DATE DUE			

TRANSACTIONS

OF THE

Maine State Pomological Society

FOR THE YEAR 1898,

Including the Proceegings of the Winter Meeting held in Skowhegan, December 27, 28 and 29, 1898.

EDITED BY THE SECRETARY,

D. H. KNOWLTON.

AUGUSTA
KENNEBEC JOURNAL PRINT
1899.

CONTENTS.

REPORT OF THE SECRETARY.

The phenomenal crop of fruit borne in 1896 was followed in 1897 by a small yield in all parts of the State. Some with good reason claim that the trees were allowed to overbear and in consequence were so exhausted that they were not strong enough to bear another crop without time to recuperate. In 1897 there was a visitation of tent caterpillars (clisiocampa Americana, and clisiocampa sylvatica.) Some fought the insects with more or less success, but in the absence of effective remedies the insects matured and large numbers of eggs were deposited in fruit and forest trees. From these large numbers of insects made their appearance this year, and in many cases the foliage was completely stripped from the trees. Although spraying had been urged as an effective remedy, few were prepared with apparatus to employ it. The result was that many of the largest orchards hardly bore fruit enough for family use. Fortunately all parts of the State were not so much affected by these pests, and some parts not at all. Aroostook county is reported as shipping some fruit to other parts of the State. Waldo, Penobscot, Knox, Lincoln, Northern Somerset, Northern Franklin, Northern Oxford, Sagadahoc, Southern Cumberland and York counties had some fruit, though lacking much of a full crop. The figures representing the fruit crop in the State have been misleading. Some of these placed the yield higher than 50 per cent., but so far as your secretary can learn the crop fell much below their figures. The season was favorable for the growth of foliage and fruit where any was set, and at the close of the season the trees were looking far better than one could expect.

THE PROSPECT FOR NEXT YEAR.

It is believed by many that large numbers of caterpillars were destroyed by some parasites. This in some localities is true, but an examination of the trees shows many clusters of eggs.

In some cases the farmers are prepared to fight the insects, so their ravages are likely to be less. It is too much to expect of our trees that they will not be weakened from being obliged to bear a second crop of leaves. Some of them seem to have well developed blossom buds, but it is doubtful if they will have strength to produce much fruit.

As a matter of fact there are not a large number of our farmers who are making a business of growing fruit. They nearly all have more or less trees, but the culture and care of the trees necessary to insure good and regular crops of fruit are wanting. The secretary observed the contrast in visiting some of the orchards in Nova Scotia, where good culture and care were the rule and not the exception. Seeing how much was being done there suggested that these methods and other methods, for that matter, should be given conspicuous place in the program for the winter meeting. The fruit exhibited from there afforded an interesting object lesson for study and comparison. To the secretary this seems the all-important subject to-day, not more trees, but intelligent culture of those we now have. The specimens shown from Nova Scotia were nearly or quite free from scab. It is not the result of chance, but a skillful use of the spray pump that secured it.

OUR EXHIBITIONS.

As you are aware only the Rose and Strawberry meeting has been held. This occurred at Augusta, the smaller halls of the city building being furnished by the city without charge for the purpose. There is some difficulty in selecting a date that will cover the season of maturity in all parts of the State. The exhibits were of excellent quality, but there were fewer contributors than we hoped in consequence. The flower exhibition was a good one and under the direction of Miss Sanborn was arranged with excellent taste and to good effect. Many people came in to see the exhibition during the afternoon and evening, while those who chose enjoyed the papers and discussions. By courtesy of Supt. Sanborn of the Insane Hospital, those in attendance the day before were invited to spend the afternoon at the hospital grounds. Mr. Allen, the efficient gardener, took special pains to show us over the premises. The occasion was

made very pleasant and profitable in consequence of this hospitality and suggests in emphatic terms the desirability of more general field work in connection with our meetings and exhibitions.

The executive committee were unanimous in declining the invitation from the trustees of the State Agricultural Society to hold the usual autumn exhibition in connection with the State Fair. The terms proposed were of such a nature as to make the cost of the exhibition more than our society could afford to pay. A circular in detail was prepared by the secretary and sent out to members, during the summer.

In the absence of authority to do otherwise the executive committee decided to hold the autumn exhibition and winter meeting together, and by invitation of Skowhegan Grange we assembled in their beautiful and well equipped halls. The success of this meeting suggests, that it may be better hereafter to have the annual exhibition occur at a time when it is possible to show the public the superlative excellence of Maine fruit instead of half grown, poorly colored specimens, that can only do the cause of fruit growing irreparable injury in the future as they have done in the past.

LEGISLATION AGAINST INSECTS AND FUNGI.

In several states the injuries sustained by the attacks of insects and the growth of fungi have resulted in the passage of laws to control and so far as possible destroy these common foes. The laws in some cases make it the duty of orchardists and others to destroy the pests found on their own premises. Other states, like Massachusetts and California, have made liberal appropriations with which to fight and destroy troublesome insects and fungi. Feeling that these matters are not local, there are many who are now urging upon Congress the passage of general laws that shall apply to all the states. Fruit growers in other states have solicited the influence of our society to insure the same, but as yet no action has been taken in the matter. The time seems drawing near when there will be a demand for something of the sort.

THE OUTLOOK.

There is one thing more of which I am prompted to speak, as secretary of the society. It has been my pleasure several times in the past to say more or less upon the same subject. It is the outlook for fruit culture in Maine. I am not an optimist, by any means, neither am I a pessimist, when I say that the outlook is good. It is good in just the same sense as dairying or stock-growing. In each, well-directed efforts in this State have paid the farmers well. The richest farming towns in Maine are those in which the most intelligent production of the dairy and orchard have prevailed. They lead now and will continue to lead in the future.

Success here means no chance affair. It will come to him whose skill and industry overcome the innumerable difficulties by which fruit growing is beset. First of all, it does not mean the setting of more trees but it does mean the most skillful culture of those now standing in our orchards. We have trees enough until we know how to make them produce the best fruit. The time has gone by when nature will fill our baskets without effort on our part. There are two things involved in this—one is to raise more fruit from our trees, and the other is to make it better. It is with reference to these things that the program for our present meeting was largely shaped—and the evidence shown you on these points, I hope, will be conclusive.

The second essential is to handle and market your fruits to the best advantage. The efforts of several of our fruit growers to organize an effective fruit growers' association for disposing of our fruits did not meet with general approval. But the time is coming when fruit growers will feel the need of such an organization. The seed sown here will surely grow, and the efforts will not have been in vain. In closing, I wish to emphasize, under this head, the importance of offering for sale honest fruit, i. e., fruit that in all respects shall be just as represented. If it is No. 1 on the barrel head make the fruit so inside. It will do no harm to sell No. 2 or No. 3 fruit, but scrupulous honesty must prevent your getting the No. 2 or No. 3 into the No. 1 barrel. This matter of packing is suggested by some recent reports from the English markets, where scabby apples

made their appearance. They did not come from Maine, so it becomes my duty only to emphasize the lesson the loss to the shippers caused. The wisest course is not to allow a barrel of inferior fruit to leave the farm under any circumstances, and the growers, if they will, can control this fully. Your secretary hopes the fruit growers of Maine will do it.

D. H. KNOWLTON, *Secretary.*

OFFICERS FOR 1898.

President—JOHN W. TRUE, New Gloucester.

Vice Presidents—S. H. DAWES, Harrison; D. P. TRUE, Leeds Center.

Secretary—D. H. KNOWLTON, Farmington.

Treasurer—CHARLES S. POPE, Manchester.

Executive Committee—The President and Secretary, *ex-officio;* A. E. Andrews, Gardiner; Miss G. P. Sanborn, Augusta; C. H. George, Hebron.

Trustees—Androscoggin county, Chas. E. Waterman, East Auburn; Aroostook county, Edward Tarr, Castle Hill; Cumberland county, T. M. Merrill, West Gloucester; Franklin county, F. D. Grover, Bean; Hancock county, Mrs. S. L. Brimmer, Mariaville; Kennebec county, E. A. Lapham, Pittston; Knox county, Alonzo Butler, Union; Lincoln county, H. J. A. Simmons, Waldoboro'; Oxford county, Lemuel Gurney, Hebron; Penobscot county, W. M. Munson, Orono; Piscataquis county, H. L. Leland, East Sangerville; Sagadahoc county, A. P. Ring, Richmond Corner; Somerset county, F. E. Nowell, Fairfield; Waldo county, Fred Atwood, Winterport; Washington county, J. F. Sprague, Charlotte; York county, C. A. Hooper, Eliot.

Member of Experiment Station Council, Chas. S. Pope, Manchester.

Committee on New Fruits—Willis A. Luce, South Union; D. J. Briggs, South Turner; W. M. Munson, Orono.

OFFICERS FOR 1899.

President—W. M. MUNSON, Orono.

Vice Presidents—S. H. DAWES, Harrison; D. P. TRUE, Leeds Center.

Secretary—ELIJAH COOK, Vassalboro.

Treasurer—CHARLES S. POPE, Manchester.

Executive Committee—The President and Secretary, *ex-officio;* John W. True, New Gloucester; Miss G. P. Sanborn, Augusta; L. F. Abbott, Lewiston.

Trustees—Androscoggin, John Briggs, Turner; Aroostook, Edward Tarr, Castle Hill; Cumberland, T. M. Merrill, West Gloucester; Franklin, F. D. Grover, Bean; Hancock, Mrs. S. L. Brimmer, Mariaville; Kennebec, E. A. Lapham, Pittston; Knox, Alonzo Butler, Union; Lincoln, H. J. A. Simmons, Waldoboro'; Oxford, Lemuel Gurney, Hebron; Penobscot, C. A. Arnold, Arnold; Piscataquis, H. L. Leland, East Sangerville; Sagadahoc, A. P. Ring, Richmond Corner; Somerset, F. E. Nowell, Fairfield; Waldo, Fred Atwood, Winterport; Washington, J. F. Sprague, Charlotte; York, C. A. Hooper, Eliot.

Member of Experiment Station Council, Chas. S. Pope, Manchester.

MEMBERS OF THE SOCIETY.

NOTE.—Any errors or changes of residence should be promptly reported to the Secretary. Members will also confer a favor by furnishing the Secretary with their full Christian names where initials only are given.

LIFE MEMBERS.

Andrews, A. Emery.....Gardiner
Andrews, Charles E .....Auburn
Arnold, C. A .....Arnold
Atherton, Wm. P.....Hallowell
Atkins, Charles G.....Bucksport
Atwood, Fred.....Winterport
Averill, David C .....Temple
Bailey, W. G .....Freeport
Bennoch, John E.....Orono
Bisbee, George E .....Auburn
Blanchard, Mrs. E. M.....Lewiston
Boardman, Samuel L.....Augusta
Briggs, John.....Turner
Burr, John .....Freeport
Butler, Alonzo.....Union
Chandler, Mrs. Lucy A.. .....Freeport
Chase, Henry M., 103 Federal St., Portland
Chase, Martin V. B .....Augusta
*Cole, Horatio G.....Boston, Mass
Corbett, Herman .....Farmington
Crafts, Moses.....Auburn
Crowell, John H.. .....Farmington
Cummings, Mrs. Anthony.....Auburn
Dana, Woodbury S .....Portland
Dawes, S. H.....Harrison
DeRocher, Peter .....Bradentown, Fla
Dirwanger, Joseph A .....Portland
Dunham, W. W.....North Paris
Dyer, Milton.....Cape Elizabeth
Emerson, Charles L.....South Turner
Farnsworth, B. B.....Portland
Frost, Oscar F.....Monmouth
Gardiner, Robert H .....Boston, Mass
George, C. H. .....Hebron
Gilbert, Z. A..... .....North Greene
Goddard, Lewis C .....Woodfords
Grover, Franklin D.. .....Bean
Gurney, Lemuel .....Hebron
Hackett, E. C ... .West Gloucester
Hall, Mrs. H. A.....Brewer
Hanscom, John.....Saco
Harris, N. W..... .....Auburn
Harris, William M.....Auburn
Harvey, F. L .....Orono
Hobbs, M. Curtis .....West Farmington
Hoxie, James S.....North Fairfield
Hoyt, Mrs. Francis .....Winthrop
Jackson, F. A ....Winthrop
Johnson, Isaac A .....Auburn
Keene, Charles S ....Turner
Knowlton, D. H..... .....Farmington
Lapham, E. A .....Pittston
Litchfield, J. H.....Auburn
Lombard, Thurston M .....Auburn
Luce, Willis A .....South Union
McLaughlin, Henry .....Bangor
Merrill, T. M. .....West Gloucester
Mitchell, Frederick H.....Turner
Moody, Charles H .....Turner
Moore, William G.....Monmouth
Moor, F. A .....Waterville
Morton, J. A.....Bethel
Page, F. W.....Augusta
Parsons, Howard G .....Turner Center
Perley, Chas. I .....Cross Hill
Pope, Charles S.....Manchester
Prince, Edward M.....West Farmington
Pulsifer, D. W .....Poland
Purington, E. F.....West Farmington
Richards, John T.....Gardiner
Ricker, A. S .....Turner
Roak, George M. .....Auburn
Robinson, Henry A.....Foxcroft
Rolfe, Samuel .....Portland
Sanborn, Miss G. P .....Augusta
Sawyer, Andrew S.....Cape Elizabeth
Sawyer, George B.....Wiscasset
Simmons, H. J. A.....Waldoboro
Skillings, C. W.....North Auburn
Smith, Henry S .....Monmouth

*Deceased.

LIFE MEMBERS—Concluded.

Snow, Mary S. ..... Bangor
Starrett, L. F ..... Warren
Stetson, Henry ..... Auburn
Stanley, Charles ..... Winthrop
Stanley, O. E. ..... Winthrop
Stilphen, Asbury C. ..... Gardiner
Strout, S. F ..... West Falmouth
Taylor, Miss L. L., (Lakeside) Belgrade
Thomas, William W., Jr. ..... Portland
Thomas, D. S. ..... North Auburn
Thurston, Edwin ..... West Farmington
Tilton, William S. ..... Boston, Mass
Townsend, Mrs. B. T. ..... Freeport
True, Davis P. ..... Leeds Center
True, John W ..... New Gloucester
Vickery, James ..... Portland
Vickery, John ..... Auburn
Wade, Patrick ..... Portland
Walker, Charles S ..... Peru
Walker, Elmer V ..... Oxford
Waterman, Willard H ..... East Auburn
Wheeler, Charles E. ..... Chesterville
Whitney, Edward K. ..... Harrison
Woodman, George W. ..... Portland
Yeaton, Samuel F ..... West Farmington

ANNUAL MEMBERS, 1897.

Bishop, Frank I. ..... Winthrop
Blanchard, Mrs. E. M. ..... Lewiston
Carll, E. C. ..... Buxton
DeCoster, Virginia ..... North Auburn
Fairbanks, H. N. ..... Bangor
Grant, Mrs. Benson. ..... Lewiston
Jewell, H. W ..... Farmington
King, Mrs. L. M. ..... South Etna
Legrow, Miss G. ..... Norway
Lemont, J. M ..... West Bath
Litchfield, Jennie E. ..... Winthrop
Merriam Ernest ..... Brunswick
Miller, Chas. A ..... East Union
Nickerson, Eva B. ..... Houlton
Norris, Mrs. Herbert C ..... Wayne
Nowell, F. E. ..... Fairfield
Page, F. W. ..... Augusta
Ring, A. P ..... Richmond Corner
Stanton, Chas. B. ..... Winthrop
Sturgess, C. G. ..... Auburn
Toothaker, L. P ..... Simpson's Corner
Whitman, Emerson ..... Lewiston
Whittier, Phineas ..... Farmington Falls
Wood, Elliot ..... Winthrop

ANNUAL MEMBERS, 1898.

Abbott, L. F ..... Lewiston
Beal, Lewis ..... Skowhegan
Beal, S. H ..... Skowhegan
Benson, Mrs. G. S ..... Skowhegan
Burr, Perez ..... Freeport
Churchill, E. P. ..... Hallowell
Cook, Elijah ..... Vassalboro
Crowell, Mrs. E. H. ..... Skowhegan
Dudley, J. W. ..... Castle Hill
Eaton, Anna A ..... Augusta
Jewett, Frank W ..... Hallowell
Kyes, Mrs. R. W. ..... North Jay
Litchfield, L. K. ..... Winthrop
Macomber, Arthur C. ..... North Jay
McKeen, B. Walker ..... Augusta
Munson, W. M ..... Orono
Niles, Silas H. ..... North Jay
Nowell, F. E ..... Fairfield
Paine, Mrs. E. E ..... Jay
Shepard, L. T. ..... Orono
Tarr, Edward ..... Castle Hill
Titcomb, B. M ..... Farmington
Toothaker, L. P ..... Simpson's Corner
Wallis, Belle ..... Brewer
Young, Bert L. ..... Augusta

TREASURER'S REPORT.

RECEIPTS.

