growth. This is a condition not to be desired as these rather precocious canes bear no further crops.

Dewberry canes, generally admitted to be more tender than the Blackcaps, showed no signs of injury, but to their covering of earth they had a fair covering of snow. Again, as on the previous year, a heavy crop of this fruit was gathered. The berries are about the size and color of the Snider blackberry, but finer in quality and fully two weeks earlier. It takes longer to get established than the Blackcap. The canes are finer and of a more sprawling habit, and should be trained on a low trellis. The variety here referred to is known as the Windom. The Lucretia, a variety much grown in the east, has not given satisfaction and has been discarded.

It is generally understood that currants of all varieties are equally hardy and quite safe to plant anywhere, but last winter has taught us different. We have seven varieties of

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the red currant in cultivation. I give them in the order of merit as I have found them: Raby Castle, Long Bunch Holland; Stewart's Seedling, North Star, Fay's Prolific, and Cherry Red. The last named variety was killed out root and branch last winter. White Grape and Black Naples came out strong and vigorous. Black Champion and White Gondoin were killed to the roots. In due time all these weaklings were consigned to the brush pile and the vacancies filled with the hardier varieties.

The gooseberry crop was almost an entire failure. Even canes of the hardy Houghton were badly injured. This variety is our standard of hardiness, and has usually given fine crops without any protection. I think it would pay to give it some winter covering, but I have no particular desire to undertake the experiment.

On the removal of mulch from the strawberry bed one-third of the plants were found dead. A dry fall, too light covering, and light snow fall,—these three combined brought about this result. Lesson here—heavier covering with clean straw, six to eight inches deep. The size and yield of fruit was below the average of other years. With the varieties we have in cultivation the matted row system gives best results. Some authorities say that it depends somewhat on the variety grown as to best results from either system. The Jessie and Parker Earle varieties are supposed to give more abundant crops when grown on the hill system.

The Sand Cherry crop was extra heavy on Minnesota grown bushes. Eastern grown varieties were all killed to the roots. Some of the fruit was of fair size and quality. Some of the bushes were top worked with scions of the Compass Cherry. This is a new fruit, originated in Minnesota, said to be of fair size and quality. It is a cross between the Sand Cherry and the Miner Plum. Most of the scions have made fine growth. In the future I hope to have something further to say about this new fruit.

The lessons from the Plum patch are something like as follows: Some varieties that I would have recommended with every confidence last year, I would not do so now. The greatest disappointment was with a variety named Bixby. They came into bearing three years ago, and were full of promise, the fruit being of fine quality. But last winter swept them all to the brush pile, along with a lot of smaller fry. The Cheney is by far the best and largest plum we have yet fruited of twelve varieties. The fruit is ripe about the middle of September. I notice that the plum pocket affects this variety more than any of the others, but it sets so much fruit that it can easily afford to lose half. Another trouble with this variety and also with the Newton Egg Plum, more noticeable as the trees get older, is a weakness in the crotches of the limbs. The only remedy I can suggest is, train the tree to a single stem eighteen inches to two feet from the ground.

Last spring found all our grape vines killed to the ground. They were mulched as usual in the fall with a fair covering of earth, four to six inches deep. I neglected to mulch with straw. I knew it before, but suffered another reminder.

Cherry trees, six years old, of the Bessarabian, Vladimir and Ostheim varieties were killed to the ground. They had lingered on for years and had given a few specimens of fruit, but their days were full of trouble. Last winter put a period to their existence, and they finally reached that goal of so many blasted hopes—the brush pile.

A Russian variety named Shubianca, planted the same time as the above, stood the test of last winter without any apparent injury, and a fair crop of fruit last summer was gathered, of fair size and quality. This variety is so promising that it is the intention to increase the plant this year.

Six years ago seedlings of twenty different varieties of Russian Cherries were planted; of these only one remains, and it is now a fine healthy, hardy tree, eight to nine feet

high, and gave first specimens of fruit last summer of such size and quality as to warrant its further propagation.

Among the ornamental shrubs a few failures were noticed. Strawberry Tree, Russian Hop Tree and Russian Mock Orange, have been thrown out as being worthless on account of their being too tender to stand our winters.

On the other hand some varieties have increased in favor. Among those worthy of mention are Russian Snowball, Siberian Almond, Mock Orange, 144 Varonish, Mock Orange Grandifolia, Sea Buckthorn, Ginnalian Maple, Golden Elderberry, Russian Olive, L. Media, a number of Spireas and Barberries. The last mentioned, to my mind, are fully as ornamental in winter as in summer. At the present time the bushes are covered with hanging clusters of bright scarlet berries.

The black list among the roses was very heavy. The Hybrid perpetuals died almost unanimously, although carefully protected.

The semi-double Rosa-Burgosa rose are the hardiest of all good roses we have in cultivation. It has stood for nine winters without any protection. Other roses that we considered fairly hardy, such as Scotch Yellow and Old Cabbage, were killed back to some extent for the first time last year.

While the past winter bore hard on all small fruits in our locality, crab apples, wherever grown, were an extra heavy crop. Our most prolific crop is the Transcendant, one tree alone yielding fully two barrels of apples. This is the first variety to blossom in spring; on that account there is some danger in certain localities of injury to the blossom by frost.

Mulching around the roots of the trees with half rotted straw, above the snow during winter, has been tried in order to retard early blooming, but without any apparent advantage.