1898.		
January 1	Received from Treasurer, 1897	$63 43
	Farmington National Bank, interest on stock	8 00
February 1 ...	Farmington Water Company, interest on stock	4 00
	Mary S. Snow, fee as life member	10 00
	Mrs. R. W. Keyes, North Jay, fee, annual member	1 00
	Mrs. E. E. Paine, Jay, fee, annual member	1 00
	S. H. Niles, North Jay, fee, annual member	1 00
	A. C. Macomber, North Jay, fee, annual member	1 00
March 29, ...	Geo. E. Webber, Clinton, fee, annual member	1 00
February.....	State stipend	1,000 00
May 25.....	Wiscasset Savings Bank	135 84
July 10.....	Farmington National Bank, interest on bank stock	10 00
July 13.....	Belle Wallis, Brewer, fee, annual member	1 00
	Anna A. Eaton, Augusta, fee, annual member	1 00
	Frank W. Jewett, Hallowell, fee, annual member	1 00
	E. P. Churchill, Hallowell, fee, annual member	1 00
	Bert L. Young, Augusta, fee, annual member	1 00
August 1.....	Farmington Water Company, interest on stock	5 00
October 1.....	Gardiner National Bank, interest on stock	3 00
December 30 .	F. W. Page, fee for life membership	10 00
	J. W. Dudley, Castle Hill, fee, annual member	1 00
	Edward Tarr, Mapleton, fee, annual member	1 00
	L. P. Toothaker, Simpson's Corner, fee, annual member	1 00
	F. E. Nowell, North Fairfield, fee, annual member	1 00
	Mrs. G. S. Benson, Skowhegan, fee, annual member	1 00
	B. M. Titcomb, Farmington, fee, annual member	1 00
	Mrs. E. H. Crowell, Skowhegan, fee, annual member	1 00
December 28 .	L. K. Litchfield, Winthrop, fee, annual member	1 00
	L. F. Abbott, Lewiston, fee, annual member	1 00
	E. Cook, Vassalboro, fee, annual member	1 00
	W. M. Munson, Orono, fee, annual member	1 00
	Percy Burr, Freeport, fee, annual member	1 00
	L. J. Shepherd, fee, annual member	1 00
	B. W. McKeen, Augusta, fee, annual member	1 00
		$1,273 27

EXPENDITURES.

1898.		
January 2 ...	Paid D. H. Knowlton, on account of salary	$100 00
February 17 ..	Premiums at Winter Meeting	36 75
	G. P. Sanborn, expenses as Executive Committee to date.	7 10
	E. W. Wooster, expenses at Winter Meeting	10 30
	Chas. S. Pope, expenses as Treasurer	6 30
	W. M. Munson, expenses at Winter Meeting	5 00
	Geo. T. Powell, services and expenses at Winter Meeting.	45 00
	F. S. Adams, expenses and services at Winter Meeting	4 25
	E. Cook, expenses and services at Winter Meeting	2 80
	Mary S. Snow, expenses at Winter Meeting.	14 80
	A. L. Lane, services and expenses at Winter Meeting	8 35
	D. H. Knowlton, express, postage & expn's as Sec'y to date	17 01
	F. P. Jordan, b'd of officers & speakers at Winter Meeting	24 75
February 18 ..	C. H. George, expenses as Executive Committee to date..	6 10
	A. E. Andrews, expenses as Executive Committee to date	9 60
	J. W. True, expenses as President to date	3 40
	Augusta Safe Deposit and Trust Company, box rent.	5 00

EXPENDITURES—CONCLUDED.

March 4	D. H. Knowlton, balance of salary for 1897	$25 00
April 1	Emma L. Holbrook, reporting Winter Meeting at No. Jay.	20 00
April 30	D. H. Knowlton, services as Secretary for the year 1898	50 00
June 1	Deposit, Augusta Safe Deposit and Trust Company	135 84
July 9	W. M. Munson, expenses at Strawberry Meeting	3 30
	L. J. Shepherd, expenses at Augusta	3 30
July 12	D. H. Knowlton, expenses as Secretary	20 60
July 13	Maine Farmer Pub. Co., printing for Strawberry Meeting.	6 00
	Premiums of Strawberry and Rose Meeting	43 50
	Arnold & Pinkham, board of officers and speakers	11 45
	J. W. True, expenses as President	4 35
	C. H. George, expenses as member of Ex. Committee	8 70
August 25	Emma L. Holbrook, stenographer at Strawberry Meeting	8 00
October 12	A. E. Andrews, expenses as member of Ex. Committee	6 50
	B. T. Townsend, expenses as committee on new work	2 85
	W. A. Jackson, storage of exhibition fixtures	5 00
	Smith & Reid, for binding transactions—1897	7 87
	Wm. Barnes, trucking exhibition fixtures for storage	4 50
December 30	R. W. Starr, expenses at Winter Meeting	16 00
	Miss Blanche A. Wright, serv. and exp. at Winter Meeting	8 00
	A. H. Kirkland, services and expenses at Winter Meeting	25 30
	E. Cook, expenses at Winter Meeting	1 90
	W. M. Munson, expenses at Winter Meeting	2 60
	Lucius J. Shepherd, expenses at Winter Meeting	5 20
	Lewiston Journal Company, printing premium list, etc	13 00
	Knowlton, McLeary & Co., printing to date	28 50
	D. H. Knowlton, expenses as Secretary	33 02
	J. W. True, expenses as member of Executive Committee	5 45
	C. H. George, expenses as member of Ex. Committee	7 90
	G. P. Sanborn, expenses as member of Ex. Committee	22 30
	J. O. Smith & Co., printing posters and postage	4 22
	Dora M. Goodwin, services as clerk at Winter Meeting	6 00
	American Express Co., charges on fruit for exhibition	8 55
	Hotel Coburn, bills of officers & speakers at Winter Meeting	50 55
	J. W. True, storage bill on cases and exhibition fixtures	7 00
	D. H. Knowlton, salary for 1898	100 00
	A. E. Andrews, expenses as Executive Committee	5 20
	G. P. Sanborn, expenses to Skowhegan Winter Meeting	1 35
	Chas. S. Pope, premiums awarded at Skowhegan	164 00
	D. H. Knowlton, expenses on Nova Scotia fruit	5 00
	Chas. S. Pope, salary and expenses as Treasurer	32 16
	Cash on hand	46 80
		$1,273 27

PERMANENT FUND.

	DR.
To stock First National Bank, Farmington	$400 00
Merchants National Bank, Gardiner	100 00
Farmington Water Company	100 00
Augusta Safe Deposit and Trust Company	670 00
	$1,270 00
Loss by scale down in stock of Merchants National Bank, Gardiner	100 00
	$1,370 00
	CR.
By 135 life members to January 1, 1898	$1,350 00
Mary S. Snow, Bangor	10 00
F. W. Page, Augusta	10 00
	$1,370 00

CHAS. S. POPE, *Treasurer.*

CERTIFICATE OF AUDITING.

Financial Condition of Society.

Bounty due from the State	$1,000 00
Due from the Maine State Agricultural Society	150 00
Permanent fund	1,270 00
Property owned by the Society	250 00
Interest due	30 00
Cash in treasury	46 80
	$2,746 80

No liabilities so far as known to your Executive Committee.

JOHN W. TRUE,
D. H. KNOWLTON,
A. E. ANDREWS,
G. P. SANBORN,
C. H. GEORGE,
Executive Committee.

BUSINESS TRANSACTIONS.

STRAWBERRY AND ROSE MEETING.

July 6, 1898. Met in accordance with announcements in council chamber of City Hall, Augusta. The following resolution was passed:

Resolved, That we hereby extend our thanks to the Maine Central and Somerset Railways for one fare rates over their lines; to the proprietors of the Augusta House and City Hotel for reduced rates; to the newspapers of the State for their notices of this meeting, and to the city of Augusta for the elegant rooms for our meetings.

ANNUAL MEETING.

Held in Grange Halls, Skowhegan, December 27, 28 and 29, 1898.

At the opening session the president appointed the following committees: On Resolutions—Mrs. M. L. Purington, West Farmington; Chas. S. Pope, Manchester; S. H. Dawes, Harrison.

On Unbound Transactions—Prof. Elijah Cook, Vassalboro; Miss G. P. Sanborn, Augusta; Prof. W. M. Munson, Orono.

On Matters from the American Pomological Society, etc.—Chas. E. Wheeler, Chesterville; D. P. True, Leeds Center; F. E. Nowell, Fairfield.

The annual meeting called to act upon the following articles, met in Grange Hall, December 29, 1898, at 10 o'clock, A. M.

Article I. To listen to any reports committees and officers may have to make and take action thereon.

Article II. To elect officers for the year 1899.

Article III. To transact any other business that may legally come before said meeting.

Under article I, the secretary offered an informal report and was given permission to revise and extend so as to include the present meeting.

The treasurer made an informal report showing the balance in his hands at the present time, and it was accepted.

The committee chosen at last winter meeting to consider the new plan of work for the society reported, as follows, by D. H. Knowlton, and the report was accepted.

REPORT.

To the Members of the Maine State Pomological Society:

The following extract taken from the records of our last winter meeting will make clear to you how our committee came into being and the object of its mission.—"After the reading of Mr. Gilbert's paper and discussion thereon, Mr. Andrews made the following motion and it was given a passage: 'That Mr. Gilbert's plan for new work be submitted to a special committee of three with instructions to report at the annual meeting of the society.' The president then appointed D. H. Knowlton, Mrs. B. T. Townsend, Freeport, and Chas. E. Wheeler, Chesterville, said committee."

Again, in view of the failure to perfect satisfactory exhibition arrangements with the trustees of the Maine State Agricultural Society, the executive committee of the Maine State Pomological Society at their meeting held in Auburn, April 26th and 27th, it was voted: "That the special committee appointed on Mr. Gilbert's paper be requested to report to the executive committee at an early day their plan of work for the society."

Your committee, having attended to the duty assigned them, beg leave to offer their report at this time.

Under our incorporation the Maine State Pomological Society was "constituted a corporation for the promotion of fruit culture." The restrictions are contained in the second section, which says: "Said society shall have all the rights, privileges and powers conferred by the laws of this State upon county and local agricultural societies, and shall be subject to all liabilities imposed by existing laws upon such societies, so far as the same are applicable to the objects of this society."

The by-laws require in

ARTICLE III—MEETINGS.

"Section 1. The Annual Meeting of the Society shall be held at the place and during the time of the Annual Autumn State Exhibition, and such notice thereof shall be given as the Executive Committee shall direct. If, from any cause, the regular Annual Meeting shall not be held as above provided, a special meeting shall be held at Augusta in the month of January next following.

"Sect. 2. Special meetings may be called at any time by the Executive Committee; of which meetings each member shall be notified, by a notice properly directed and deposited in some post office at least ten days prior to the time of such meeting."

For many years, or, in fact, since the organization of the society, the larger part of its funds have been expended in payment of premiums and exhibition expenses. Circumstances have so far changed the condition of horticulture in the State that the time seems to have come when the work of the society should be more fully adapted to the fruit and floral interests of the State. While the importance of well organized exhibitions is fully admitted by your committee, we are convinced that the situation now calls for a wider work, so as to stimulate more general interest in producing the choicest fruits and the most beautiful plants and flowers, at the same time greater prominence should be given to the beautifying of our State by making our public grounds, our school grounds, our cemeteries and our highways more attractive, and especially adorning the homes of Maine with pleasant surroundings in harmony with the natural scenery among which they are found. With these things in view the following recommendations for future work are offered for your consideration:

Three regular exhibitions.

1st. An autumn exhibition to be held in the month of October or late enough to show the autumn and winter fruits in their perfection, and chrysanthemums and such greenhouse flowers as may be available.

2nd. An exhibition of winter fruits in connection with the winter meeting, giving the quality of fruit and taste in arranging greater prominence than we have in the past.

3d. A Strawberry and Rose Meeting, for the purpose of encouraging the culture of small fruits in the State.

It seems to us it would be for the interest of the society to have 1st and 3d exhibitions permanently located. The proper place for the 1st would be Portland, as to this market a large part of our winter fruit goes on its way to more remote points in Europe or elsewhere. Augusta would be, so far as we may judge, a good place to hold the 3d or Strawberry and Rose Meeting. Good meetings or exhibitions held in these places regularly would make many strong friends for the society.

We would recommend two public meetings similar to what we now have. One during the Strawberry and Rose Meeting and the other a winter meeting, which should be a sort of "round up" of the year's work, supplemented by the winter exhibition referred to.

General premiums to the extent of the society's means should be or may be offered for the improvement of school grounds, and private grounds; for orchards, small fruit gardens, and vegetable gardens.

It would be well to offer one or more prizes for essays on fruit and flower culture or some branch of the same as funds may permit.

Field meetings—two or more at seasonable dates and favorable localities. The objects being to interest locally and study the general condition of horticultural affairs in the State. Only the secretary and one member of the executive committee need attend these meetings at the expense of the society. It is possible a few prizes might be offered to advantage in connection with these meetings.

It frequently happens that the society can be of great service to the State, if when occasion calls for it, the secretary had authority to prepare and send out brief circulars or bulletins giving timely information in connection with fruit culture. The secretary has frequent inquiries, and some of them could be profitably answered in this way. We believe the press of the State, especially the rural press, would be glad to co-operate with the society in giving such information general publicity in the State.

Last, but by no means least, we would recommend that a general premium list be prepared early in the season, so as to have the widest circulation possible. Of course the dates and some of the locations might not be known at the time, but the list of prizes would give people a chance to plan for the exhibitions. It might also be well in this also to make more or less announcements that would be of interest to the public.

The plan of work contemplated in these recommendations would, if well carried out, open up a larger field of usefulness, increase the membership of the society, and give it greater influence in promoting the important interests for which it was called into existence.

All of which is respectfully submitted.

D. H. KNOWLTON,
MRS. B. T. TOWNSEND,
CHAS. E. WHEELER,
Committee.

WINTHROP, June 22, 1898.

The committee to whom was referred matters from the American Pomological Society, etc., reported the following resolutions, and both were passed:

Resolved, That this society, through its executive committee, arrange for the attendance of one delegate to the biennial session of the American Pomological Society in 1899.

Resolved, That the Maine State Pomological Society endorses the action taken by the National Pure Food and Drug Congress relating to the Brosius Pure Food Bill.

Under article II elected officers for 1899. See page 10.

The committee to whom was referred the disposition to be made of unbound transactions, being unable to make any report at this time were granted further time.

The executive committee were authorized to make such arrangements for exhibitions and other work as in their judgment may seem for the best interests of the society, and make as early announcements of the same as possible.

The committee on resolutions reported as follows, and their report was accepted:

Resolved, That we give thanks to the Skowhegan Grange for their hearty and cordial welcome extended by Bro. Ansel Holway, also for the use of their beautiful and convenient hall.

Resolved, That we extend thanks to the hotels for reduced rates, and also to the local committee for their successful endeavor in finding pleasant homes for the strangers within the gates.

Resolved, That we hereby extend thanks to the railroads for reduced rates.

Resolved, That our thanks be extended to the speakers for their interesting and instructive addresses, and also to the choir for their excellent music.

The following resolution was also given a passage:

Resolved, That we commend to the favor of the people of our State the efforts of Supt. Stetson to organize the children of the public schools into School Improvement Leagues, for the purpose of improving the school grounds, decorating the schoolrooms and supplying the schools with good books. We believe the efforts put forth deserve the co-operation of all good citizens.

MEETINGS OF EXECUTIVE COMMITTEE.

Auburn, April 26, 27, 1898. The president and secretary were instructed to wait upon the officers of the State Agricultural Society and arrange terms for the annual exhibition. After a protracted interview they reported that they had failed to effect any agreement. The next morning Messrs. Andrews and George were instructed to confer with the trustees, and announced that a proposition would be presented by the secretary of that society. Shortly after the following proposition was presented: "That the Maine State Agricultural Society will give the Maine State Pomological Society $500, with the stipulation that their premium list shall be substantially the same as in 1897, and that the claim for $150 be declared off, and that if the premiums awarded by the said pomological society shall fall below $875, the said falling off shall be deducted from the said $500 to be paid by the said Maine State Agricultural Society."

The executive committee unanimously declined to accept the proposition.

The secretary was authorized to obtain suitable engravings for the transactions.

The invitation to hold a Strawberry and Rose Meeting in Augusta, and the programme and date were referred to the president and secretary, and the local arrangements to Miss Sanborn.

The executive committee were given permission to remove the society's property from the exhibition building, and it was voted to remove the same.

The committee on Mr. Gilbert's paper, appointed at the Jay meeting, were requested to make their report to the executive committee at the Strawberry Meeting.

Augusta, July 5, 1898. The report of committee on Mr. Gilbert's paper was presented by the secretary, and accepted.

The president and secretary were requested to ascertain whether satisfactory arrangements can be made for an autumn exhibition.

Auburn, October 6, 1898. The following item appears in records for this date: "It is here recorded as a part of the doings of the committee that the property of the society stored in the State Agricultural Society's exhibition building, consisting of twenty-one cases, a cooler and several bundles of racks was removed for storage to the storehouse of W. A. Jackson, Lewiston, where the same is now held for safe keeping."

The president and secretary reported informally that it had not occurred to them as feasible to hold an autumn meeting or exhibition early in the fall, and that they had no positive recommendations to make.

It was then voted to hold the annual autumn exhibition and the annual winter meeting together early in December.

Invitations were presented from Geo. M. Roak to hold the meeting in Auburn Hall; from the secretary to hold the meeting in Farmington with tender of hall and other courtesies; from Geo. M. Twitchell with tender of City Hall, Augusta; from A. S. Chadbourne, tendering the use of the new City Hall, Hallowell, and from Geo. N. Holland to hold the meeting in Town Hall, Hampden.

The premium list was revised for the winter meeting.

President True was authorized to remove the exhibition property of the society from Lewiston to his home in New Gloucester for storage.

The location of the winter meeting and the program for same were referred to the president and secretary.

The reduction of the capital stock in the Merchants' National Bank fifty per cent was announced, and the treasurer was authorized to send in certificate belonging to our permanent fund and exchange for a new one. [In consequence of this reduction the permanent fund loses $100. At the time the stock was purchased it was worth a premium.—Secretary.]

Skowhegan, December 29, 1898. Mr. Andrews and Miss Sanborn were appointed to audit the treasurer's accounts.

PREMIUMS AWARDED.

At the Strawberry and Rose Meeting Held in Augusta, July 6, 1898.

STRAWBERRIES.

Best four baskets any variety: E. P. Churchill, Hallowell, first, $2; Frank W. Jewett, Hallowell, second, $1.

Best quart Brandywine: E. P. Churchill, Hallowell, first, $1.

Best quart Bubach: E. P. Churchill, first, $1.

Best quart Beder Wood: Chas. S. Pope, Manchester, first, $1.

Best quart Clyde: Chas. S. Pope, first, $1.

Best quart Crescent Seedling: E. P. Churchill, second, 50c.

Best quart Haverland: Frank W. Jewett, first, $1.

Best quart Marshall: Bert L. Young, Augusta, $1.

Best quart Parker Earle: Chas. S. Pope, first, $1; Bert L. Young, second, 50c.

Best quart Warfield: Chas. S. Pope, first, $1.

Best quart Greenville: Chas. S. Pope, gratuity, 50c.

Best quart any variety not named: Frank W. Jewett, first, $1; Chas. S. Pope, second, 50c.

GOOSEBERRIES.

Best quart Industry Gooseberry: D. H. Knowlton, Farmington, first, $1.

Best quart Smith's Improved: D. H. Knowlton, first, $1.

Best quart Enhance: Chas. S. Pope, gratuity, $1.

FLOWERS.

Best exhibition roses, six blooms: Bert L. Young, first, $1; Mrs. George M. Twitchell, Augusta, second, 50c.

Best collection roses: Bert L. Young, first, $3; Mrs. B. T. Townsend, Freeport, second, 50c.

Best basket roses: Anna A. Eaton, Augusta, first, $2.

Best vase of flowers: Anna A. Eaton, first, $2; Edward C. Pope, Manchester, $1.

Best exhibition pansies: Miss Belle Wallis, Brewer, second, $2; Anna A. Eaton, third, $1.

Best exhibition of sweet peas: Anna A. Eaton, first, $3.

Best foliage plant: Mrs. B. T. Townsend, first, $2.

Best exhibition of pinks: Mrs. Lucy A. Chandler, Freeport, gratuity, $1.

Best exhibition of sweet williams: Anna A. Eaton, gratuity, $1.

Best exhibition of canterbury bells: Anna A. Eaton, gratuity, $1.

Exhibition of peonies: Anna A. Eaton, gratuity, 50c.

Palms: Miss G. P. Sanborn, Augusta, gratuity.

Gladioli: Miss G. P. Sanborn, gratuity.

A fine exhibition was made by the Maine Agricultural Experiment Station, consisting of 13 varieties of strawberries; 4 varieties of greenhouse tomatoes; 1 variety of cucumbers; 3 varieties of carnations.

AT THE ANNUAL EXHIBITION HELD IN SKOWHEGAN, DECEMBER 27, 28 AND 29, 1898.

APPLES.

General exhibition, Androscoggin county: D. P. True, Leeds Center, first, $6.

Same, Aroostook county: Edward Tarr, Mapleton, first, $6; J. W. Dudley, Castle Hill, second, $3.

Same, Cumberland county: S. H. Dawes, Harrison, first, $6.

Same, Franklin county: E. F. Purington, West Farmington, first, $6.

Same, Kennebec county: E. A. Lapham, Pittston, first, $6.

Same, Penobscot county: C. A. Arnold, Arnold, first, $6; L. P. Toothaker, Simpson's Corner, second, $3.

Same, Somerset county: Lewis Beal, Skowhegan, first, $6; S. H. Beal, Skowhegan, second, $3. [Fine in color, size and care in selection.—Judge.]

Bailey Sweet: S. H. Dawes, first, $1.

Baldwin: C. A. Arnold, first, $1; S. H. Beal, second, 50c.

Ben Davis: C. A. Arnold, first, $1; S. H. Beal, second, 50c.

Dudley's Winter: J. W. Dudley, first, $1; Edward Tarr, second, 50c.

Fall Harvey: B. M. Titcomb, Farmington, first, $1; E. F. Purington, second, 50c.

Fameuse: M. C. Hobbs, West Farmington, first, $1; E. F. Purington, second, 50c.

Golden Russet: Mrs. B. T. Townsend, Freeport, first, $1; S. H. Beal, second, 50c.

Gravenstein: E. F. Purington, first, $1.

Hubbardston Nonsuch: Chas. S. Pope, Manchester, first, $1; John W. True, New Gloucester, second, 50c.

Jewett's Fine Red: S. H. Dawes, first, $1; F. E. Nowell, Fairfield, second, 50c.

McIntosh Red: S. H. Dawes, first, $1; J. W. Dudley, second, 50c.

Milding: D. P. True, first, $1.

Mother: Chas. S. Pope, first, $1.

Northern Spy: F. E. Nowell, first, $1; S. H. Beal, second, 50c.

Peck's Pleasant: D. P. True, first, $1.

Pound Sweet: C. A. Arnold, first, $1; Mrs. B. T. Townsend, second, 50c.

Rhode Island Greening: C. A. Arnold, first, $1; S. H. Beal, second, 50c.

Rolfe: F. E. Nowell, first, $1; J. W. Dudley, second, 50c.

Roxbury Russet: B. M. Titcomb, first, $1; F. E. Nowell, 50c.

Stark: J. W. True, first, $1; D. P. True, second, 50c.

Starkey: E. F. Purington, first, $1; C. H. George, Hebron, second, 50c.

Tompkins King: C. A. Arnold, first, $1; S. H. Dawes, second, 50c.

Wagener: C. A. Arnold, first, $1; D. H. Knowlton, Farmington, second, 50c.

Wealthy: C. A. Arnold, first, $1; F. E. Nowell, second, 50c.

Winthrop Greening: F. E. Nowell, first, $1; D. P. True, second, 50c.

Yellow Bellflower: F. E. Nowell, first, $1; D. P. True, second, 50c.

Fallawater: F. E. Nowell, first, 50c.

Grimes' Golden: J. W. True, first, 50c.

Mann: C. A. Arnold, first, 50c.

Ribston Pippin: F. E. Nowell, first, 50c; Lewis Beal, second, 25c.

Spitzenberg: S. H. Dawes, first, 50c.

Talman Sweet: S. H. Beal, first, 50c; S. H. Dawes, second, 25c.

Hyde's Keeper: H. A. Robinson, Foxcroft, gratuity, 50c.

Twenty Ounce: Lewis Beal, gratuity, 50c; D. P. True, gratuity, 25c.

Hurlbut: F. E. Nowell, gratuity, 50c.

Westfield Seek no Further: F. E. Nowell, gratuity, 50c.

Porter: F. E. Nowell, gratuity, 50c.

Pennock's Red Winter: F. E. Nowell, gratuity, 50c.

Maiden's Blush: F. E. Nowell, gratuity, 50c.

Gray Pearmain: Lewis Beal, gratuity, 50c.

Fall Pippin: S. H. Beal, gratuity, 50c; X. A. Withee, Skowhegan, gratuity, 25c.

Vandiveri: E. F. Purington, gratuity, 50c.

Bottle Greening: J. W. True, gratuity, 50c.

Lady Sweet: Edward Tarr, gratuity, 50c.

Canada Red: B. M. Titcomb, gratuity, 50c.

Pewaukee: E. A. Lapham, gratuity, 50c.

Smoke House: H. A. Robinson, Foxcroft, gratuity, 50c.

Araboskoe: J. W. Dudley, gratuity, 50c.

Alexander: Edward Tarr, gratuity, 50c; J. W. Dudley, gratuity, 25c.

Munroe Sweet: M. C. Hobbs, gratuity, 50c.

Sutton Beauty and Jonathan: Kindly sent by S. D. Willard, Geneva, N. Y., were fine specimens and highly commended by the judge.

Collection of Nova Scotia fruit was exhibited by the secretary and attracted much interest.

PEARS.

Keiffer: M. L. Purington, West Farmington, second, 50c.
Lawrence: S. H. Dawes, first, $1.
Vicar of Wakefield: D. P. True, first, $1.
Gauber: S. H. Dawes, first, $1.
Duchess: S. H. Dawes, first, $1.
Dana's Hovey: S. H. Dawes, second, 50c.

QUINCE.

D. P. True, gratuity, $1.

MISCELLANEOUS.

Cranberries: A. C. Greenleaf, Farmington, first, $1; S. H. Dawes, second, 50c.

Collection canned fruits, etc.: Mrs. F. D. Grover, Bean, first, $5; Mrs. Lewis Beal, Skowhegan, second, $3.

Canned Blackberries: Mrs. L. K. Litchfield, Winthrop, first, $1; M. L. R. Purington, second, 50c.

Canned Blueberries: Mrs. E. H. Crowell, Skowhegan, first, $1; Mrs. Lewis Beal, second, 50c.

Canned Cherries: Mrs. E. H. Crowell, first, $1; Mrs. F. E. Nowell, Fairfield, second, 50c.

Canned Gooseberries: M. L. B. Purington, first, $1; Mrs. L. K. Litchfield, second, 50c.

Canned Pears: Mrs. L. K. Litchfield, first, $1; Mrs. F. D. Grover, second, 50c.

Canned Plums: Mrs. Lewis Beal, first, $1; Mrs. F. D. Grover, second, 50c.

Canned Raspberries: Mrs. L. K. Litchfield, first, $1; Mrs. E. H. Crowell, second, 50c.

Canned Strawberries: M. L. B. Purington, first, $1; Mrs. Lewis Beal, second, 50c.

Canned Tomatoes: Mrs. L. K. Litchfield, first, $1; Mrs. E. H. Crowell, second, 50c.

Preserved Apples: Mrs. L. K. Litchfield, first, $1; Mrs. F. D. Grover, second, 50c.

Preserved Currant: M. L. B. Purington, first, $1; Mrs. F. D. Grover, 50c.

Preserved Pears: Mrs. L. K. Litchfield, first, $1.

Preserved Plums: Mrs. L. K. Litchfield, first, $1; Mrs. E. H. Crowell, second, 50c.

Preserved Raspberries: Mrs. Lewis Beal, first, $1; Mrs. F. D. Grover, second, 50c.

Preserved Strawberries: Mrs. G. S. Benson, Skowhegan, first, $1; Mrs. F. D. Grover, second, 50c.

Assorted Pickles: Mrs. L. K. Litchfield, first, $1; Mrs. G. S. Benson, second, 50c.

Tomato Catsup: Mrs. L. K. Litchfield, first, $1; Mrs. F. E. Nowell, second, 50c.

Collection Apple Jelly: Mrs. L. K. Litchfield, first, $3; Mrs. E. H. Crowell, second, $2.

Apple Jelly: Mrs. G. S. Benson, first, $1; Mrs. L. K. Litchfield, second, 50c.

Crab Apple Jelly: Mrs. F. E. Nowell, first, 50c; Mrs. G. S. Benson, second, 25c.

Currant Jelly. M. L. B. Purington, first, 50c; Mrs. L. K. Litchfield, second, 25c.

Grape Jelly: Mrs. L. K. Litchfield, first, 50c.

Raspberry Jelly: Mrs. L. K. Litchfield, first, 50c.

Rhubarb Jelly: Mrs. L. K. Litchfield, first, 50c.

Strawberry Jelly: Mrs. F. D. Grover, first, 50c; Mrs. L. K. Litchfield, second, 25c.

Maple Syrup: C. H. George, first, $1; Mrs. F. D. Grover, second, 50c.

FLOWERS.

Vase Cut Flowers: Mrs. B. T. Townsend, Freeport, first, $1.

Floral Design: F. W. Page, Augusta, first, $10.

SUMMARY OF AWARDS.

Awarded at winter meeting held at North Jay.....	$36 75
Awarded at Strawberry and Rose Meeting.....	43 50
Awarded at annual exhibition at Skowhegan.....	164 00
	$244 25

PUBLIC MEETINGS

OF THE

Maine State Pomological Society.

PAPERS, DISCUSSIONS, ETC.

STRAWBERRY AND ROSE MEETING—City Building, Augusta, July 5 and 6, 1893.

ANNUAL EXHIBITION AND WINTER MEETING—Grange Hall, Skowhegan, December 27, 28 and 29, 1893.

PUBLIC MEETINGS.

STRAWBERRY AND ROSE MEETING HELD IN AUGUSTA, JULY 5 AND 6, 1898.

PROGRAMME—TUESDAY, 2.30 P. M.

Field Day. By courtesy of B. T. Sanborn, M. D., superintendent of the Insane Hospital, the members of the society and their friends are cordially invited to visit the grounds of the hospital, and look over the decorations, the greenhouse and the garden.

TUESDAY EVENING.

There will be a meeting of the executive committee at the Augusta House, at 8 o'clock.

WEDNESDAY, A. M.

Arrangement of the exhibition of fruit and flowers.

WEDNESDAY, 2 P. M.

Our First Field Meeting—What we saw—What we want to remember—Opened by Prof. Elijah Cook, Vassalboro.

Our Exhibition—Its Ouality—The Varieties—The Plants and Flowers—Opened by L. J. Shepard, Maine Experiment Station.

How to have a Flower Garden—By Miss Anna Eaton, Augusta.

WEDNESDAY, 7.30 P. M.

Some Useful Shrubs and Herbaceous Perennials—Prof. W. M. Munson, University of Maine.

To be followed by discussions of fruit and flower topics.

ANNUAL EXHIBITION AND WINTER MEETING HELD IN SKOWHEGAN, DECEMBER 27, 28 AND 29, 1898.

TUESDAY EVENING.

Informal reception to the members of the society by Skowhegan Grange; address of welcome, Ansel Holway, Skowhegan; response; other remarks.

WEDNESDAY A. M.

President's annual address, John W. True, New Gloucester; talks on small fruits: How to Get Large Crops, Lucius J. Shepard, Orono; The Varieties I Like, Charles S. Pope, Manchester.

AFTERNOON.

Among Nova Scotia Fruit Growers, D. H. Knowlton, Farmington. [An exhibit of apples from the Cornwallis Valley, N. S., will be shown to illustrate results of fruit growing there.] Nova Scotia Methods by a Nova Scotia Fruit Grower, R. W. Starr, Wolfville, N. S.

EVENING.

Floriculture, Mrs. Georgia A. Toby, Skowhegan; Teach the Young to Enjoy Fruits, Flowers and Shrubs, Prof. Elijah Cook, Vassalboro.

THURSDAY A. M.

The annual meeting of the Maine State Pomological Society will be held in Grange Hall, Skowhegan, Thursday, December 29, 1898, at 10 o'clock A. M., to act upon the following articles:

Article I. To listen to any reports committees and officers may have to make and take action thereon.

Art. II. To elect officers for the year 1899.

Art. III. To transact any other business that may legally come before said meeting.

AFTERNOON.

Some Useful Ornamental Plants for Maine, Prof. W. M. Munson, Orono; Modern Methods of Spraying, Illustrated by Colored Charts Showing Insects and Their Damage, Prof. A. H. Kirkland, Assistant Entomologist of the Massachusetts Board of Agriculture.

EVENING.

Refining Influences of Plants and Trees in Public Places, Rev. Blanche A. Wright, Livermore Falls.

OUR FIRST FIELD MEETING—WHAT WE SAW—WHAT WE WANT TO REMEMBER.

Prof. Elijah Cook.

In visiting the hospital grounds yesterday we saw a great many things that must have a more or less lasting effect upon our minds. We saw the grounds beautifully laid out; laid out with a great deal of taste and good judgment and the grounds nicely kept. We saw them adorned with plants and flowers in great profusion, and we could but feel a great deal of pride in the fact that the Pine Tree State has an institution of so much real merit, so nicely conducted and so ably cared for in every respect.

The strawberry, the best fruit, as has been said, that God ever made, is there cultivated to a large extent for the use of the patients who are found in the asylum, and I think the surroundings of those patients as they look out upon the grounds, or walk over the grounds, must have a great influence over them. Their environment must have a great deal to do in restoring the mind to its normal condition. Our surroundings always affect us more or less and with such surroundings as the patients have there, had they enjoyed them from their youth up, it may be it would have kept them from the sad calamity that has befallen them.

It is a thought that cannot be too deeply impressed upon us, that the flowers and fruit that God gave us in such abundance are calculated to give health to the mind and body. The more our thoughts are absorbed by the beauties of nature the more they are taken from those perplexing or serious subjects that make the patient insane. Every flower is a tender thought of the Creator to the created, and the surroundings have a great deal to do with the character of the individual; a great deal to do with the man or woman in after life.