Sweet Busnett is the name of another variety deserving of special mention on account of its fair cooking qualities,

very little crab flavor being noticeable. Ten varieties of Russian apple trees carried fruit to maturity last summer. Blushed Calville, a summer variety, bore rather better than a bushel of apples of good size and of fair dessert quality, and were ripe on the 25th August. A weakness of this variety, more noticeable than in previous years, was its tendency to drop its fruit with every high wind.

The following fall varieties also carried full crops of large to extra large apples, suitable for cooking purposes:—Lieby, Ostrekoff, Silken Leaf, and Russian Gravenstein. The latter variety is, in quality, size, coloring and appearance, second to none of our eastern grown apples. A number of the Wealthy apple trees were again well loaded with fine large apples. One of the lessons learned among the apple trees the past summer is from the flat headed apple tree borer. Their work was first noticed last fall, when they worked considerable damage. They are detected by the borings or sawdust-like castings found at the root of the tree. When this is noticed the parts should be cut into with a knife until the borer is found.

Three years ago the first attempt at topworking the large apple on the crabapple was tried. So far as noted it has been a success. A number of the scions first inserted bearing heavily the past summer. The benefit of this work consists in the fact that top-working a half hardy scion on a hardy stock increases the hardiness of the scion. Such varieties of crabapple trees as Transcendant, Hyslop, Sweet Russett and Virginia, are congenial stocks, and make a firm union with the large apple.

The lack of a snow covering on the perennial flower beds killed out a few varieties, such as Sweet William, Pinks, Perennial Phlox and Bleeding Heart. But the following varieties grew vigorously, and with age appear to increase in beauty: Dictaminus, all the Larkspurs, Platycodon, the various Columbines, Coreopsis, Achillea, and a number of others. These are all hardy and desirable and are easily propagated.

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The most prominent lesson, gathered from last year's experience, is, that our greatest difficulty in growing fruits here is not altogether our severe winters, but our snowless ones; and also that considerable care should be exercised in recommending different varieties of fruits for general planting before passing through at least one of our test winters.

DISCUSSION.

MR. WHELLAMS. Did you say the gooseberries were killed?

A. Yes.

MR. WHELLAMS. I had the same experience as you had with everything except the gooseberries; they came out well and were a fine crop. The variety I have is Smith's Improved.

Q. What time should canes be covered?

A. About the middle of October.

Q. What is the latest date at which they could be covered?

A. Last week of October. The early covering is better. Last year the frost came very early in October, and the thermometer went down to zero. I think it was then that many of the canes were destroyed.

MR. HAY. With regard to roses, I have cultivated a few varieties. I had some completely covered, some only partly covered. The shrubs that were completely covered suffered the most. I really think the uncovered shrubs do the best.

MR. ALSTON. I am of opinion that much of the trouble came from the early frost, because we had shrubs that were well covered with snow all winter and they were the worst frozen and I attribute that to the early frost.

MR. BEDFORD. This bears out the experience we had at the Experimental Farm.

We will now have Mr. McKay's paper on "Fruit Cultivation in the Territories."

MR. MCKAY. I may say that I am very glad to be here and to listen to the papers that have been read and the very interesting discussions that have taken place. I can very soon tell you what we have done in the line of fruit growing in the territories and leave you to draw your own conclusions. I may say, however, that the first perfect apple was grown on the farm this summer, but a visitor carried it off in his pocket, and I doubt very much if he would be able to find it afterwards.

Fruit Growing in the Territories.

BY ANGUS McKAY.

Fruit-growing in the Northwest labors under many disadvantages, the principal of which are : severe cold in winter with little snow to cover the bushes or vines ; hot days and cold nights in April and frosts in May. Whether the cold of winter or the thawing and freezing in April does the most permanent injury to the bushes is hard to say ; but both, no doubt, are accountable for many of the failures in fruit culture. Frost or absence of frost in May, when the blossoms are forming or fruit is setting, determines the extent of the fruit crop throughout the country.

Red, white and black currants, raspberries, gooseberries and strawberries are the only varieties of fruit that have so far been successfully grown in the Territories. Native varieties of black currants and gooseberries are cultivated to a small extent but are being replaced by introduced sorts as rapidly as cuttings of bushes can be obtained.

The native plum of Manitoba as well as improved varieties, such as Weaver, Speer, De Sota's seedlings, etc., are being introduced and grown with a fair measure of success. The native plum of Manitoba has, after several years testing, been found suitable ; its hardiness and early ripening qualities recommending it for general use in the Territories, where seasons are short. The improved sorts, with the exception of Weaver Seedlings, have not yet borne fruit, and cannot be recommended or condemned. Weaver produced fruit last year, which, however, did not come to maturity.

Cherries, with the exception of Sand, Rocky Mountain, and other varieties of the same nature, have proved a complete failure. Many of the Sand and Rocky Mountain bushes have borne fruit each year. As a rule, however, the cherries

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have been small and worthless. A few bushes have had larger sized fruit, and when these can be propagated or produced in quantities a fairly good cherry will be available for distribution and cultivation in the Territories.

With apples the failure was complete.

At present several varieties of *Pyrus* or Wild Crab of Siberia are promising. They stand the climate, and by cross-fertilization with improved, hardy Crabs, may prove very desirable for the Northwest.

Grapes have also proved a complete failure. Even the native Manitoba grape found along the banks of the Red river and elsewhere, though existing from year to year, has failed to produce fruit.

Currants are the most satisfactory fruit grown in the Territories. The abundant crop usually produced, and the slight risk of failure of crop from any cause whatever, makes this fruit by far the best for general cultivation. Red, white and black currants are equally hardy.