We saw there also a magnificent farm, one of the best in the State; the best perhaps in the State. A farm conducted upon scientific principles; a farm provided with almost everything to

make it a success. That is something in which we are interested. It is well that with such a state institution the farm should be large and well conducted to serve as an object lesson for the farmers of the State, and this is certainly that. It is an object lesson that will pay the farmers of the State to see. We saw a magnificent herd of cows kept in the very best condition possible, and we as citizens of the State of Maine should be proud that our insane are provided for in such a manner.

While I was walking over those grounds, I thought of the great progress in civilization—what a wonderful amount of progress has been made during the past hundred years; and nothing shows this progress better than the great number of institutions of this kind to take care of the unfortunate. In the land where Christ lived while here on earth they had no insane asylums; the poor unfortunate man who lost his mind was caged and cared for almost like the brute or worse. How different in this land of ours from what we find it there, in fact, from what we find it in a very large part of the earth where the insane are cared for and every possible thing done to restore them to their normal condition. I think that we may say that Maine, although occupying only this little corner of the country, is not behind in this respect. We want to remember with gratitude that we have an institution of the kind conducted as it is with so much ability. Whether we want to remember or not we always shall the kindness, and the courtesy of Mr. Allen and Dr. Sanborn, in connection with the occasion.

OUR EXHIBITION—THE VARIETIES—THE PLANTS AND FLOWERS.

Opened by L. J. Shepard.

Our exhibition is something to be proud of. The plants and flowers are very good. Our exhibition of strawberries is very good, although only about one-third as large as last year. The season is a little late for strawberries in this section, at our place it is just about the right season. We have about twenty-one varieties.

As to the varieties, that is a matter of mere diversity of opinion. I might name a great many varieties and if you should look in the seed catalogues you will find them so highly praised, that if they were as good as they say they would drive all others from the market. What a difference in looking at the strawberries and then in going out on the street and looking at the strawberries the people are supposed to buy. To raise a good article requires work and effort. To know how to grow them, I know of no better way than to go among some of our growers and see how they do it. You saw the berries brought in by Mr. Pope. To grow those berries requires cultivation. The soil should be thoroughly pulverized. Set the plants in good order and do not cover the crown.

Mr. Knowlton—I have in my mind so many good things in connection with the opportunities we enjoyed yesterday that I hardly know what to say at this time, but I am glad that we had the opportunity of visiting the grounds of the hospital with special reference to horticultural work as it is being done there.

The pomological society for a great many years has been organized for this horticultural work in the State, and for various reasons it has been working along just about the same lines in which it started. It seems to me that the work begun at the start, while it was of good character and probably exactly the work that a society of our kind ought to do in the State, yet with every other institution growing and increasing in usefulness and power, the time has come when our society ought to do a great deal more than it is doing, and this initiatory field meeting was

something I looked forward to with a great deal of pleasure. I regret that a larger number could not have been present to look over the work they are doing there.

It is very gratifying indeed that the public institutions in our State, as a rule, are inclined to do so much horticultural work and especially that which is of a decorative nature.

The hospital grounds are very favorably situated for work of that kind and the work done there is very complimentary to the skill of Mr. Allen, the gardener, and to those who direct his work.

The work of our society should reach out and encourage just this sort of thing in the State. There are several things in which our society is very deficient and it seems to me we are almost culpably so in some respects. For instance, I do not know the exact number of school-houses in the State of Maine, but we have a great many. In the first place, many of them are on small lots of land. Many of them are on lots of land absolutely neglected and uncared for. Others, while on larger lots of land, nothing is being done to beautify them and make them attractive. It seems to me one thing our society ought to do is to encourage the decoration, the embellishment, the beautifying of school-house grounds.

One of the brightest and prettiest spots to visit in the city of Boston is the school grounds of Mr. Clapp's school where he has a great variety of wild flowers growing. He gives the pupils the opportunity of growing the flowers, and while growing them they are studying their botanical nature. Those boys and girls really know more about the wild flowers of Massachusetts than the people of the country who have lived all their lives among them. The lessons they are learning there will be invaluable. If we could have something of this kind started in this State, how much brighter the lives of the boys and girls would be for learning to love and care for them, and learning what they are made for and thus opening their eyes to observe as they go about the beauties of nature which are created for our enjoyment and appreciation. I hope the time will come when our society may, some way actively, either in premiums or otherwise, encourage the schools in the State to do something of this work of embellishment and decoration.

In regard to neglected cemeteries, although I think there is an opportunity for our society to do a great deal of work in that direction, there is a great need of work around our churches too. A great many good people think a place of worship is only a place of worship and that is all that is necessary, however bald and naked the walls may be, and however neglected the surroundings. Let us urge the planting of trees and vines about these sacred edifices, and our children will learn to love them.

OUR EXHIBITION—ITS QUALITY.

Prof. Munson.

It was very much better than last year in the floral display and I am certainly very much pleased with the general effect of the display and it is very evident that we can hold a successful summer meeting of the society.

Concerning the floral display, I note quite a number of plants that have been started in the greenhouse and have come along very much earlier than is usually the case. That leads me to note that the people are coming to grow ornamental plants very much earlier. Our stocks, for instance, are very much earlier than usual. They usually require ten weeks in which to bloom.

I have been especially pleased with the remarks of Prof. Cook and Mr. Knowlton concerning the influence of flowers upon the home in general. No man or woman that is an admirer of plants or flowers but what is elevated, is ennobled, and I wish if possible to emphasize the importance of bringing about an improved environment for our young people.

Concerning the varieties of fruits, I wish to mention just a few. The Clyde speaks for itself; a few of the other varieties might be called to mind some of which are not shown. The Greenville is really one of the important ones at the present time for home use and for the market. The old Sharpless and Crescent are always worthy of a place in that connection. One variety that does not receive as much attention as it ought to for a market berry is the Warfield. It is very dark and firm and deserves very much more attention than it gets. Another variety which is well worthy of attention is the Dayton.

In the matter of fruits, as your president wished me to say something about the quality of the exhibit, I might, perhaps, call attention to the tomatoes of the college exhibit as showing something of plant breeding. You know how much attention is paid to breeding by our stock raisers, and we as horticulturalists are beginning to understand that we must do a little breeding too. The one pet we have especially was a little past its prime so we could not exhibit that. A few years ago we made a cross between the little Currant Tomato and the Lorillard. The idea being to get the earliness of this little fellow with the size and productive qualities of the other. The Peach and the Lorillard were then crossed to get, if possible, a yellow tomato that should blush.

I might suggest a few roses which are very desirable in this State. One of the most satisfactory roses for general purposes is the Madame Plantier. It blooms but once during the season but the blooms last for two or three weeks and it is one of the most satisfactory white roses grown. The Marshall P. Wilder, a rich cherry in color and very satisfactory. The Rothschild should receive attention and is a valuable choice.

Mr. Cook—I was very glad to hear our secretary propose a wider range of influence for this society in decorating the grounds, not only public grounds but the private grounds of the home and farm as well. One thing that has occurred to me since that meeting at Bangor, is this: a gentleman in talking with me said, "I never put a seed into the ground and see it grow and develop without thanking God for ever calling my attention to this line of business." I think no one, boy or girl, man or woman who practices to any considerable extent the development of flowers and cultivates the small fruits as well, but must have better, higher, holier thoughts, but what must have a better character on account of the occupation, and this society can do nothing better than to extend its influence over the State in regard to these things, the cultivation of flowers and fruit. I was glad to hear the suggestion made in this exhibition here to-day.

I saw a sight this morning which it seemed to me was a vast improvement on anything I had ever seen in connection with the flowers, they were so abundant, so beautiful, and so perfect,

growing with such vigor, and yet there was no expense laid out other than might be on almost every farm in the State, and if sufficient influence could be thrown out from the pomological society in regard to the cultivation of the better fruits and more of them, in regard to cultivating more flowers, in regard to surroundings of the children while at school or at home it would be doing a grand work, and I hope in the future this may be realized.

Mr. Munson—In connection with extending the work of this society it seems to me that these field meetings are perhaps the work of the society in one way. We go to some place, to some leading orchardist's place, and there we learn in a practical way what somebody might tell us about from now till doom's day and we would not take it in. I wish this society, next year, might meet at some place and take some of these practical lessons. In Connecticut some of the most important meetings of the society are held at the home of Mr. Hale, in his strawberry field. Here and now, I should like to ask the members of the society to come over to the University for a summer meeting next summer. I shall be very glad to have a field meeting held at the University and we can discuss what the Experiment Station can do for the society and the society for the Station.

DISCUSSION.

Q. Will Mr. Pope tell us something about the strawberry which he exhibits without any name?

A. Two years ago our little girl was out in the field looking for strawberries and discovered one plant whose berries were much larger than the others. So she brought it up and put it in the garden and that is the first fruit we have had from it. What it will amount to of course we can't say. The size is pretty good, the quality very good.

While I am up I want to say a word about the quality. I went to the row this morning with the spade to take up those plants, I said, those berries are most too small, but perhaps they will help out the exhibition. The Clyde, I had a dozen or more come from New Hampshire last year as I wanted something to give pollen to fertilize the blooms of the Greenville and Crescent which generally give us the most fruit, but it is necessary to

have them fertilized by some other plants. We were pleased when we found this Clyde, it is a strong grower so we have to set the plants in rows three feet apart and the berries are very large. They will give us not only what pollen we want to fertilize the other berries, but give us a large amount of fruit, perhaps full as much as the old Crescent.

The Enhance is a fair berry, gives a fair amount of fruit but is not handsome. Very seedy, not a pretty berry and does not give us as much fruit as some of them.

Q. What would be your choice for market?

A. Remember one thing, what would be my choice and give me the most fruit would perhaps give very little fruit on my neighbor's ground. For us, we would probably get as much fruit from the Crescent, and Greenville with the Clyde for a fertilizing plant as from any other.

The Parker Earle is a good berry and almost equal in flavor to the field berry.

The Marshall, grown free from rust, is a berry for quality above anything I have seen.

Q. What is your best early berry?

A. There is not so much difference as a great many people imagine between early and late berries. I have been disappointed in setting what were called early berries. The Beder Wood we will get, perhaps four or five days earlier than the Crescent. Then the Crescent a week before the Greenville. The Greenville will give us as late fruit as we shall have. You cannot prolong the strawberry season a great many weeks.

Prof. Cook—There is one lesson I want to call your attention to. How many little girls finding an unusually large strawberry would do anything to develop it in the future. How important that children should be taught the powers of observation and thought, and how important that we as children of larger growth should cultivate these powers also. It makes a wonderful difference in life whether we see things and look for them, or pass them by without notice. Edison's success is due to just that thing. He met a sand bar on the New Jersey coast. He looked at it and examined it and kept on until he not only made a million of dollars out of it for himself but gave work to those who but for him would have had to go West for employment. We

cannot pay too much attention to what we meet with in the world, especially in the world of nature.

Dr. TWITCHELL—The work started by this pomological society a few years ago, seems to me, was at the time and is to-day beyond the comprehension of the members of the society in its magnitude. Unconsciously, I believe, and yet as a result of the agitation of the question through the press and by the pomological society we are finding that far more attention is being given to the decoration of the lawns and yards about the rural homes than at any time in the past. I have been surprised during the last month in driving forty or fifty miles through the country to find the number of farm homes where you will find the lawns graded, more or less, and closely cut and something being done in the way of decoration. I have also been pleased to see how some of our florists are agitating the display of flowers about the house, both for decoration and for bloom. At any rate it seems to me that this is a step in advance of what they have been doing in the past. There is no way to extend the influence of the society so quickly as by object lessons. I remember down in the provinces as I was driving along, I came to two houses exactly alike, on opposite sides of the road. In the yard and room of one house I saw plants in bloom, in the door of the other house stood a hog. I think we can always judge something of the home by its surroundings. I remember in Aroostook how I was impressed in driving among the French settlements to see the flowers and plants around those homes and I certainly think they had some appreciation of the beautiful.

I think a society that can strengthen that love for the beautiful, as well as for the useful, for the fruits as well as for the flowers, and enlarge the scope of thought and purpose in this good old State of ours will do a work the benefit of which to the State is beyond computation. It means earnest, persistent effort, beginning as the society has with the field meeting at the hospital and this little exhibition of fruits and flowers. I was very glad as I stepped into the hall to hear the secretary speaking of giving more attention to the cemeteries, school buildings and churches. Why should our churches stand without some outside adornment; why should they not be made perfect with running vines, and blossoming plants; why should

not our cemeteries without the expense of professional decoration, but by the effort which each one is able to make be made more beautiful?

President TRUE—One thing which will do more than anything else to increase the usefulness of the society will be to have its membership enlarged. That will add to the permanent fund and the society can only use the income from it. In that way I think we can increase the usefulness of the society.

Professor MUNSON—The Crimson Rambler has been grown to quite an extent; is a very profuse bloomer and well worthy of attention where you wish for block work or wish to conceal anything. The Yellow Rambler has not been tried that I know of in Maine.

Secretary MCKEEN—I have been very much pleased in looking over the fruit and flowers in the room adjoining. I believe the pomological society is doing a good work in taking up this subject and that it should be presented to the minds of the people more than it has been done.

AT THE WINTER MEETING IN SKOWHEGAN.

ADDRESS OF WELCOME.

By ANSEL HOLWAY of Skowhegan.

"In behalf of the members of Skowhegan Grange and citizens of the town of Skowhegan, I extend to you, Mr. President, to the members of your noble society, and all visitors who are with us to-day, a cordial welcome to our town.

"While we do not claim the culture of apples and small fruits upon so large a scale as some other portions of our State, yet we have in our vicinity some progressive and successful orchardists. There is one orchard of from 1,800 to 2,000 trees; another of 1,700 or 1,800 trees, one of about 1,000 and still another of 1,300, about one-half of which is bearing fruit. All owners of these orchards and scores of others join with me in welcoming you to our town.

"Twenty-six years ago last October, at a meeting of the board of agriculture in this town, the organizing of a pomological society was freely discussed and a committee consisting of Z. A. Gilbert, J. A. Varney and A. L. Simpson was elected to prepare articles of incorporation and to be present at a meeting to be called at the town of Winthrop, January 14, 1873. At that time and place, the Maine State Pomological Society was born. So you meet with us, not only as an annual exhibition, but it is also the 26th anniversary of your organization, lacking only a few days. Knowing full well we shall be much benefited by the wise teachings and practical lectures by the members of your noble organization, we again extend to you a hearty welcome and trust that these meetings will be mutually helpful."

The response was made by Secretary Knowlton, who tendered the speaker and the good people of Skowhegan the thanks of the society for the courtesies they were enjoying on the present occasion. He briefly reviewed the work of the society and the purpose for which they were meeting in Skowhegan. Some of the best fruit grown in the State comes from the fertile hillsides of Somerset county, and some of the most skillful fruit growers are producing the fruit. It has been a matter of regret that scores of these growers have not united with the society in promoting the industry. Possibly it may, in a measure, be the society's fault, inasmuch as it is meeting in the county for the first time. This year the time seemed favorable for the holding of the meeting here, and the programme prepared for the occasion is one that bears on the present condition of fruit culture in the State. It is a matter of congratulation that you have grown so much fruit the past year when other parts of the State have had little or none, but the foe may reach you next year and the lessons taught at this meeting may be helpful to you. It is the hope of the officers of the society that you may gain the most advantage possible from this gathering here. Pleasant recollections will be carried away from this meeting and the best wishes of the society for your future success in fruit and flower culture will remain with you. Thanks for your cordial invitation, thanks for your kind assistance, thanks for your hospitality that has thrown open the doors of your beautiful halls and made Skowhegan a favored location for a winter meeting of the pomological society.

THE PRESIDENT'S ANNUAL ADDRESS.

By John W. True, New Gloucester.

Ladies and Gentlemen:

The Maine State Pomological Society has come together at its twenty-fifth annual meeting. Another year has passed, and the fruit-grower has not been exempt from the varying conditions of success and failure throughout our State. The Maine State Board of Agriculture in its bulletin for November gives some counties as low an average on quantity of fruit as 16%, and as high as 118% for Aroostook county, where until within a few years it was thought apples could not be raised. Other counties were given as high as 79% and 85%; in our own locality it is probably no more than 10% of a full crop, and perhaps less than that was harvested, so that we would call the apple crop a failure in our section. So, with two failures in succession, the apple raisers are not very enthusiastic over the subject and are very much inclined to neglect their trees, claiming that there is a more regular and steady profit to be derived from other branches of farming. We are inclined to think it a mistake, where farmers already have orchards, to neglect them, for in many cases where fruit trees have been well cared for a fair crop has been gathered the past season. In our own case, we are still setting trees, and giving to those already set all the time and dressing we can afford and carry along our other farming operations. What was the cause of such a wide-spread failure is hard to tell, as the bloom was very good; but probably it was the condition of the weather at the time of blossoming, as in our section of the State we had very little sun and the bees and other insects were out but two or three half-days and for that reason the blossoms may not have been fertilized or the rain may have washed the pollen out. Early fruit was plenty, and as that usually blossoms a few days in advance of winter varieties, the surroundings may have been more favorable.

Spraying was given more attention the past season, but the rain, coming as it did every day, partially defeated its good effects, and we are inclined to the opinion that successful apple culture will "simmer down" to those who give the business

special attention, in cultivation, pruning and spraying every year, fruit or no fruit.

Advice is given to farmers to diversify their operations, so that if this or that crop fails, they will be sure of something; but we must all remember, in that case, not to attempt too much in any one line, so that each shall receive its full share of attention.

In some parts of our State the tent and forest caterpillars have damaged the trees to a great extent. Some orchardists have worked hard to keep their trees clear of the pest, while their neighbor just over the fence has not spent a moment in that direction. Such a situation is very discouraging, and we would like to raise the question whether or not legislation on the subject is expedient. As a means of warfare against them the ordinary "Gold Dust," dissolved in water and applied with a swab on the end of a pole has been found to do very good work, doing no injury to the tree. This is where spraying is not practiced. Thorough spraying with paris green while the caterpillars are young will clean the trees.

Another pest made its appearance in our section, which appeared to be either the bud moth or the leaf roller. In its early stages it was a green worm about one-fourth inch long, rolled up at the tip of every twig of the tree, eating the new bud as fast as it grew. Later it turned to a brown color, and so did the trees, small trees set one or two years losing every leaf and being obliged to start out anew and make their growth late in the season. Question: Were others in other parts of the State troubled in the same way? What was it, and what shall we do for it?

Yet another pest that it said to be coming this way and was treated at one of our recent meetings is the "San José scale." The question we would raise in regard to it is this: Is it practical to ask for legislation to have all nursery stock, scions, etc., inspected on coming into our State or require a certificate to accompany every order coming into the State, saying that it is free from the pest? It seems to us that something should be done at once on the old theory that "an ounce of prevention is worth a pound of cure."

The trypeta is still advancing, more disastrous to our fruit than ever before, and as yet no help in sight. Pound Sweets,

Nodheads and Spys, as well as all of our earlier fruit, were entirely ruined, and we propound the question to the professors of our Experiment Station at Orono, *What shall we do?*

In still another direction our hopes have been rudely shaken, and that is, in the form of black knot on the Japan plum trees, the Burbank suffering quite badly; so that if tree agents claim that they are exempt from the scourge, remember that in all probability you will still have it to fight, although it is our opinion, founded upon what little experience we have had, that it is not nearly as susceptible to this disease as are the European varieties. Some of the varieties of "Japs" are proving to be shy bearers, and the advice given by some of our fruit growers, to go slowly, is good and will bear inspection.

We have seen the advice of a number of fruit growers the past year on varieties to plant, and in every case they say stick to the old and tried kinds. In spite of the thousands of new varieties of winter apples, or rather *market* apples, the old Baldwin is still at the front with a good lead; the Ben Davis, with all its imperfections of quality, is second; so the old advice still holds good, to let the experiment stations and those who can well afford it do the experimenting with the new and untried kinds that show off to such good advantage on paper. Every year our own experience emphasizes the fact that we should *not* plant the Baldwin direct from the nursery, but set some other variety, then graft to Baldwin in the limbs. The trees that have been set fifteen years already show signs of weakness where the limb unites with the trunk. In choosing a stock at least three things are very essential. First, a trunk that will grow as fast as the Baldwin scion, so that there may be no weakness at the union of stock and limb. Second, a hardy tree that will withstand our cold, trying winters. Third, one that has its limbs firmly set to the trunk with no tendency to split down. With either one of those three esentials lacking, your tree will surely be short lived. We have some very fine trees on the Red Astrachan stock. The Talman Sweet and Northern Spy are excellent.

The Ben Davis may well be set directly from the nursery, and with good cultivation and care is as sure a crop as corn, and a good crop of them is good property along in March or April. The trees can be set a little nearer than Baldwins and should be

headed up quite high, four to five feet, as the limbs have a tendency to droop and would interfere with cultivation.

We would like again to call the attention of our fruit growers to an organization that was formed a year ago, with a name something like this: The Maine Fruit Growers' Association. It was formed for the purpose of furnishing a better market for our fruit, and we would suggest that during these years of scanty fruit it would be a good time to perfect the organization, for we believe there is just as great a demand for such an organization now as there was at that time, and if we wait until the heavy crop is here it is then too late to be of the most benefit to us. We believe the officers were chosen and instructed to do certain things. Let the fruit growers hear from them and if possible let them report progress.

During the past year our society has changed its usual course of procedure in so far as it relates to the autumn exhibition with the Maine State Agricultural Society. The reasons therefor were printed in circular form by our secretary and distributed to each of our members. The object for which our society was brought into existence was to advance the interests of fruit culture, and not to distribute the State stipend and our income from our permanent fund. And so far as we could see, for the past few years, there was very little of the educational feature prevailing at the usual autumn exhibition. The same people were there, and apparently some of them, at least, for the same purpose, to get what money they could out of the society's funds. And one of the arguments for an exhibition with the State society was that the people could bring something, and take premiums enough from our society to pay their expenses while attending the fair. In our opinion the society has been localized too much; it should be spread out. Give the people in different parts of the State the benefit of the money taken from them in taxes and not give it all to one set of people. There has hardly been an exhibit from York county at our State fair exhibition for the last five years,—I could almost say, for the last *ten* years. And if you should attend an exhibition where people from the southern part of the State made an exhibit of fruit, apples, pears, and plums, we are very confident that anyone could see at a glance that they were not nearly so far advanced in fruit culture and the knowledge of varieties as the fruit growers of some

other parts of our State where the influence of this society has been felt. We have seen exhibits with the stems of half the specimens pulled out, and the other half would be wormy apples; again, there will be two plates of the same variety but with different names in the same collection. We are confident that this state of things could be materially changed by the efforts of this society expended in the right direction. Take such a meeting as this; it is something new to the locality, the officers and many members of the society will be here, and any errors in naming varieties will be corrected, if known, and in other ways the fruit growers in this locality may be able to learn something, and we are sure that very much learned with the object lessons directly before us will be remembered and used to advantage. Therefore it would seem best that all of the larger exhibitions of the society should be held in different parts of the State. We are still in favor of the summer meetings. The strawberry and rose meeting of the past season was not as successful in point of numbers as we could wish. It is possible that some other locality would have given us a better attendance.

There are many ways in which the fruit growers' interests can be advanced in a more directly educational line than it possibly can be in the old way of having one fixed exhibition held at such an early date as has been the custom for the past few years. Therefore it is hoped that our successors will give this subject careful attention, to the end that the primary objects of the society may be accomplished.

We would not turn a "cold shoulder" to the floral department, for the presence of flowers enlivens and enhances the beauty of every fruit exhibit. But we must not lose sight of the fact that this society was formed and brought into existence for the purpose of fostering and advancing the interests of the fruit grower, and that the floral department is secondary and must always be so considered. The two should work in harmony and we see no reason why they can not do so, and in that way the greatest good can be accomplished for all concerned. We hope the members and others present may take up some of these questions and discuss them and in that way we hope some good may come from these few thoughts that have come to us during our daily toil on the farm.

VARIETIES OF SMALL FRUITS I LIKE.

By Chas. S. Pope, Manchester.

Mr. Pope placed the strawberry at the head of the list for a home fruit and for market. The returns were quickest from this fruit. At the head of the list of varieties he placed the old Crescent, after a trial of a dozen years. He advised a trial of a number of varieties in different localities as there was a great variation in the profitableness of varieties in different localities. These traits could be ascertained only by a trial. He next named the Bubach as a good market berry, but somewhat deficient in quality. The Greenville was a good berry. The Parker Earle was another good one.

A new one he had tried was the Clyde, a great grower but not with him the best quality, but an attractive sort for market. In answer to a question Mr. Pope said he planted the vines three feet apart, in rows four feet apart, and let the plants gradually fill the space, keeping the plants thinned out.

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The raspberries were apt to winter-kill in our climate, hence hardy varieties should be set. The Turner was a good berry but small. The Cuthbert was large and a good berry. He laid his vines down in winter, covering the top slightly to protect them.

The Schaffer was a great grower and good bearer, and a fine berry to can. It was a difficult sort to lay down in winter. He protected by boughs, cutting the canes to about five feet, tie tops together and place boughs about them for protection. He let his plants grow through the summer and cut back in the spring. Planted the rows seven feet apart and three feet apart in rows. A row 100 feet long produced two bushels.

Some planters got more profit from raspberries than from strawberries. He planted in long rows and cultivated with the horse. The fine earth made a good mulch. It is essential to keep the rows clear of weeds and grass.

A gravelly loam was good for raspberries. The strawberry would adapt itself to a wider variety of soil.

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He had tested the Snyder and Agawam blackberries and advised the Snyder as preferable when left to mature on the

bushes. To procure the best fruit raise it rather than depend on the market. He advised everybody to grow all the small fruit the family can consume. A little labor in growing strawberries, raspberries and blackberries will produce a bushel of these fruits as easily as a bushel of potatoes.

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The currant is one of the best of fruits and one easily grown and it was a surprise to him why more farmers did not grow this healthy fruit. The great drawback was the currant worm, but this was kept in check easily by the use of hellebore.

Fay's, White Grape, Wilder, the Victoria, were named as valuable sorts. Mr. Pope had tried the Red Cross and given it up. The Prince Albert was a strong-growing sort and apparently a good variety.

For market, he planted the Wilder; for home use, he preferred the White Grape. Advised planting two or three varieties for family use, a few White Grape; for jelly, Prince Albert, then the Wilder.

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For plums we should have several varieties. The McLaughlin, Reine Claude, Green Gage were three good varieties. The Lombard is a good bearer. The Burbank was a good canning plum but lacked in quality. The Abundance had not succeeded well with him. The Satsuma was a good plum for canning and of fair quality.

To head off the curculio advise planting in the hen yard, if that could not be done depend upon jarring the trees and catching the bugs on sheets.

Spray with the Bordeaux mixture to prevent fruit rotting, beginning as soon as the buds begin to swell, again after the leaves are out and after the fruit has set. Destroy all the mummied fruit in the fall or whenever it is seen. Spraying should be continued up nearly to time the fruit begins to turn. Thought spraying was helpful to prevent black knot.

Advocated thinning the plums when bearing excessively, picking off half the fruit. It is better for the quality of the fruit, and vastly better for the tree. He emphasized the statement that thinning was absolutely necessary to best results in growing plums. Spoke well of the Bradshaw, but condemned Moore's Arctic.

AMONG NOVA SCOTIA FRUIT GROWERS.

Secretary Knowlton has been making somewhat of a study of fruit growing in Nova Scotia. His first acquaintance with Nova Scotia fruit was three years ago at the International exhibition held in St. John, where he acted as judge of fruit. The two following exhibitions he served in the same capacity, and this year and last he acted as judge of fruit at the Provincial exhibition held in Halifax. At St. John there was a large predominance of Nova Scotia fruit, and at Halifax the fruit was all from Nova Scotia save one exhibition from Prince Edward Island. The excellence of the fruit the past two years, especially while in Maine the few apples raised were either wormy or covered with scab, led him to the conclusion that Maine people needed a better knowledge of cultural methods and care of the trees. The purpose of the paper was to state some interesting facts he learned from the fruit growers there and the orchards he visited.

As an illustration of the quality of fruit raised there this year, he had before him an exhibition of thirty of the most popular varieties of Nova Scotia apples put up for the occasion by Mr. R. W. Starr, who for years has been identified with fruit growing in that province.

The Annapolis and Cornwallis valleys produce more fruit than any other section of the island, though some of the best fruit on exhibition was grown in other parts. In these valleys conditions seem favorable for orcharding. On the north of the island from Digby to the Basin of Minas there is a high and continuous hill along the coast. It is known as the North Mountain, while a few miles away, running nearly parallel, are the South Mountains. The two valleys lie between these mountains, the Annapolis extending east from Digby until it merges into the Cornwallis valley, whose outlet by sea is over the Minas Basin out into the Bay of Fundy. These mountains protect, in a large degree, the trees from the cold winds of the north and the heavy winds from the south.

For the most part the orchards are not very large, perhaps in consequence of the high price of the land. The growers are

inclined to cultivate well, few trees, rather than to have many neglected ones, which Mr. Knowlton thinks is very good doctrine for Maine growers.

From his observations he is convinced that Nova Scotia conditions are much the same as along our coast in Maine, and he believes that the same skill in care and culture of the trees would enable our shore towns to produce their own fruit, and possibly some for the rest of the world.

The Gravenstein is the popular apple there, and if it were possible for the grower to find a market, there would be few other varieties grown. As it is, they have the idea that it is necessary to begin marketing them before they are fully matured, and this, no doubt, is the reason why the fruit is so inferior in coloring to our own Gravensteins. Gravensteins served at the hotels in Halifax and St. John were too green to be good, and many in the local markets there were of the same quality.

The Gravenstein is a great bearer there, and has a record which well nigh gives it the championship. In one orchard in King's county there is a tree that produced 18 barrels in 1878; 25 barrels in 1880; 23 in 1884; 24 in 1886; 27 in 1888; 20 in 1890; 21 in 1892; 26 in 1894. It is an interesting variety for study and experiment. Several sports have become fixed in type and do not revert. The Bank's Gravenstein is one of these. It is higher colored, not quite as large, and possibly a little better in quality. This and another sport are grown largely to color the original variety by their presence among them in the barrel. Some of these sports were grafted into Maine stock last spring, and they will be watched with interest.

Other popular and profitable varieties are the Blenheim Pippin, the Ribston Pippin, Nonpariel, Golden Russet, Tompkin's King, Fallawater, Ben Davis, Baldwin, Northern Spy, R. I. Greening and Wagener.

The fruit was of excellent quality. The growers in Nova Scotia have all the difficulties that Maine has. Insects and fungous diseases abound, but they have bravely met them and are largely conquering. The general appearance of the fruit trees showed their health and vigor. Now and then there is an orchard neglected, and its condition was recognized far away—care and culture are the rule and not the exception.

As an illustration of the methods, reference was made to the Hillcrest orchards, owned and operated by Mr. Ralph S. Eaton, at Kentville, which Mr. Knowlton had the pleasure of visiting with Mr. Eaton, who is the largest and one of the most intelligent and skillful fruit growers in the Province. For several years he was a successful teacher but his love for rural pursuits and good health led him to purchase a farm some twelve years ago. He now has sixty-two acres in orchards. One orchard was set on land covered with a second growth of trees of various kinds. It must have been a great task to accomplish what he has in the years since he began. His orchards now contain 5,000 apple trees, 3,000 plum trees, 1,100 of which are Burbank; 3,000 cherries, 500 pears, 1,100 peach, 300 quince, and the same number of apricot trees.

In one orchard the trees have been set within ten years. The oldest of these trees are beginning to bear. This orchard he has plowed or cultivated five or six times during the past season, and at the time of visit the clover sown for a green manure was just making its appearance. Next spring he will plow the clover in. Five times during the year he had sprayed his trees. On the outer edge of this orchard was one row which had not been plowed, the trees standing in grass land and being thoroughly mulched with hay. Mr. Knowlton, when he saw the trees, asked Mr. Eaton why they were so inferior to the adjacent trees, and was assured the culture made the difference, though the trees had not been set quite as long. Down through the centre of this orchard was one row that had not been sprayed at all. First, the foliage of the trees was very different in its color and perfection; secondly, there seemed to be more inferior fruit on this row of trees than on all the others. They were wormy and scabby, and lots of poor apples were under these trees. The lesson was indisputable, and would satisfy any observer of the efficacy of skillful spraying.

Mr. Eaton in 1897 raised about 2,000 barrels of apples and this year he expected about 500 or 600 barrels.

Mr. Knowlton in closing his remarks spoke of the important agencies at work in the Province to encourage the industry. First, there is the Nova Scotia Fruit Growers' Association, an organization that is well officered with active fruit growers who

neglect no opportunity that will encourage the growers, or extend the popularity of their favorite fruits. The second agency grew out of the first. It is the horticultural school organized some years ago at Wolfville. Last year there were in attendance sixty-five pupils, who under the direction of Prof. Sears, were making a study of the science and art of fruit growing.

The people of Nova Scotia are enthusiastic in the matter of fruit growing. They believe in its possibilities, because so many of them thus far have found it profitable. They are well informed in methods, and eager to "catch on" to any ideas calculated to aid them. They are our nearest competitors for the European markets, and it is important for our fruit growers to study their methods and make our own methods better and so far as possible more profitable.

NOVA SCOTIA METHODS BY A NOVA SCOTIA FRUIT GROWER.

By R. W. Starr, Kentville, N. S.

We were growing largely potatoes and raising beef, the other was a side show, but the Western beef growers cut the market over our beef, and your own men destroyed our potato market in Boston and New York by growing more potatoes yourselves, and putting a large duty on to ours. I can't blame you for that. We were then deprived of these markets and were forced to look over other markets and other produce. We had been working quite largely in improving our fruit not only in our way of growing them, but in the varieties grown. This helped us to alter our system. The orchards were planted largely, and everything was pushed to the utmost to grow kinds to suit the market. Systems of planting were taken up and studied, and given out in our association meeting. We tried to plant by the best methods which would give the best results. Coarse manure was put on in the fall. If we applied it in the fall, in the spring it was ready to be taken hold of and made use of as soon as growth commences, and the soil is in condition to allow that

tree to ripen its wood and buds, making it in good condition to get through the next winter's process.