Such varieties as Fay's Prolific, Baby Castle, Red Grape, Cherry, La Varseilles, Victoria, White Grape, Black Naples, Lee's Prolific and Champion, together with many newer varieties, have produced fruit year after year on the Experimental farm without the loss of a bush from climatic conditions, and very seldom with anything but a good crop. Last year, frost at the end of May killed the black currant blossoms, causing the first loss of crop in eleven years.

Fay's Prolific and Cherry are not heavy bearers, but Baby Castle, Red and White grape and the three named black varieties are all prolific yielders.

Plenty of space is required to obtain the best results from currants. At least five feet each way between bushes should be allowed, and where possible, protection should be afforded by means of a hedge or fence. Winds are not beneficial to currants any more than to other varieties of fruit.

Before June rains come one cultivation of the plot is necessary, after which the surface should be kept loose until such time as the fruit is fully formed. No more work is required after this, as it is advisable to allow the new wood to ripen as soon as possible, and the fruit buds to be well advanced before the frost sets in.

Where time can be spared for care and attention, raspberries can be made a success in any part of the Northwest.

Turner, Dr. Reider, Philadelphia, Caroline, Golden Queen and Cuthbert are suitable varieties, the three former being the hardiest.

All sorts require protection, and whether expected to be under a snow-bank or not, the canes should be laid down during the last week in October and covered with two inches of earth. Coarse manure will answer the purpose if a good snow-bank is to be depended upon.

Like all other fruit bushes, raspberries require a large amount of moisture for the production and proper maturing of their fruit; and should therefore be planted sufficiently far apart to ensure the largest possible supply. Four feet apart in rows five or six feet apart will be found to be about the correct distance for planting.

All new growth should be kept down with the exception of five or six canes in each hill for fruiting the next season. These should be as vigorous as possible and can only be made so by cultivation of the plot and suppression of all other growth.

Where soil is light a heavy application of well rotted manure should be given each year. This can easily be done by putting the manure in the trenches made when covering the canes in the fall.

The most critical time in the growing of raspberries is when the canes are being uncovered in the spring. If done just before a frost of a few degrees the canes, being in a very

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tender state, are liable to injury. Two or three days without frost will, however, ensure them to stand very severe weather.

The cultivation necessary to the best success is the same as for Currants.

Gooseberries, except where they can be grown near protection from winds and wintered under a snow-bank, are not a success in this country. From the nature of the bush it is a difficult one to protect in the winter, and without protection the crop produced will be small, if not an entire failure. A good deep snow-bank ensures a good crop of fruit. Gooseberry bushes require considerable moisture and to secure it should be set out five feet apart each way. This, with the same cultivation as for currants, generally affords sufficient moisture even in the driest year.

Strawberries are the most uncertain of all the small fruits. As a rule the roots stand the most severe weather, only to succumb to spring thaws and frosts. If both these are weathered the blossoms are almost sure to be caught by frost later on. If this critical time is passed in safety, which rarely happens, dry weather sets in before the fruit is matured and the crop is at best a poor one.

Mulching in winter to retard early spring exposure, and consequently the blossoming period, together with irrigation, or abundant rains may cause the production of a fair crop. In some places irrigation for small plots is available, but the benefits of mulching have not as yet been clearly demonstrated. Very often plots not mulched have given the best results, while in other years the mulched plots, if uncovered at the proper time, have given the larger yields.

The great difficulty is in hitting on the right time to uncover.

In previous years on the Experimental Farm, mulching was done in the fall before the snow fell. It is the intention this year to mulch with straw or coarse manure just before the snow commences to melt in the spring, as where snow is

under a covering of straw it does not melt for several weeks after the exposed snow has been taken off.

The native fruits most generally found in the Territories are Red and Black Currants, Gooseberries, Red Raspberries, Strawberries, Saskatoons, High-bush Cranberries, Buffalo Berries and Pin and Choke Cherries.

Black Currants and Gooseberries improve in size, if cultivated and kept well pruned, but require a great deal of attention in this respect. Wild raspberries and strawberries do not seem to improve under cultivation and are as liable to suffer from spring frosts as the introduced varieties.

Saskatoons, which grow in great profusion throughout the Territories and are the most commonly used fruit we have, improve in size but not in flavor, and do best where protection from winds is available.

The High-bush Cranberry, on account of the large seed each berry contains, is not generally used.

The Buffalo berry grows only in certain localities, and being intensely acid, is used entirely for flavoring other fruits.

Pin or Choke Cherries are used for the same purpose, but are found in every part of the country.

Hedges, or protection of some kind, are absolutely necessary to success in fruit culture. As a rule fruit bushes should be planted on the east side of the protection. The prevailing winds being north-west, and south-west, the greatest amount of snow will be collected on the east side of a hedge running north and south.

Gooseberry bushes should be planted nearest the protection, then raspberries followed by currants.

Hedges for wind protection should be provided on north and south ends of the plot.

Protection from five to seven feet high is more suitable for fruit than a greater height, high protection admitting of

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less circulation of air, thereby increasing the danger from frost. It also shuts out the sun in the afternoon from too great an area.

Fruit hedges should be close and compact. Fruit bushes require the greatest amount of protection in the latter part of April and the beginning of May when blossoms and leaves are starting. Winds are generally at their worst during this period and with an open hedge the protection is not sufficient.

Artemisia or Southern wood is probably the best plant for a close hedge as it is equally as effective whether in leaf or not, and with very little labor can be kept in good order.

In conclusion allow us to say that weeds are not an advantage in a fruit garden, in fact they do great injury by robbing the bushes or vines of a great deal of the moisture so essential to the success of the crop of fruit, and if a man cannot find time to attend to them he should give up the idea of trying to raise fruit.

Fruit growers should also bear in mind that judicious pruning is an important factor in growing any fruit tree or bush. Before the bush begins to leaf out is the proper time to do the work.

DISCUSSION.

Question. To what do you attribute the failure of the raspberries?

MR. MCKAY. A good deal to the fact that the wood was not fully grown when the canes were laid down.

Question. What side do you consider the best for a shelter hedge?

MR. MCKAY. I used to think a northern exposure for hedges was best but I have changed my mind and now think it is best to plant bushes on the east side of the hedge.

MR. MCKENZIE. What is the altitude of the Experimental Farm at Indian Head?

MR. MCKAY. I think about 1700 feet.

MR. BEDFORD. I would like to prolong this discussion but it is getting late so we will call upon Mr. J. J. Gunn, of Gonor, for his paper on "Bee Culture."

Bee Culture.

BY MR. J. J. GUNN, OF GONOR, MAN.

Mr. President, when you paid me the compliment, sir, of asking me to read a paper to-night, on the subject of bee culture, my first impulse was to decline the honor. It seemed too extremely absurd that one whose whole knowledge of the subject was derived from twelve years experience with a small number of colonies should presume to discuss it before an audience in which might be men who had grown old in the business. But when I reflected that no one had as yet grown very old as a Manitoba bee-keeper; and that, as our interest centered about the possibilities of the business in this province, the experience of twelve years here might be worth more to members of this society than that of a lifetime elsewhere, I concluded that there was most likely some method in your seeming madness after all, and so decided to make an effort to meet your wish.

It occurs to me, too, that perhaps the man most in need of a few friendly pointers is he who comes to this province with a hat-full of knowledge and methods that might, and perhaps did ensure him success in Ontario. More than one such, after costly failures, regret not having thrown that hat, and most of what it contained, into the fence corner, and studied local conditions.

The summer management of bees will be about the same here as elsewhere, and in that regard the experience of such men will always be valuable, and by amateurs like myself anxiously sought after.

It is the wintering problem that brings us up against conditions peculiarly our own, and on this problem some few of us have been working for a number of years now, each in

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his own way, but all, I believe, reaching the same conclusion—that the answer is to be found in a dry and ventilated cellar.

See to the ventilation whatever else you may neglect. Let the cellar have ventilation; and let each hive have ventilation, and if your cellar is dark and quiet and not too cold, say ten or fifteen degrees above freezing, your bees will winter all right.

To show the necessity of having the hives ventilated, as well as the cellar, I may say we use two kinds of covers on our hives, one perfectly flat and the other having a slight rise towards the middle, like a low roof. This latter cover has a ventilation hole in either end, while the other admits no ventilation whatever. Now on taking a look the other day, I found the hives with the ventilated covers perfectly dry, while the others were damp.

When to put bees into, and when to remove them from winter quarters, are points where one must use judgment, and be governed by circumstances. I find that we have left them out as late as the first week in January, and on one occasion removed them from the cellar on the first day of April. Last spring I took them out on April 13th. The snow was then about all gone, and the weather warm and apparently settled. Ten days later they were taking in pollen. I returned them to the cellar on the ninth of November, three days after the first heavy snow fall.

Now, April 1st, and even April 13th, may seem too early to take bees out, particularly in view of the fact that there was no bloom till ten days later, and certainly if the bees are dry and healthy there is nothing to be gained by taking them out before the willows begin to bloom. On the other hand if the hives are damp and foul smelling a few days more or less of confinement may mean life or death to your stock.

Here I would note that a circumstance favorable to keeping them late in winter quarters is the depth to which the

frost penetrates the soil here, rendering it late before the spring warmth can make itself felt in the cellar and cause the bees to become restless.

The question whether bee culture can be made a paying industry in the West has been satisfactorily answered, I believe, by the results obtained whenever wintering has proved successful.

One hundred pounds of honey per hive has been an ordinary yield with us. The summer of 1897 was perhaps the best we have known. And that year we extracted 143 pounds of honey per hive, spring count, and this of uniformly good quality. Last summer was not so favorable, the honey season being broken by windy and rainy weather. Still the average came to 110 pounds, spring count.

In view of such returns there seems no reason why bee keeping should not prove profitable industry in this country. There is no reason why it may not be made a profitable as well as a pleasant adjunct to farming and other occupations, surely.

Now, sir, if I were going to advise those who may be contemplating giving bee culture a trial, my first word would be to do as Mr. Bedford suggested in his paper last year, begin small. If you have had no previous experience, one or two hives will do. If you get one good colony early in June you will most likely have three to winter; though experience will soon convince you that two are more to be desired than three.

You will also require say three empty hives and frames for the same, with a few pounds of comb foundation, a veil and a pair of gloves. This outfit may be had for about \$16. An extractor and honey knife may be got for \$9 or \$10 more, and these I would advise procuring the first season, as then you can begin to realize at once on your investment.

I would not advise any man who requires advice to work for comb honey. When one has become an expert in the

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management of bees he may prefer doing so. I work for extracted honey alone. It is a simpler operation and all things considered is, I believe, as profitable as the other—perhaps more so. As to handling: The happiest time in a bee's life is when he is working hard, especially if his task is taking in honey; and this is the time to do business with him. Take a sunny afternoon and a calm one if possible to do your extracting and any other work necessitating the opening of the hives, and nine times in ten you will find the "few puffs of smoke" recommended by so many to be worse than superfluous. I never use a smoker, though we have them about the place; but I would advise beginners to use veil and gloves. If they find they can do without them as they get acquainted with their work, well and good. Avoid sudden and violent movements among your bees; all jarring and jolting of hives; treat them well, paying due regard to their habits and peculiarities of disposition, and generally you will be treated well by them.