The farmers use a sort of sled, like a flat bottomed boat, that is hauled by a pair of horses. I have seen a great deal of injury done by manuring with green crops late in the spring, the latter part of May. Supposing June and July is dry and it comes off wet towards August and September with the half rotted manure the soil gets up a strong fermentation, and creates a secondary growth in the late season, and the action of the frost on that unprotected fruit is one of the most destructive things that we have to contend with, and that is why we so vigorously ask that all cultivation be made so that the trees shall ripen as early as possible in midsummer. We can't control nature always, but we can do a great deal towards it.

Somebody was speaking to-day about growing Baldwin trees, that it was almost impossible to grow Baldwin trees on its own roots. I think that depends altogether upon a system of pruning. When the Baldwin tree is taken from the nursery and set into the orchard, and you cut off all but one leading branch, and you make all the other branches subordinate to it for the first five years, then you will not be troubled with splitting limbs. If you allow four or five, it is only a question of time when the limbs will split. The Baldwin isn't the only tree that will do that but the Gravenstein will also. You have got to watch all your trees in pruning. I have seen a Baldwin tree that came from a nursery with a very handsome top on it pruned to a whip stock, and some men would have thought that tree was ruined, but that tree would make the best one in the orchard.

For spraying we allow four pounds of Paris green to forty gallons. We insist upon using it weaker than that if it is to be used very often.

In carting from the fruit house many persons will load them on to an ordinary hay wagon. Many of our farmers haven't got spring wagons, but they find what does very well instead of springs, and that is a foot or two of hay in the bottom of the wagon.

Q. You let them remain how long in the barrels before you ship them?

That depends altogether on the demand. We sometimes can only let them remain a few days, but we calculate to let them

remain two or three days before they are shipped, but sometimes I have known them to only stand over night. An order may come in sooner than you expect, and a man may have to put up fifty or 100 barrels of apples to go on board the cars, and to have perhaps not over forty-eight hours to do it in, and in that case we have to put more pressure on the screw in putting the head in. We can always allow something on the time in which the apples have settled.

If we are putting up a barrel of Gravenstein out of apples that have had no time to settle, we will put a cushioned head on. The barrel is shaken down well and you put a screw on the top of it, and calculate to settle it down an inch with the screw. If they have stood four or five days, three-fourths of an inch.

Q. If apples are put into a cool cellar do you leave them in a barrel?

A. All apples that are shipped before the holiday season we calculate to put right into the barrel in the orchard and never disturb them. To be sure that they will be sound, every apple is picked up off from the ground before we do anything else. If any apple has laid on the ground for any length of time, it isn't safe to ship across the Atlantis. If it has only laid over five hours, on ordinary soil that apple is injured during that time, it will turn brown and rot will commence there very much quicker than anywhere else.

Year before last there were a great many Stark apples, we had an enormous crop as you did, and farmers were crowded off their feet to take care of them, and they didn't use the care and skill in packing that they should have done.

Q. The later varieties that you put into your cellars, do you put them into bins?

A. We used to put them into a bin and pick them out, but lately we pick most of them into the barrels and pack them away. If we do put them in a bin and they have stayed some time, they are put on a packing table and picked over.

A man can do a great deal better on a table than to have them poured out into a bin.

Q. How do you grade your apples?

A. The most particular men are those who grade for color as well as for size, and by keeping them in barrels you can grade

by color, because some trees will be much brighter than others. If they are put into bins they are all mixed up.

Q. Then the sorting as a rule is done at picking time?

A. Yes.

Q. How small an apple do you consider a number 1 apple? Take a Baldwin for instance?

A. A number 2 Baldwin one year is almost a number 1 another year. The Baldwin is not a favorite apple with us, although we grow a great many of them. You can beat us in growing Baldwins.

Q. What is your favorite eating apple to ship to Liverpool?

A. We don't ship much to Liverpool but mostly to London. One of our best apples between the Gravenstein and the Pippin is the Ribston Pippin, it is a regular bearer. It has some faults; this year there are some faults that are rather more prominent than usual. It is what we call dry rot; it commences under the skin, you can scarcely distinguish it, but you cut into it and you find a kind of a rot running way down to the core, and we also find it on the Greening. I really think the Greening is more subject to it than the other.

I have a list of our ten best standard apples:

The Gravenstein, the fruit should be smooth, high and evenly colored, and in quality should rank good, or best for both the table, kitchen and market.

The Gravenstein we think has more good qualities than any other taking it in its season, but being an early apple we can't expect so good a price for it as later ones, although we have received just as high prices in former years, perhaps more. I remember one time when I was farming with my father, we sent a hundred barrels Gravenstein to Halifax, and they netted $4.00 a barrel. The Ribston, the Blenheim, the King; these are the three kinds that are wanted in the London market up to this time of the year. The last shipments are supposed to leave Halifax in time to be into London the 20th of December, and they are the last we make until the shipment that is calculated to arrive there on or about the 7th or 8th of January. Any apples that arrive between these dates, you can't do anything with them, they are considered stale if they have to stand over.

After these are gone in the market, we commence shipping: Baldwins, Greenings, Northern Spys, Fallawater, Golden Russet. These ten we consider our staple apples.

Then we have the Wagener, which is coming into favor. It wants to be very highly fed or it will bear itself to death. It seems to be a tree that doesn't take up its food as readily as others, wants to be coddled.

The Ben Davis, as a rule, I think, you can grow it better than we. If they could get it from the Western farmers in London, there would be no call for ours.

The Mann. Then we have one or two English apples that are very much liked over there. Cornish Aromatic. You may keep it until next June and it will be just as good flavor as to-day; it is a good bearer but has a feeble habit of growth.

The other is Cox's Orange Pippin, over there it is considered the highest class apple on the market for dessert. It has a very high flavor, and is in season from the first of December until February. It is rather a small tree and a feeble grower, but is one of those trees that requires very high culture, and it wants well-drained, warm, light soil.

Then we have the Ohio Nonpareil, an American apple, that I think would be well for you to test. I think you would call it a good apple.

Q. Is it an apple that will hang on the tree and not drop very much?

A. It will hang on as well as the King, you might mistake it for a King.

Q. A better bearer than the King?

A. That depends, we usually consider the King the better of the two. I find that we consider the King a better bearer than you do in most parts of the United States.

Q. Do you give the King high culture?

A. Yes, but not higher than the Ribston. Those who get the highest culture are those which bear the best.

Q. How deep as a rule do you plow?

A. A tree that is four or six inches through has usually got its roots all over the soil. But when an orchard is first set out, we put the plow down just as deep as we can. I have plowed eleven inches deep, but not very long.

Q. How far apart do you set your trees?

A. Our rule is thirty-three feet.

Q. In starting your trees from the nursery you let it run run right up to one limb?

A. If it is a Baldwin I cut off all but one and afterwards let the leading limb dominate.

Q. How low do you start your limbs as a rule?

A. We start them so that when there is any crop we can drive our horses close enough to cultivate well.

Q. I would like to ask if you think spraying is injurious. The man who raises the best crop of apples that I know of, doesn't spray, he said a man told him that his orchard had been injured by spraying?

A. You can take every leaf off your orchard and do it in twenty-four hours after it has been sprayed if you use Paris green strong enough. You have got to use a good deal of judgment. The insect that has been the most trouble to us is the canker worm.

Q. What is the best poison to use?

A. Paris green if you can get it pure. If you spray early enough in the season, when the canker worm isn't very strong, there is no trouble about killing it with Paris green; but if it is left until after the blossom has fallen, your canker worm has got so strong that it takes a good deal to kill it, and if there is enough to make it distasteful put on, he would pass round, and only eat the leaves that have got the least amount of poison on it, and by eating a little at a time, he will keep on until he ends his natural existence. If you only put your Paris green on early enough in the season you are sure to kill the canker worm.

Q. What strength then would it require?

A. Four ounces to forty gallon cask. Later you may use one-half pound or even three-fourths pound to accomplish the same purpose, but if you have to do that you are almost sure to bring off the leaves.

Q. Do you always use lime with it?

A. Yes.

Q. Do you ever use it without lime?

A. Not nowadays, but they used to get desperate and would take every leaf off to kill the worms. Since we have used the lime there is not so much injury to the trees, and now you seldom see a tree injured. Spraying is universally used where I live.

The apple we call the Nonpareil came from England over 130 years ago, it is a Russet of the same family as your Roxbury Russet, and by many considered the same article.

Q. Have you had any experience in marketing apples in any other packages than barrels?

A. Yes, we have tested a good many other cases, but have always gone back to the barrel. We manufacture our own barrels. We have been agitating for some years a legal size for an apple barrel, and to make it a limit of measure, so that it could be used for anything; the only difficulty now being to get the different provinces to unite on a size.

Q. As a rule do your farmers themselves pack their apples?

A. Yes, unless a buyer when he makes his bargain, says that he will pack them. Most of our farmers pack them themselves, or employ a packer whom they consider able to do it better than themselves.

Q. Do you calculate to keep your orchards plowed every year?

A. Yes, every year.

Q. How near do you plow to the trees?

A. Just as close as we can.

Q. Aren't you afraid of the roots?

A. No, for we have a plow we can govern. In setting a young orchard the first fall, after that orchard is set, we bank the trees, the second fall we bank the trees and the third fall we bank the trees.

Q. How high?

A. Usually about a foot. It is done for two reasons, to protect the tree from swaying in the ground, and forming a hole round the tree and then when frost comes the hole filling with ice; and the other reason is to protect from mice. There is no danger of mice injuring a tree if you have a foot of earth round it.

FLORICULTURE.

By Mrs. Georgia A. Tobey.

To make the cultivation of flowers a success, three things are necessary: Sunshine, water and a love for our work. If we love flowers and are interested in them, we are, under ordinary circumstances, sure of success. So let us select a spot where sunshine is not wanting, and the other elements can be supplied. After carefully spading, rake off all the hard lumps, stones and roots, then put on two or three inches of well rotted, rich compost and enough good earth to raise about three inches above the surface of the lawn to insure good drainage. Plenty of compost will give a sandy soil, greater consistency, and at the same time render a clayey soil more open and porous; in the latter case it is better to dig in sharp sand so as to render the soil lighter and more friable at once without having to wait for the slow action of the compost. If annuals or tender plants are grown in the bed it should be cleared off after the frost has killed the plants and a two inch coat of strawy stable litter dug in as it will have all winter to decay. Follow this with a coat of well rotted compost in the spring and the bed will be in the finest possible condition. It is possible to make a bed too rich but with the exception of burning from the compost not well rotted this seldom occurs. You can easily tell when the bed is too rich by the strong rank growth of the plants, without a proportionate amount of bloom. In such a case withhold enriching for a season. In cloudy, damp weather the plants will grow excessively; for this reason the bed should be raised above the surface as described, for it is much easier to supply a deficiency of moisture than to reduce an over supply in a rainy season. In planting a bed of spring flowering bulbs, such as tulips, crocus, daffodills, iris, etc., in the fall do not dig any compost into the soil unless it is poor but after freezing put on a three inch coat of strawy stable litter as by this time the strength will be filtered into the soil. Do not plant a bed when it is dry—the best time is when freshly dug. If this is not convenient, water well in the morning and transplant your seedlings in the evening, and water well, or what is better, there are usually cloudy days just suitable for transplanting. The hardy annual such as asters,

balsams, stocks, pansies, etc., make a more satisfactory growth if started in seed boxes and transplanted into the beds while phlox, putunas, candytuft, alyssum, etc., are better sown in the open bed as their roots are so fine they are often injured by transplanting. Keep the soil loose and free from weeds, breaking up after each hard dashing rain. To keep a bed looking well cut all the flowers as soon as they begin to fade and trim off all straggling branches that spoil the symetrical form of the plants. If the plants are too thick thin them uot, as it is a mistake we often make by crowding and the result is spindling plants with fewer flowers. Of annuals there is an endless variety to select from; the nasturtiums and sweet pea should be planted early, but for the majority of them we should wait until the ground is warmer.

In the cultivation of the sweet pea, that beautiful climber which we so much admire, many sometimes make a mistake in loosening the soil about the roots. After the seed is sown the earth should be pressed down firm and hard, and never loosened, unless it is a hard, clayey soil. But as the season advances it is a good plan to add more soil which should always be pressed down firmly. Experience has taught me never to plant my sweet peas two years in succession on the same ground. No flower garden is complete without the summer flowering bulbs. Of these the dahlia leads, followed closely by the gladiolus to which we may add the canna, the tuberose, tuberous begonia and many others. After the first frost comes these bulbs should be carefully dried and packed in dry sand or sawdust to preserve them for next year's planting. Let us not forget the standby of the old time garden,—the perennials; their beauty and growth are bringing them again into general cultivation. They require little attention and respond generously to increased care and thorough cultivation. It is a good plan to raise the plants in the vegetable garden the first year where they can be frequently hoed and kept free from weeds. In the fall after the annuals have been killed by the frost they can be removed to the flower-bed where they are to bloom next year, being careful to set them a little deeper than they were before. On the approach of cold weather cover with a coarse litter to protect them from being thrown out by the freezing and thawing during the fall and spring. Of course no true lover of flowers would think of a

flower garden without roses and now that the ever blooming varieties are to be obtained at a reasonable price, we can have them from June until frost. Of course they require a larger amount of care than annuals yet with frequent spraying with whale-oil soap or kerosene emulsion, they can be kept free from insects, and if rich enough the ever blooming varieties will give almost continual bloom. Many of these are hardy and with protection will withstand the rigors of our northern winters, while many of the hybrid varieties have to be removed to the cellar. I often wonder why the beautiful moss rose is not in more general cultivation as it is thoroughly hardy and blossoms profusely if it has proper care. This rose is a sport from the old cabbage rose, although some pretty legend has attributed its mossey fringe to angels' gift. There comes a time when the earth is closed in darkness and the wind sleeps, that Jack Frost creeps into our garden and does his mischievous work. Are we to have no more flowers until spring? No, we have been mindful of this during the summer and have our window garden already prepared. Some will say I have no sunshine to give them, then you can cultivate ferns, palms, begonias, ivies, etc., as they do not require much sunlight. The geranium, carnation pink, primrose, calla lily and many others will thrive in an ordinary sitting room. We should start new plants for winter bloom as no plant that has blossomed all summer can be expected to blossom all winter. If a plant is to do duty a second winter cut it back and pinch off all buds during the summer, and you will have a profusion in winter. In potting plants for winter, use about one-third rich compost, one-third sharp sand, and one-third wood mold. The latter will render the soil still lighter and more porous, and increase the capillary power for retaining and distributing moisture. Plants must be studied and watched and their wants supplied, some require a great deal of water, others very little; some a great deal of fertilization while others not as much. But one very essential thing is their drainage, as all water not needed by the plants must pass off quickly or the soil will get heavy, hard and sour. Another trouble in household cultivation is the aphis which multiplies very quickly and feeds upon the under side of the leaves or on the young shoots and if left undisturbed soon weakens the vitality of the plant. One of the best remedies for this, where fumigation is impos-

sible, is to give a thorough bath in strong soap suds, and after a few minutes rinse in clear water. After all of our care in planting our flowerbed or potting our plants it will be almost useless if left to grow uncared for. They must have care and with it every lover of flowers will receive reward for her labor. Now that we have our flowers, let us not be selfish with them. I often think for every flower plucked two are sent to replace it. So let us give generously, and the recording angel, only, knows how many hearts are made light and how much pleasure we bring to others by a handful of our flowers.

TEACH THE YOUNG TO ENJOY FRUITS AND FLOWERS.

Professor Elijah Cook of Vassalboro followed Mrs. Toby in an earnest and interesting talk, his subject being the importance of teaching the young the care and to love fruits and flowers. He spoke of the power of influence in changing the habits and thoughts of children to high and noble purposes. He spoke of the influence for the bad by the perusal by children of some forms of literature of the day. He spoke of the evils of intemperance and the use of tobacco, but the influence of pernicious literature was worse than either. Gave an example of a boy in New York who was now in prison for the committal of a crime induced by reading yellow-covered novels.

Instances were given to show the power of influence to higher and better living in the young. The influence of the ethical side of flowers and plants in the home was great. The demands of the soul which lives forever should be met in the young in the home.

A flower is a thought. A landscape is a picture. Every forest is a fairy land. Every child should have its thoughts turned to these pictures of ennobling influences.

We should teach our boys and girls to love the flowers and fruit and their cultivation. There is something to be learned all the time. There is beauty in fruit. Then we want the best. It doesn't pay to do things by halves, but it does pay to produce the best.

SOME ORNAMENTAL PLANTS FOR MAINE.

W. M. Munson, University of Maine.

(Abstract.)

One of the most striking traits of the American people is the *spirit of unrest.* It is the element which leads us to clear the forests and settle new states. It is the spirit which drove the emigrant's wagon across the desert to California, which leads men to forsake the classroom, the counting house and the pulpit and risk life and limb in the gold fields of Alaska; which overruns and takes possession of an empire while the cabinets of more conservative nations are considering whether or not it is necessary to interfere and restore the balance of power.

On the other hand, the *spirit of unrest* followed into society and the home makes of man a feverish being in whose Tantalus' cup *repose* is the unattainable drop. Unable to take root anywhere, he leads, socially, and physically, the uncertain life of a tree transplanted from place to place and shifted to a different soil every season.

American people are specially fond of the word *settle.* Every year large numbers of our young men and women go west to *settle,* while those already west move to new parts to *settle* again. So truly national is the term, that all business transactions of the country, from state debts to farm produce, are closed only by being *settled.*

Yet, as a people, we are never settled. In this country a man builds a house to spend his later years in and sells it before the roof is on; he brings a field into tillage, and leaves other men to gather the crops; he embraces a profession and gives it up; he "settles" in a given place and soon after leaves in order to carry his longing for change elsewhere. If his private affairs leave him any leisure, he plunges into politics. If, perchance, he has a few days vacation he will travel hundreds of miles to shake off his happiness. Much as we admire the quality of energy, the love of order, obedience to law, the love of home and of particular localities endeared by birth or association are no less valuable and are in a measure antagonistic qualities.

This being the case, whatever tends without checking due energy of character, but to develop along with it the virtues that shall keep it within due bounds may be looked upon as a boon, not only to the individual but to the nation.

The difference between a son of Ishmael and the man who has the strongest attachment for the home, is the beginning one of outward circumstances. The one is bound to a given place by ties no stronger than the cords which hold his tent to the earth, the other is held by sentiments which make a given bit of soil, too insignificant for general notice, the most attractive spot on earth.

One of the problems with which we are constantly met is: How shall we keep the boys on the farm? One of the surest methods is to "give the boy a chance." Observe coöperation. Make the home attractive, not alone by kindly sympathy and interest but by providing for the physical, mental and social welfare of the young people. More people are driven from the farm by its isolation, loneliness and lack of tasteful surroundings, than by any other cause. Satisfactory results cannot be expected if the boys and girls are regarded in the light of domestic animals, costing so much to feed and clothe them and saving a certain amount in the labor account. In general, farmers above all other classes have the best opportunities for making the home attractive at small cost, and because of their isolation should, above all other classes, exert most effort in this direction,—yet, as is well known, no class with the same intelligence and enterprise in other directions is so universally careless and negligent in this respect.

As Maine grows in popularity as a resort for people from the cities during the summer months, the importance of a more systematic effort to ornament rural homes becomes apparent. During the past ten years much ornamental planting has been done in the vicinity of the larger towns and cities with the effect, which always follows, of greatly enhancing the value of the property thus treated.

Not only from a financial point of view, and to attract summer visitors, is the ornamentation of rural homes important, but the comfort and pleasure of one's family should be sufficient incentive for such work.

In general it may be said to get satisfactory results, shrubs and other flowering plants should receive as good treatment as corn and potatoes. When once established, shrubs and perennial herbs require much less care than do animals, but during the first year or so, careful attention will be well repaid.

In determining what to plant, several points must be considered: First of all, the plant must be hardy. Some of the finest shrubs of Massachusetts and New York are utterly unsuited for the climate of Maine. For this reason the use of native plants is to be recommended so far as possible and few exotics are superior to the common viburnums, dogwoods, elders, sumachs and laurels. Other points to be considered are: season, habit, beauty of foliage, flower and fruit. If possible, such a selection should be made as will afford a succession of bloom or other attractive qualities through the season. For instance, among flowering shrubs the earlier spiræas may be followed by double flowering plum, Tartarian honeysuckle, and Japan quince, these in turn by lilacs, weigela, and later by roses, mock orange and hydrangea. To this list may be added the common high bush cranberry and the dwarf Juneberry or shadbush from the pasture.

For beauty of foliage, the Golden Elder, and the Golden Syringa are unsurpassed. Purple Berberry, *Spiræa Thunbergii*, and the common Staghorn Sumach are also to be recommended. The last is specially valuable for its rich coloring in the fall. For the best effects it should be planted in masses on rich soil and cut to the ground each year. It will then grow up six to eight feet each season, and give a rich tropical effect. Other native plants which may be mentioned in this connection are the Thimble Berry (*Rubus odoratus*), with its large, rich, green leaves; Dogwood or red osier (*Cornus stolonifera*), which is specially valuable in winter for the contrast afforded by the bright red shoots.

SOME OF THE BEST TREES.

The trees named below have been growing on the University campus for several years and have proved reliable in this section of the State.

The Elm: Several species of elms are found in New England but the most valuable for ornamental purposes is the native

white or American elm, *Ulmus Americana,* which has justly been called "Queen of American Trees." A somewhat moist location is best suited for this species, which where uninjured, grows very rapidly and is of most attractive form and habit.

The English elm (*Ulmus campestris*) is somewhat larger than the American species and is of very different habit—in this respect resembling the oaks. The leaves are smaller, more regularly cut, and darker; the bark is also darker colored.

The Scotch or Wych Elm (*Ulmus montana*) is one of the most valuable of the foreign species, but it is little known in this country. There are on the Campus some interesting hybrids between this and the American species.

The Maple: The maples are among the most valuable and popular of trees for ornamental planting. The Sugar Maple (*Acer saccharinum*) is too well known to require description. It is most at home and grows most rapidly on gravelly soil. The White or Silver Maple (*Acer dasycarpum*) is not quite as early in leaf as the sugar maple, nor is the general appearance so pleasing. It is, however, of very rapid growth and will thrive in a variety of soils. A variety of this species, Wier's Cut Leaved Weeping Maple, is also valuable. The Red or Scarlet Maple (*Acer rubrum*) is not so widely planted as its merits deserve. Like the silver maple it grows naturally on low wet ground, but it will thrive in any soil or situation. Its bright red buds in spring and its scarlet foliage in fall, combine to make it specially desirable. All of the maples named, except Wier's are to be found growing wild in the forests throughout the State.

The Beech: Although of very different style, the beech (*Fagus ferruginea*) ranks with the elm as a hardy and attractive ornamental tree. Its roots grow near the surface and it will thrive in rocky soil.

The Chestnut: The native chestnut (*Castanea Americana*) one of the glories of the rocky hill-sides of Southern New England, is perfectly hardy in Maine and is well worthy of attention. It is particularly adapted to rocky situations or loose gravelly soils.

The Linden: The American Linden or Basswood, (*Tilia Americana*) is valuable for use where an immediate effect is desired. It is hardy, of good form and grows rapidly. The

European species, *Tilia Europea,* is of smaller size and has smaller, darker foliage than the other.

The Birch: The lightness, grace and delicacy of the birches commend them to the attention of every planter. The Cut-leaved Weeping Birch, *Betula Alba* var., is a general favorite wherever planted. The American species start into leaf very early in the spring and many of them will grow under the most untoward circumstances.

The Ash: The ash is a common forest tree in some parts of the State, and is useful in certain localities. It, however, is late in putting forth its leaves. The White Ash, *Fraxinus Americana,* is the most valuable native species. It requires a deep, warm, dry soil. The Black Ash, *Fraxinus sambucifolia* will thrive in wet, cold ground, but it has no special value for ornamental planting.

The Poplars: The poplars are all rapid growers and are valuable for giving an immediate effect—some species often making a growth of six feet in a single year. All are short lived, however, and their greatest beauty is attained while young.

The Oak: While oaks which have attained large size are among the most attractive of trees, the finest species are late in leaf and of slow growth. The most valuable native species are the White Oak, *Quercus alba,* and the Scarlet Oak, *Quercus coccinea.*

THE MOST VALUABLE SHRUBS.

The number of flowering shrubs which will thrive in Maine is comparatively limited. The following have proved satisfactory on the grounds of the University for several years. It is worthy of note that the shrubs which are the most commonly known, and that may be obtained the cheapest, are generally the best, or have the greatest number of good qualities.

The Spiræa: Of the spiræas, the best are *Spiræa Thunbergii* and *Spiræa Van Houttei.* The first has narrow yellowish green leaves and blossoms very early in the spring, before the leaves are fully out. The other blooms about the middle of June and is specially valuable. The flowers are white and appear in great profusion. *Spiræa Reevesii* is similar to the Van Houttei, but a little earlier. *Spiræa Bumalda* is one of the best pink varieties. It commences to bloom about the middle of June and continues all summer. *Spiræa prunifolia,* "Bridal Wreath," is another very good white variety; one of the earliest.

The Lilac: This old favorite is again popular. *Syringa vulgaris,* the true old garden lilac, has varied greatly under cultivation and there are now more than twenty-five named varieties of this species. Some of the best of these are Charles X, Louis Spath, Princess Marie and Senator Vollard, among the purples; and Marie Legraye, and Dr. Stockhardt among the whites.

Syringa Persica, the Persian lilac, has loose graceful heads of flowers in great profusion. The habit of the plant, as well as of the flower cluster, is more open and graceful than that of the common lilac. The white form is specially valuable. *Syringa Josikæa* is a very different species, with large shining foliage and dark, lilac colored flowers. It blooms after many others are out of flower. *Syringa Rothmagensis* is similar in habit to the Persian lilac, but the flowers are dark, reddish purple. It is said to be a cross between *Syringa vulgaris* and *Syringa Persica.*

The Viburnum: Besides the old fashioned Snowball, *Viburnum opulus,* var., *sterilis,* which is always popular and needs no description, the best are: *Viburnum Nepalense,* which is a strong grower, though of compact form, and having large thick leaves; *Virburnum prunifolium,* "Black Haw," a large growing shrub bearing flat clusters of white flowers early in June, followed by black fruit in the fall; also the Maple Leaved Viburnum (*V. acerifolium*) a low growing shrub bearing flat heads of white flowers about the middle of June. The last is excellent for growing in masses, especially in shady places. The Japanese snowball (*Viburnum plicatum*) is one of the best of shrubs. Of upright bushy growth, firm dark foliage, and bearing its white flowers in great profusion, it well deserves a place in every collection. It is in many ways much superior to the old snowball, one special point in its favor being its freedom from lice.

The Hydrangeas: The garden hydrangea, *Hydrangea paniculata grandiflora,* so well known as to require no description, is specially fine for massing. It may be cut back nearly to the ground every year. Rich soil is necessary to give the best effect. *Hydrangea vestita* is a good shrub coming in bloom about June 20th. It is a little smaller than the last named species, and has flat flower clusters like the highbush cranberry.

The Mock Orange: The mock orange or "Syringa" (*Philadelphus*) is one of the finest of shrubs, whether grown singly or

in masses. It is hardy, early in leaf, and graceful in habit. *Philadelphus coronarius* is the one most commonly grown, and it has fragrant orange-like flowers, which appear late in June in this locality. *P. zeyheri* is more vigorous and has larger, but less fragrant and less abundant flowers than the preceding. Gordon's Syringa, *P. Gordonii,* somewhat smaller and more slender than the others, blooms a month later but its flowers, though large, are scentless.

The White Fringe: The Fringe or White Fringe, *Chionanthus Virginica*, is valuable not only for its showy, white flowers in early summer, but for its rich, glossy, magnolia-like foliage. When grafted on the ash it sometimes attains the height of twenty-five feet, but as grown at the University, it is a shrub of medium size.

Some other shrubs which have proved valuable at the University are: Bladder Senna (*Colutea*) Flowering Currant (*Ribes aureum* and *R. Gordonii*), Japanese rose (*Rosa rugosa*), Golden Elder (*Sambucus canadensis aurea*), Thimble Berry (*Rubus odoratus*), Tartarian Honeysuckle (*Lonicera Tartarica*), Weigela (*Diervilla florida*).

TRIED AND FOUND WANTING, OR OF DOUBTFUL VALUE.

Among the trees and shrubs which thus far have proved unsatisfactory in Eastern Maine the following may be mentioned: Green Ash (*Fraxinus viridis*), the Magnolias except *Magnolia Soulangeana;* the Japanese chestnuts; Tamarisk (*Tamarix Africana ?*); Cornelian cherry (*Cornusmas*); Deutzia (*D. scabra* and *D. gracilis*); Golden Bell (*Forsythia*); Burning Bush (*Rhus cotinus*).

A FEW HERBACEOUS PERENNIALS.

The number of herbaceous perennials commonly grown in this State is comparatively limited: some of the most valuable, however, are the peony, iris, lily-of-the-valley, "Bleeding Heart" (*Dicentra*), and foxglove.

The peony is specially valuable when planted in masses. It gives a profusion of bloom about the middle of June, and is perfectly hardy. It is valuable alike for landscape effects and

for cut flowers. There are more than a hundred named varieties but for ordinary purposes unnamed sorts answer very well, and are much less expensive.

For a short time in early June, before the peonies appear, the varieties of *Iris Kaempferii* are specially valuable. Like the peony, and most other herbaceous perennials, this should be planted in September.

Among the plants which bloom very early in the spring, "Christmas Rose" (*Helleborus niger*) and "Bleeding Heart" should not be forgotten. The first, if protected by a box, will often bloom before the snow is off; and the bright pink blossoms of the latter are always attractive. Feverfew or Pyrethrum, *Chrysanthemum Parthenium*, is another plant that should be in every collection. Its pure white double flowers contrasting with the delicately cut foliage, add much to the border. The tall Pyrethrum, *Chrysanthemum uliginosum* (*Pyrethrum uliginosum*) which blooms in September, is also a valuable plant. It grows about three or four feet high and its large daisy-like flowers are very conspicuous. It is a vigorous grower and may readily be propagated by dividing the clump.

The gas plant (*Fraxinella*) should not be omitted from the list of useful perennials. The handsome ash-like foliage is attractive at all seasons, and the white flowered form is specially showy.

Golden Columbine, *Aquilegia Chrysantha*, is one of the most valuable yellow flowering plants for summer. The double sunflower, *Helianthus Multiflorus*, which grows about three or four feet high, is also valuable. Later in the season the Japanese anemones with their single dahlia-like flowers are valuable. In this connection the dahlia may also be mentioned. Though the roots must be taken up each year, this plant is justly popular. Lily-of-the-valley, foxglove, phlox, larkspur, and some other old garden favorites, easy of culture and prolific of bloom have not been mentioned, nor has anything been said of the numerous species and varieties of lilies. These, however, may well be included in every collection.

MODERN METHODS OF SPRAYING.

A. H. Kirkland, M. S., Assistant Entomologist to the Gypsy Moth Committee, Malden, Mass.

In the labor-saving devices and methods now adopted in every branch of human industry, we find ample evidence to show that many of the "luxuries" of one generation easily become the "necessities" of the next. The telephone and typewriter in the office find parallels in the mower. and horse-fork on the farm, each having passed through the gradual process of trial, criticism and modification until its present place in its proper sphere has been reached. In testing modern discoveries, both business man and farmer have practiced the old gospel of "prove all things; hold fast that which is good," and out of this testing process have come devices and methods that annihilate space, lengthen life through time saved and often make one day's labors more productive than those of a week, a generation ago. Few in this audience will have difficulty in recalling the time when a spraying pump was a rare luxury and spraying itself as a means of controlling insect damage was practiced by few, criticised by many, and unknown to the majority of our agriculturists; to-day it has become an essential factor in the production of high-grade fruit, a kind of "plant life insurance," as Hale aptly puts it. In fact, so necessary is this work that we accept it as a part of the regular routine of fruit growing and devote no small part of our attention to studying the most effective and economical methods for carrying on the combat with our insect foes.

In discussing the topic assigned by your secretary, we will consider the principal insecticides, the methods best adapted for their economical use and the treatment indicated for the more common fruit and shade tree insects. Because of the limitations of my own study and experience, I shall be obliged to confine myself quite closely to the entomological side of the question, leaving the treatment of fungous diseases to the botanist or mycologist. Even then the field is ample in extent and fertile in opportunity; by far too large a part is yet unexplored.

THE BEST INSECTICIDES.

The insecticides generally used by the fruit grower fall readily into two classes, internal poisons (usually arsenicals) and external irritants (emulsions, soaps, etc.), the first class being used against leaf-eaters and the second against sap-consumers. Of the arsenicals, Paris green has long been the favorite remedy for the potato beetle and more recently has come into general use against many fruit and shade tree insects. Aside from the killing effect, the qualities to be desired in Paris green are freedom from soluble arsenic, fineness and uniformity of composition. With standard grades of Paris green, one pound may be used to 150 gallons of water without danger to the foliage. A less amount of water makes a stronger solution and increases the danger of "burning" the leaves. Paris green kills promptly but is easily washed from the foliage by rain. In using any arsenical, the danger to the leaves is in direct proportion to the soluble arsenic present in the spray and a small amount is always found in Paris green.

A recently discovered arsenical compound, arsenate of lead, bids fair to supersede Paris green as an insecticide. It has about the same killing effects as the former but will not injure the most delicate foliage when applied at any practical strength, is white in color, hence it is conspicuous on the foliage and remains for a long time in an effective condition on the leaves. Another feature of superiority over Paris green is that arsenate of lead is easily kept in suspension in the spraying tank, thus insuring a uniform spraying mixture. In our work against the gypsy moth we have found arsenate of lead to give better results than any other arsenical, and use tons of it annually. Against the common leaf-eating insects it is most effective and I have no hesitation in recommending it as superior to Paris green for which it may be substituted in nearly all cases. Recent experiments indicate that it may be safely and effectively used in connection with Bordeaux mixture.

As yet arsenate of lead cannot be bought ready made in the market, but the ingredients for making it are cheap and the process is easy. Eleven parts by weight of white sugar of lead are dissolved in hot water and four parts of arsenate of soda dissolved in hot water in another receptacle. When the com-

plete solutions are mixed, arsenate of lead is formed as a curdy, white precipitate. The receptacles should be wooden, as the chemicals act upon metal. The total weights of ingredients will give about one-half that weight of arsenate of lead. Thus, if eleven pounds sugar of lead and four pounds arsenate of soda are used, the resulting amount of arsenate of lead will be seven and one-half pounds, a quantity of poison sufficient for 400-500 gallons of water.