Some discussion has taken place on the subject of non-granulating honey. I have samples taken at different dates last summer from July 20th to September 20th. Some of them granulated within a few weeks, others more slowly, while one sample, taken August 11th, has not granulated yet. I cannot say what plants the bees were working on about that date, but observation another year may help towards a solution of this question.

DISCUSSION.

Question. What are the best kind of bees to get ?

MR. GUNN. The choice seems to be always between the black and the banded bee, and I think banded bees are the best.

MR. BEDFORD. I cannot see why any man wants a veil and gloves to go amongst the bees as they always give due warning when they are going to sting, and then it is best to let them alone, as nothing can be done with them until they quiet down. They speak as plainly as any man can do when they mean mischief. I would like to see more bees kept in the province. The product of the hive is a wholesome food, and every house should have a full supply of it.

MR. MUNROE. I understand that the place in which to store the hives in winter is the most critical part of bee keeping?

MR. GUNN. Yes; I think many find it so. With this we have had comparatively little trouble. We keep the cellar well ventilated, and that is all. An Ontario bee keeper advised me to pack the hives with chaff cushions, but I think this is one of the worst things that can be done.

MR. MUNROE. Do you grow white clover for them?

MR. GUNN. No; but there is a great deal of white clover in our neighborhood. Our district was, I think, the first in which bees were kept in this country. The late Major Vaughan, of Selkirk, introduced them twenty or twenty-five years ago.

MR. MCKENZIE. I think the banded bee is much better than the black bee. I may also say that I do not find it necessary to use veil or gloves. I would like to say a word concerning the granulation of honey. There is some connection between the flow of nectar in the plants and the granulation. About mid-summer it does not granulate nearly so much.

PRESIDENT. We will now hear from Mr. W. G. Scott with regard to the legislative matter concerning birds, which was left over from the afternoon.

MR. W. G. Scott, before reading his motion, stated that the question of the protection of birds was becoming so important that the United States senate had even suspended its consideration of the question of expansion in order to consider a law on this subject.

Mr. Scott also read the following extract from

NOTICE OF MOTION.

Moved by W. G. Scott; seconded by Thos. Frankland.

WHEREAS this Society, having for its object the advancement and interests of horticulture, views with alarm the decrease in bird life in the Canadian Northwest by the destruction of the insectivorous and other birds, during nesting season, by egg hunters and by boys generally, and

WHEREAS, the existing laws, if enforced, are inadequate for the maintenance and proper balance of bird life, therefore be it resolved that the Executive of this Society be authorized:

1. To urge the Legislative Assembly of Manitoba and the Northwest Territories to pass such legislation as will result in the protection of birds, and enlarge the duties and powers of game wardens and

other officers, under the "Game Protection Act," to include the protection of insectivorous and other birds (and their eggs) useful to man.

2. To communicate with the mayors of cities and towns and reeves of municipalities to take thorough measures for the protection of these birds.

3. To request the newspapers in the Province of Manitoba and the Northwest Territories to follow the example of the "Free Press" and "Tribune" of this city, and use their efforts to stop the wholesale and wanton destruction of birds and their eggs, and agitate until some more practical legislation is enacted and enforced.

The only discussion of this question was the suggestion that hawks and owls be included. The motion then carried unanimously.

PROFESSOR BAIRD. Would it not be well to have a list of the fruits and shrubs that it is desirable to cultivate published.

Mr. Frankland moved, Mr. Whellams seconded; That the matter of preparing a list of the various fruits and shrubs recommended in the several papers be left to the Executive Committee. Carried.

Mr. W. G. Scott suggested that it might be well to publish the Minnesota list. There seemed to be a difference of opinion as to the advisability of doing so. No action was taken.

Mr. Scott moved, seconded by Mr. R. Alston, That a hearty vote of thanks be tendered those who had prepared papers for this meeting. Carried.

Mr. F. W. Heubach, Secretary of the Winnipeg Industrial Exhibition Board, being in the room, Mr. Bedford asked if he would not like to say a few words.

MR. HEUBACH. It affords me very great pleasure to be present at this gathering, though I had the misfortune to come in late. I am sure that the Exhibition Directors will be very glad to receive suggestions from your Society with regard to this branch of the Exhibition. The directors will also be glad to see a larger number of amateurs going in for the various prizes.

It was complained by someone that there was not sufficient room in the horticultural building.

Mr. Heubach said that they would be willing to provide tents for additional space, and these were effectively used in other exhibitions.

Another complaint was that there were those who entered the amateur classes who were really professionals.

MR. HEUBACH. I am glad that question has been raised. There is in this case a very easy remedy. All that is necessary is to file a protest and the matter will be taken up by the Board.

It was stated in reply to this, that the fee of \$5 that had to be put up with every protest was too large in proportion to the prizes.

MR. HEUBACH. The \$5 is only required as a guarantee of good faith in the matter of a protest. You can readily understand that if no such guarantee was required the Board would be inundated with protests from everyone who felt themselves aggrieved, whether they had grounds for so doing or not. I think, however, if you consider this amount too large, if your Association would make a representation to the Board they will be glad to consider it and see if it can be with safety decreased.

MR. BEDFORD. We found the tents answer very well in Brandon, and I might also state that I feel sure this Society could be of great help to the Exhibition Board. I know the Brandon Society were a great help to the Board of the Brandon Exhibition.