The cost of arsenate of lead thus prepared is somewhat greater than that of Paris green, but since when thoroughly applied no respraying is necessary, in the course of the season the actual expense generally will be less than when Paris green is used. In all cases one may use arsenate of lead, properly prepared, without fear of injury to foliage. I might add in passing that the use of arsenate of lead as an insecticide was first proposed by a native of this State, Mr. F. C. Moulton, a former chemist to our gypsy moth committee.

Contact insecticides are used generally against plant lice and scales. As these insects do not take solid food but depend for nourishment upon plant juices which they obtain by means of their slender beaks, they are not susceptible to the remedies used against leaf-eaters; hence, in these cases we make use of oily or soapy washes that close the breathing pores of the insects.

The contact insecticides most generally used are kerosene emulsion and whale oil soap. Kerosene emulsion is made by dissolving one-fourth pound hard soap, cut fine, in two quarts of hot water and adding to the soap suds while still hot, one gallon kerosene oil. The whole mixture is churned or stirred until cool, when a thick, white emulsion is formed. This emulsion can be kept indefinitely and for use on plants should be diluted at the rate of one part to nine of water. Whale oil soap is a heavy, dark colored soap, made from fish oil and is used for the same purpose as kerosene emulsion. It also has an especial importance as a means of treating the San Jose scale, a matter to be referred to later.

THE SPRAYING APPARATUS.

To a large extent, simplicity of mechanism should govern in the selection of a spraying outfit for orchard and farm use. So far as the various complicated tank outfits now in the market are concerned, the average farmer, by the use of a little ingenuity, may turn out as efficient a product and at a less expense. For the general farmer and orchardist, I have seen, as yet, nothing more efficient at an average cost, than a straight tubed brass "Johnson" or "Gould" pump with hose coupling attachment, mounted in a 15-20 gallon keg or a half barrel. A strap or iron handle should be fastened to either side of the keg. The pump should be clamped to a cross piece and the strainer should clear the bottom of the keg by about one-half an inch. Each outfit will require at least fifty—better one hundred—feet of hose, a spraying pole and a good nozzle. After years of experiment in our work against the gypsy moth, we have adopted for use the ordinary white woven cotton hose; this we find gives us the best value for the money invested, is lighter and hence more easily handled. The spraying pole should be practically a continuation of the hose; a quarter-inch iron gas pipe ten feet long with a hose coupling at the lower and a nozzle coupling at the upper end. It may be reinforced by light wooden strips for convenience in handling.

In the matter of nozzles, the market offers a large assortment, yet but few of them are of great practical value. The best pattern is that involving the cyclone principle such as is found in the so-called "Cyclone," "Riley," and "Vermorel" nozzles. The mistake generally made by nozzle makers—and sometimes by nozzle users as well—is in the direction of applying large quantities of the spraying solution. This is all wrong. The spray should be applied as a mist and the nozzle giving the best mist-like spray is the best for the orchardist's purpose. Any of the above mentioned nozzles will give this desired effect. For our own use we have found it necessary to modify the "Cyclone" nozzle by the insertion of a large cylindrical strainer to prevent clogging, and with this modified nozzle we are able to spray continuously for a day at a time without the annoying and costly delays formerly necessary for clearing the nozzles.

In spraying, begin at the top of the tree and work downward and when there is a wind, work from the windward side. Spray until the leaves commence to drip and then move the nozzle. The most costly mistake one can make in spraying is to throw large quantities of solution on the foliage and allow perhaps seventy or eighty per cent of it to run off. Thoroughness is especially profitable in spraying and, so far as possible, both upper and under sides of the leaves should be treated. Another matter of prime importance is that the spraying mixture should be kept well stirred.

Having described a spraying outfit suitable for the general farmer and fruit grower, let us consider the matter from the standpoint of the large orchardist or park official having large numbers of trees to be sprayed. In this case, it would be economical to have a larger tank, a more powerful pump and more hose. The tank should be of at least 100 gallons capacity and the pump capable of supplying two lines of hose, each 100 feet long. In very extensive spraying operations, a steam spraying outfit may prove in the end the most economical. In any case, the spraying poles and nozzles recommended for use with the smaller tank are just as serviceable here. Many orchardists use a molasses hogshead of 150 gallons capacity and a double-acting "Douglas" pump. Unfortunately the majority of the pumps now on the market, suitable for two lines of hose, require two men to operate them most effectively. Referring again to our experience in Massachusetts, we have found it necessary to have made pumps of a special pattern, requiring but one man each to furnish power. With our outfits as described and using large quantities of arsenate of lead, we have been able to spray old first growth oaks and elms at an average total expense of forty-nine cents each and ordinary forest trees at fifteen to eighteen cents each. Orchard trees may be sprayed at a much less cost, since the greater part of the spraying can be done from the ground. Having now discussed insecticides and the means of applying them, let us consider the treatment of the common insect pests of the fruit farm.

TREATMENT OR APPLICATION OF INSECTICIDES.

The bud moth: This is the insect that is largely responsible for the gnarled and distorted growth of many of our apple trees, particularly in old orchards. This insect hibernates as a partially grown caterpillar which, with the advent of spring, seeks out and destroys the unfolding buds, frequently the terminal ones. At the completion of the caterpillar stage it transforms within a leaf and soon gives rise to a small brown moth which later deposits eggs upon the apple leaves. From these eggs, tiny caterpillars develop and feed upon the leaves, becoming about half grown at the time the leaves fall. Then these insects prepare for hibernation on the twigs, covering themselves with a silken cocoon, and so pass the winter, emerging to attack the buds in the spring, as did their predecessors. Where this insect is present in orchards, a thorough spraying with arsenate of lead, applied before the leaves unfold in the spring, will prove an excellent remedy.

Soon after the time of blossoming, the codling moth—a tiny brown moth—is on the wing in nearly all our apple orchards. This moth was formerly thought to deposit its eggs in the calyx end of the apple, but recent researches by Slingerland and Card have shown that the eggs may be deposited on any part of the apple and sometimes on the leaves. However, it seems evident that the young larvæ, hatching from the eggs, enter the apple from the calyx end. They feed therein until mid-summer or later, and as a result, produce the wormy apples which are particularly abundant in every neglected orchard. The transformations between the larval and moth stages are passed in tiny cocoons spun on the trunks or branches of the trees. This insect, to my mind, is one of the most serious pests with which the orchardist has to deal. The financial loss caused by it is enormous and continuous. The codling moth may be effectually controlled by a liberal use of arsenical spray, thoroughly applied after the petals have fallen from the blossoms. It is unwise to spray trees in blossom as many bees and other insects useful in pollenizing the flowers may be killed. Several years ago, Professor Webster ascertained that not only were bees killed by taking honey from trees sprayed while in blossom, but also that

the honey which they carry to the hive and feed there to immature bees causes the death of the latter. A spraying of apple trees after the petals have fallen brings about a thorough poisoning of the outer skin of the apple and the consequent death of the young apple worms when they attempt to burrow into the fruit.

Throughout Massachusetts—and I presume the same is true in Maine—the unsightly webs of the tent caterpillar are only too familiar objects in the spring months. Occasionally this insect is an apple tree pest of the first order. The eggs are laid in bands covered with varnish, on the twigs of apple or cherry trees in July, by the reddish-brown parent moth. Here they remain intact through the fall and winter, hatching the following spring and producing young caterpillars which feed upon the unfolding buds and leaves and soon spin a web in some convenient fork of the branches. By the latter part of May or early in June, these webs grow to remarkable proportions and their hungry inmates swarm out over the trees, frequently devouring all the foliage in their vicinity. The pupal stage of the insect is passed within a yellow cocoon, in some sheltered spot, and by the middle of July the moths emerge and deposit the eggs for the next year's brood. Of course every farmer knows how easily this insect may be disposed of by the destruction of the egg-clusters during the winter. Where this work has been neglected, the insects are easily destroyed by the use of an arsenical spray. I do not advise the farmers to burn the webs of the caterpillars—a practice which is too generally followed. I have seen numbers of fine apple trees that have been badly injured by the use of the torch in incompetent hands. Where it is impossible or undesirable to spray, an able-bodied man equipped with a pair of leather mittens can easily crush the webs and destroy the insects more effectually than where the torch is used.

"Canker worm years" are of undesirable frequency throughout the greater part of New England. The wingless female parents of the canker worm ascend the trees both in the fall and in the spring and deposit their eggs in masses on the branches. From these eggs, by the time the leaves unfold, the young canker worms develop in multitudes, the effect of their feeding causing the tree to appear as if burned. Fruit, of course, has no place

on a tree attacked by canker worms, and soon falls to the ground. No insect may be more easily controlled than the canker worm by the use of arsenical sprays. The banding of large street trees with tree ink or tar is often very effective. For orchard trees, however, it would be cheaper to spray.

Cherry and pear trees frequently suffer from the attacks of the so-called pear slug, a slimy insect larva that consumes the soft parts of the leaves in the early summer months. When these insects are full grown they descend to the ground and emerge as four-winged saw-flies about mid-summer. These latter insects give rise to a second brood which does not complete its transformations until the following spring. The destruction of the first brood should be the chief object aimed at and as soon as the slugs are abundant on the trees, they should be treated to a thorough spraying with arsenate of lead. In the case of the second brood it may not be desirable to use arsenical poisons because of the size of the fruit and at this time the insects may be destroyed by the use of kerosene emulsion.

Of the scale insects common in our orchards, but three species are particularly injurious. The oyster-shell bark louse and scurfy bark louse have similar habits and are seldom injurious except to young trees. With both species the young lice hatch in the early summer from eggs which are secreted beneath the female scale and swarm over the trees. When they have found a suitable spot on the bark, their slender beaks are inserted into the tissues and, feeding on the sap, they soon secrete shell-like coverings. The sexes mature in the fall and the females, after fertilization, deposit large numbers of eggs beneath their scales. They may be destroyed by spraying or washing the infested trees in the winter with whale oil soap, used at the rate of two pounds to one gallon of water. They are more easily killed by spraying with kerosene emulsion in the spring at the time when the young lice are hatching and swarming over the trees.

The San José scale, a comparatively new insect to the eastern United States, does not readily yield to remedial measures and is one of the most dangerous of all fruit tree pests. It is possible that you have had no experience with it as yet in Maine, but it hardly seems probable that you will entirely escape from it. It was first noticed about 1870 in California and from its damage

to fruit trees, attracted wide attention. It reached the east on nursery stock sometime between 1884 and 1887 and is now generally distributed throughout the country. In the south, as well as on the Pacific coast, large orchards of fruit trees have been entirely destroyed by this insect. It was thought that it would not prove very injurious in the northern states, but in Massachusetts many trees have been killed by it and I can see no good reason why it may not prove highly injurious in Maine as well. It certainly is a pest to be carefully guarded against and no nursery stock should be purchased unless the same is accompanied by a certificate of inspection from a competent entomologist. The farmer will do well to carefully scrutinize all nursery stock before planting. Should any of you be so unfortunate as to have this scale on your trees, it will be the part of wisdom to promptly dig and *burn* them if you can possibly afford the sacrifice. Where owners are unwilling to destroy their infested trees, the scale may be controlled by a thorough use of a strong mixture of whale oil soap and water (two pounds to one gallon) applied as a winter wash late in November and again in March. In some cases it would appear that the scale has been eradicated by this treatment. From our own experience in Massachusetts, we consider it a palliative measure only and one that must be repeated at intervals.

FRUITS OF THE ORCHARD.

Having considered the principal fruit pests that may be controlled by spraying, perhaps I may be pardoned for a considerable digression while I speak of some valuable friends of the orchardist. I would like to emphasize the usefulness of birds in destroying noxious insects. While in no way versed in bird lore, I have seen enough of the habits of these creatures to convince me of their great value to mankind, particularly to the agriculturist. The insect parasites that fill the most important place among the natural checks upon the increase of injurious species, stand in no especial danger of harm from human hands, while birds suffer abuse in a hundred ways and are often most wantonly sacrificed by those who should protect and foster them. The winter birds are perhaps the most valuable; birds like the chickadee, nuthatches and creepers are continually working over orchards at the time when the trees are bare and prey upon the

bud moth, the codling moth, scales, and more particularly, canker worm eggs. In the gizzard of a nuthatch I once found 1,629 eggs of the fall canker worm, representing at the most not over one day's feeding. The summer birds are equally valuable in destroying canker worms, tent caterpillars and other larvæ. The time is not far distant when the more general adoption of nature study in our schools will lead to a new era in bird life. In the meantime, by protecting your birds and teaching your employees and your young people to do likewise, you will reap ample returns from the time thus spent.

In order that the farmer and the entomologist may best work together, the farmer should familiarize himself with the habits of the most common insects, by observation and reading or studying some accurate, popular work upon the subject. The treatises by Saunders, Weed and Smith are of this class and cannot be too highly recommended. The Experiment Station entomologist can furnish advice as to the habits and the remedies necessary for the destruction of the various insect foes of fruit and other crops. The farmer to get the most benefit from the Station should freely consult the Station experts. Probably Maine farmers do not make the mistake so common among Massachusetts farmers, who do not avail themselves as they ought of the advice of the Experiment Station workers and teachers in the agricultural college. But, to be candid, I have sometimes feared that here in Maine you did not appreciate entomological work as highly as you ought, otherwise you would not have allowed one of the country's most distinguished entomologists to leave this State in order to assist Massachusetts farmers in solving their entomological problems. However, we would not criticise you in the least for Maine's loss has been Massachusett's great gain; and when such fears come to our minds we soon realize that they are indeed groundless, since were you unappreciative you would not have secured the services of so able and learned a man as your present hard-worked Station entomologist. And here let me venture the assertion that should you avail yourselves more freely of his advice and counsel, the ledger of your fruit growing transactions would show a larger balance on the right side.

Finally, let me impress upon you the profitableness of giving your best thought and most careful attention to the problem of

combatting insect enemies. By the use of a spraying outfit you may for example, increase the value of your apple crop from fifty to one hundred per cent. A few dollars invested in such an outfit may prove the turning point in a fruit grower's career. Others have profited thereby; why not you? Whatever you do, bear in mind that eternal vigilance is the price of good crops and that careful attention and intelligent treatment of the crop are the chief factors in successful fruit growing.

REFINING INFLUENCES OF PLANTS AND TREES IN PUBLIC PLACES.

By Rev. Blanche A. Wright, Livermore Falls.

The time was when capital punishment was meted out to all who were guilty of any serious violation of law. Petty offenders received punishment all out of proportion to their crimes. We do not have to look back far in history to read the records of the time when the chief motive operative in the treatment of criminal classes was to make it impossible for them to injure the public. Whether this was accomplished by killing them or by close imprisonment mattered little, since the welfare of the criminal did not enter into consideration. Meanwhile the making of criminals went on without much restraint. We have taken a long stride forward. We have discovered that the best way to secure protection against criminal classes is to transform them into good citizens by such kind and intelligent treatment as will bring about this reformation; and that better than the work of reformation of criminals is the work of prevention of crime. In this age of splendid philanthropies such a promising field of operations could not fail to be cultivated. The value of education is recognized and the best possible school advantages are opened to children of all classes. Churches are alive to their opportunities and minister in many effective ways to the people in their precincts. Whatever can contribute to the elevation of the masses is rapidly being discovered and put to their use.

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We do not stop there. Recognizing the close relation existing between all classes of society we believe that whatever tends in any degree to the refinement and culture of a part of humanity,

helps the whole. We are all of us more or less in need of reformation. We all have capacities for good only partially developed; all have finer natures than we have half lived up to. We recognize the value of all those influences that can stir these into full life. Music and art have begun their ministry. The power of architecture is just beginning to be felt in America. One of the most effective agencies for good has had little opportunity to show its power in those sections where it is most needed—nature.

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It is a suggestive fact that in the parts of our cities where poverty, intemperance and crime are most prevalent, there are no parks in which the grass and trees can speak their messages. In the part of Boston where the population is most dense and vicious a little abandoned burying ground is the only bit of green, and all the large and beautiful parks of New York are massed in the upper part of the city where the wealthy live. We who have the plants and trees always with us cannot understand how much they contribute to the joys of life nor how closely they are associated with our best and holiest qualities. The little child forgets its fear of a stranger as it eagerly siezes the flowers in his outstretched hands; the hard and cynical face of the prisoner is softened to tears as he receives a bunch of flowers from a compassionate visitor; the modern prodigal turns his footsteps homeward in penitence as the sight of some simple flower calls his thoughts back to the old-fashioned garden his mother tended in the days of his innocent boyhood; the poet turns away from the haunts of man and the things of his creation to find inspiration for his choicest rhymes under the sheltering branches of some grand old tree in nature's voiceless solitude.

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There is no place for coarseness or vulgarity in the heart of him who has learned to love and appreciate the works of nature. He who keeps a grassy lawn, borders it with trees and brightens it here and there with flowers, is a philanthropist. He who can and will not, is guilty of crime. But we have no jurisdiction over him. Only by the gentle compelling of education and example can we work his cure. But the public places are ours, ours and posterity's. Let us make them beautiful with nature's offerings. Long after you are forgotten by those who frequent them, every tree and shrub with its tireless voice will be revealing the wondrous beauty and love of Him who gave life alike to them and us.

INDEX.