Mr. Munro moved, and Mr. Frankland seconded, That the details of the suggestions be left to the Executive to formulate and forward to the Exhibition Board.

Mr. McKay moved, and Mr. Munroe seconded, That a hearty vote of thanks be tendered the City Council for use of the Council Chamber.

The meeting then adjourned.



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Forest Conditions and Needs in Manitoba and the Northwest Territories.

(Prepared for the Annual Meeting of the Western Horticultural Society, Feb. 1896.)

BY E. F. STEPHENSON.

The great plains of Canada, stretching over half a continent, which have been kept in reserve by the omnipotent hand, that the present generation might have them for a possession and an inheritance for their children's children, have their gates wide open through which thousands are yearly entering, studding the prairie with their homes, and the products of whose fields are adding to the upbuilding of the nation.

And great provision is being made by the governments to improve and open up this country, so that its development might go on unhindered and its resources remain unimpaired. Railroads have been built, canals and ditches dug, turning swamps into fertile fields, roads and bridges constructed and many other undertakings carried out for promoting its welfare.

But while so much is being done by government expenditure to develop the bountiful resources of nature and to promote the prosperity and advancement of the country, the people themselves seem strangely lacking in an appreciation of the necessity of an intelligent co-operation, without which parliamentary enactments are of little avail. I refer more particularly to the woods and forests, the conservation of whose resources can only be maintained by the power and will of the people; nor can these resources, once wasted, be wholly restored by any efforts of the Government. It there-

fore behooves the people to take a deeper interest in the subject than they have hitherto done and to endeavour, by a study of the principles of forestry and by their practical application, to lend such assistance to the Government as will prevent further deterioration.

It will be a surprise, no doubt, to many of my hearers to learn that since this country was admitted into confederation, scarcely thirty years ago, the timber area has been reduced by nearly one-half. Hundreds of millions of feet of merchantable timber which, not more than twelve or fifteen years ago, were to be found on the Riding and Buck Mountains, has dwindled down to about 40,000,000 feet, according to a recent estimate.

The other belts of timber situated at Turtle Mountain, Moose Mountain, the Beaver Hills, and, in fact, wherever they existed, have also suffered depletion to a large extent. At the present rate at which disafforestation is taking place, in a very few years, if its progress is not arrested, the land will be almost denuded of timber. The consequences to this country of such a condition can only be measured by the dire results which have attended similar conditions in other countries.

In an excellent paper on "Forestry and National Welfare", read before the American Forestry Association a few years ago, the writer vividly pictures the evil effects following disafforestation in some of the older lands as follows:—
"The forests of Palestine and Persia were destroyed, and as a consequence the people sank from a high state of civilization to barbarism, and famine desolated the fertile regions which were the cradle of the arts and sciences when Jericho was the city of palm trees. Around the site of this historic city there is not now a single palm. The rich plains where once waved a sea of golden corn, are entirely deserted, save by roving Bedouins. The terraces, once cultivated for the support of a teeming populace, are parched and desolate; the cities that crowned every eminence are in

“ruins; the equilibrium between the animal and vegetable kingdom is lost, and the land to-day is rich only in the history of its former magnificence and grandeur.

“The kingdom of Spain was at one time the most opulent of the powers of Europe, but its decline dates back to the time when the destruction of its forests began; the climate became arid; the streams refused their life giving flow to agriculture, and the broad lands that once yielded an abundant harvest had to be abandoned for lesser fields, situated near the sources of streams and in the mountain declivities. No forests had been reserved, as in other countries of Europe, and when, in later years, they sought to remedy their mistake by following the example of their neighbours, in the work of re-forestation, they discovered that while trees produce humidity, it first requires humidity to induce the growth of trees. Confronted by this important law of Nature, they saw their well-meant efforts rewarded with only the most meagre and discouraging results, and realized then that the lesson taught them in the merciless school of experience had come to them too late for the relief of their country. They had waited too long; the point of climatic equilibrium had been passed.”

Many other examples of the evil results of disafforestation might be given. Even on our own continent, though such calamities as those depicted by the writer mentioned, have not yet befallen us, they are rapidly approaching such a stage as to cause serious alarm to all persons who have given the subject thoughtful attention.

Time will not permit of my reciting what is being done towards advancing the interests of forestry in the United States; suffice it to say that large sums of money are voted annually by the Federal and State Governments to educate and encourage the people in the rational treatment and economical use of their timber resources.

In Canada, the older and progressive province of Ontario, has been a leader in this commendable undertaking, and for

some years has kept up a forestry bureau, doing work similar to that done in the United States.

In this country the apathy shown by the populace in regard to timber matters is largely the outcome of the indifference of our Governments in the past and their failure to enforce the laws framed for the protection and preservation of the timber; thus encouraging, in a way, the belief that the matter was one of minor importance. There is annually more timber destroyed by fire than would supply the country's requirements; yet until recently nothing was done towards checking this evil. While the forests were thus allowed to be destroyed, it is not surprising that the people fell into wasteful habits regarding their treatment of them.

This apathy, however, on the part of the "powers that be" is now, happily, a thing of the past; and the Government is spending annually large sums of money to keep up Experimental Farms, where experiments in arboriculture are being continually made and where information of a most valuable nature is gradually accumulating, as well as giving instruction to the farmers in the treatment of the soil, &c. But, I regret to say, little is being done to educate the people in a knowledge of the principles of forestry in relation to its bearing on husbandry and climate. The press, too, the great moulder of public opinion, has, with a few exceptions, notably the "Manitoba Free Press" and the "Assiniboian" of Saltcoats, shown a most lamentable indifference to the importance of this great question. While columns are given, under heavy head lines, to the recording of the destruction of an hotel or a business block, a fire in the timber regions, involving possibly a direct loss of a million dollars or more, and indirect damages almost past computation, is treated by the press as one of comparatively little importance.

But the loss which has already taken place, though great and in a measure irreparable, is not of such magnitude as to cause despair for the maintenance of a sufficient forest area to meet future requirements, provided the people can be induced

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to take a proper interest in the subject and co-operate with the authorities in the furtherance of such measures as are deemed desirable to that end. The forest area burnt over will, to a large extent, reproduce itself, and if protected from fires and other destructive agents, will, in a few years, restore much of what has been lost.

The Department of the Interior has lately been giving special attention to this important matter. A system of fire patrol was kept up last season at many points in Manitoba and the Territories; and wherever these patrols were established, no fires occurred to damage the woods. The heavy belts of timber which have been set apart as permanent reservations are being fire guarded, competent rangers having been placed in charge. But the people as a rule resist the efforts of the Government officials to enforce compliance with the timber regulations, and resent, as a hardship, the effort of these officers to prevent the careless and wasteful practices that the settler, in his selfish indifference to the general welfare of the community, seems so prone to follow.

One of our leading papers in a series of excellent articles on timber preservation which appeared about a year ago, suggested the establishment of a forestry bureau, having an efficient and responsible head, charged with the single duty of supervising all matters relating to the forests; and that he should be secured against all political, local or other interferences which could impair his usefulness in the performance of his duties; and that the laws should be enforced just as stringently as are those of the Customs or other branches of the Government.

I am debarred, by my official position, from entering into this phase of the question with greater particularity, but it is one which might be made a subject for discussion at some future meeting of the Society.

I shall feel amply repaid, Mr. President, if my slight and, I fear, somewhat superficial contribution, shall have been the means of stimulating an increasing interest in this very important subject.

The Pests of the Garden.

(Read before a meeting of the Brandon Horticultural Society, 1890.)

BY THOMAS OLDHAM.

At our last monthly meeting we heard a very instructive lecture from Mr. Wedge, on the relations between plant life and animal life. Mr. H. Brown also gave us a paper on the selection of garden seeds, and how to grow them. To-night I will give a few hints on the enemies of plants generally.

When adverse weather operates injuriously on vegetation the plagues that infest garden plants usually acquire increased power in proportion to the degree of debility to which vegetation is reduced. This circumstance perfectly accords with the general law of nature, and is full of instruction as to the means of saving plants from serious injury by vermin.

The keen, dry east wind that so often jeopardizes fruit crops is usually followed by visitations of fly and maggot, and in this case the cause is beyond human power or forethought.

But neglect of watering and air-giving to pot plants can be avoided. Good cultivation not only insures fine specimens, but is often the means of preventing the plants from falling under the infestation of Aphis, Mealy Bug, and other enemies against which the gardener has to fight an unceasing battle.

It should be borne in mind that insects are among the frailest of living creatures. They perish at a touch. As they breathe through the pores of the skin, water alone—the grand promoter of life and cleanliness—is death to them; and they are still more subject to sure destruction when to the water is added an active poison, such as tobacco, or a substance that adheres to them and stops the process of breathing, such as glue, clay, sulphur, soft soap, and the preparations that are specially made to annihilate insect hosts.

The various stages through which the larger insects pass place them within our power at some period of their existence. The butterfly may float beyond the reach of harm, but in the caterpillar or the chrysalis state it can be dealt with effectually. A knowledge of the life history of injurious insects will suggest what is to be done and when, so that often by simple treatment at the right time we may compass their destruction.

The expense of preparing mixtures and washes may be in some degree lessened by economy of application. A drenching board, fitted on a firm frame, should be provided in every place where plant growing is carried on to any extent. The board should slope from a resting ridge at the base. The plant in its pot may be laid on the board, with the bottom of the pot against the resting ridge, and a pail should be put to catch the liquid used as it drains from the plant after syringing. Every general washing or fumigating should be followed by another at an interval of from a week to ten days, because, although the first operation may kill every insect, there will be many living eggs left, and these renew the race, and very soon bring the plants into as bad a state as ever, unless consigned to a happy despatch as their parents were.

In using a mixture or preparation for the first time, it is advisable to try it on one plant only, and that, of course, the worst in the collection affected. If the preparation is too strong or too weak, the truth will be declared by the state of the plant within twenty-four hours; thus a little caution may save a great loss. For we have not only the strength of the medicine to consider, but the management of the patient before and after it is administered.

It is above all things important to be thorough in the cleansing of plants.

In the time I have at my command, I can only notice a few of the "Garden Pests" and I will begin with one of the most frequent and troublesome of plant foes.

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Aphis in some form or other is the most persistent and perplexing of plant pests.

The green fly is the enemy of the softer kinds of vegetation. The tender body of the Aphis is instantly affected by conditions unfavourable to its life, and it is therefore easily killed; but its marvellous power of reproduction renders its extinction impossible, for in every instance a few escape, and very soon re-establish their race.

Two remedies against Aphis are hot water and tobacco smoke. In the case of a few small hard wooded pot plants, hot water is the best eradicator of Green Fly; but the water must in no case be more than 150° Fahrenheit. For soft textured plants 140° is the maximum allowable.

To dip plants in very hot water will be to cook them as well as the fly.

Early the next morning syringe the plants freely with soft water, and in course of an hour or so give air. Soft soap dissolved in water makes a cheap and effectual wash for exterminating all kinds of Aphis.

I would like to have given illustrations of the various kinds of Aphis, but must be content to describe them, giving some idea of the different species. The Bean Aphis, the Bean Plant Louse or Black Dolphin; *Aphis Fabae*, the female is wingless, the "pupa" or male, is black with greyish white mottlings, whilst the female is deep greenish black in colour. This insect commonly attacks the young shoots and tops of broad beans. It is well to cut off the young shoots and affected parts and burn them.

The Pea Siphon Aphis. Amongst the "Aphides" peculiar to vegetables, this is one of the most common. Here again the male is greenish winged and green tinted wingless female. These are not produced from eggs, but alive and developed. This insect is very destructive to the pea crops. With those brief notes of the Aphis, I will pass on to the fly.

The Carrot Fly—larva, pupa, and perfect insect. The ochreous shining larvae live upon the top roots of the carrot, and by eating into them cause them to rot. The body of the fly is an intensely dark greenish black, with a rusty ochreous head. The presence of the larvae in the top root is made known by the change of the carrot leaves from green to yellow. The plant should be taken up immediately and the grubs destroyed by dipping the carrots in hot water. Parsnips are often attacked by the larvae of a carrot moth, named "Depressaria Cicutella." The larvae spin webs about carrot flowers and leaves for security whilst feeding, and sometimes work fearful havoc amongst carrots and parsnips.

The Onion Fly. Onion crops are sometimes totally destroyed by the larvae of the onion fly. The flies lay eggs in the onion close to the earth, and when these eggs are hatched the larvae emerge, eat their way into the onions and frequently destroy extensive crops. The scientific name of the onion fly is "Authomyia Ceparum" and a close ally to the cabbage fly—Daddy Long Legs. In its perfect form as a fly it does no harm, but lays its eggs in the grass turf and in garden soil and its dark grubs are terribly destructive to all kinds of tender plants, cabbages, cauliflowers, tomatoes, and I have even seen whole rows of peas and wax beans eaten through with this grub. The name of this fly is Tipula.

The Turnip Fly is well known to the gardener and is the most important of all the aerial pests of the farm, and one with which it is most difficult to cope, not only because of its general diffusion and numbers, but because it produces a succession of broods throughout the summer and is therefore always in force and ready to devour the crop immediately it is ready. The so-called "Fly" is a beetle named "Haltica Memorum" a little jumping thing, strongly made and decidedly voracious. The larvae are not to be feared, except that, of course, they in due time become beetles. In its perfect state as a winged jumping insect this creature makes havoc of the turnips, but the crop is only in danger while in the seed-leaf

stage. It is in the spring and early summer chiefly that their ravages occasion perplexity, for they awaken from their winter torpor active and hungry, and have a ready appetite for almost any cruciferous plant. They will travel miles, even against the wind, to make havoc of the farmer's crop. The safest course against Turnip Fly is to promote a quick germination of the seed and strong growth of the plant in its first stage of the seed-leaf.

The cotyledons are tender and tasty, perhaps sugary from Nature's process of malting; and while the seed-leaf is assailable the "Haltica" makes the best of the shining hour.

The sprinkling of slaked lime over the young plant is at once a safe and an effectual process, and possesses the additional advantage of being beneficial to the plant.

There are a few pests, the Red Spider, Earwig and Mealy Bug, but as they are greater enemies to the green house, I need not notice them here. Potato Bug and beetle wireworm and Cucumber Worm are amongst the gardener's foes, but I should like in conclusion to speak of one other pest, perhaps not the least important, that is

THE SAN JOSE SCALE.

This is a pest that I first became acquainted with in 1862 in England while working at Paul & Sons, Chestnut, Essex, the largest rose growers in the world, having over 400 acres under cultivation in that year. We destroyed by fire several thousand choice plants, all we could trace were cast into the flames and "San Jose Scale" knew itself no more, neither did it make its appearance in following seasons in their rosary; although it is common in many parts of the stone fruit growing districts in England.

I was more than surprised when I read an act had been passed at Ottawa, last spring, prohibiting the importation of nursery stock from the States into Canada. Whether that act was good and necessary, or not, I will answer, Yes and No.

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Yes, because I believe it was the means of checking unscrupulous dealers and nursery men from importing thousands of dollars worth of worthless nursery stock into Manitoba and the Northwest.

No, because we do not raise sufficient stock for the ever increasing demand of the great Northwest, and stock from the Northern States has invariably, with few exceptions, been a greater success than that we receive from the lower provinces of Eastern Canada, and further that it will utterly fail in its object to shut out "San Jose Scale." I heard one member "whose experience should have taught him better," make the remark that, "The San Jose Scale" did not travel. I would like to know what is to prevent it from travelling. The 'pupa' or male has wings, although the female is wingless, and brownish in color. These are not produced from eggs, but alive and developed, with its larva, pupa and perfect insect.

They live upon tender leaves of roses and stone fruits generally. In the early morn they may be seen swarming from their "scale hut" by thousands, but never return to their old habitation. After devouring all the tender leaves, they send out their feelers, "like ants" suck the sap, and build houses of their own until every limb of the tree becomes covered and the tree dies. I have frequently seen under the peach, apricot and plum trees the ground literally soaked with the sap. In a few days no trace is to be found of them in their old quarters, but in other parts of the orchard they will be found making their ravages.

They seldom attack apples, pears, or small fruits. The only mode of destruction is that I have already described. Up-root the diseased trees and burn them. I thank you for your attention.

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