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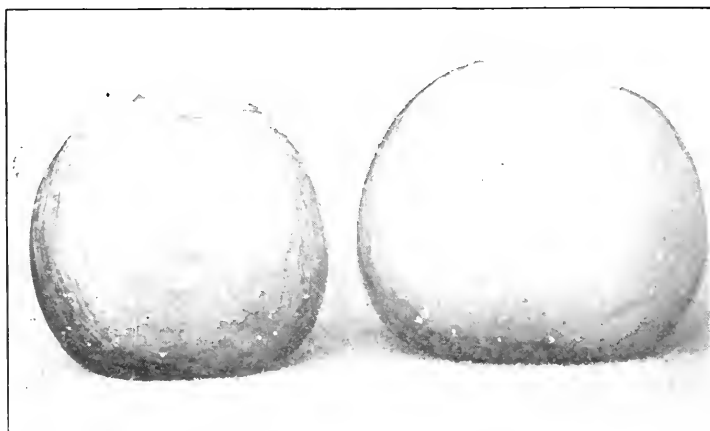
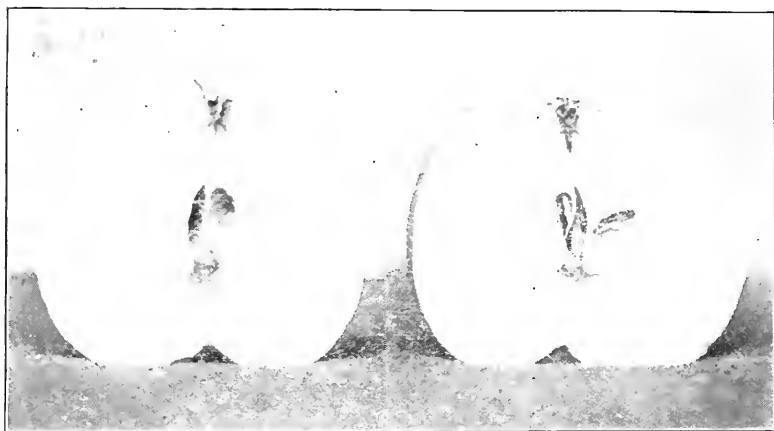
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STOWE'S WINTER. See page 167-8.

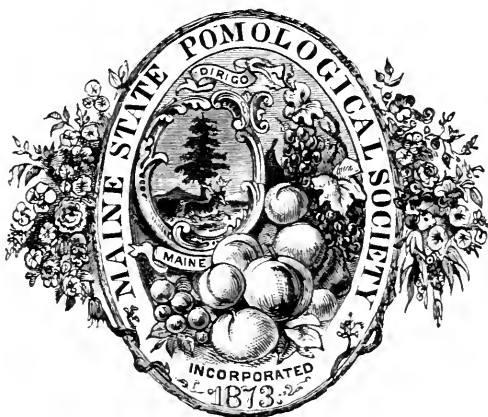
TRANSACTIONS

OF THE

Maine State Pomological Society

FOR THE YEAR 1895,

Including the Proceedings of the Winter Meeting, held in
Presque Isle, January 8th and 9th, 1896.



EDITED BY THE SECRETARY,

D. H. KNOWLTON.

AUGUSTA :

BURLEIGH & FLYNT, PRINTERS TO THE STATE.

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REPORT OF THE SECRETARY.

Herewith the Secretary submits his annual report. It is to a large degree formal, but during a year's work and a study of conditions and results there are matters that seem to commend it to the careful perusal of the fruit growers of Maine.

THE FRUIT CROP.

For the past ten or a dozen years there has been no general failure in the apple crop in Maine. Localities, for reasons as yet unknown, have had light crops, while others have had heavy crops. The 1895 crop was probably the smallest in all these years, and the failure was more general than in any other year during the time. The crop was very light, and worse than all, the quality was inferior. The cause of the short crop has been quite freely discussed, but no general conclusion seems to be reached. Among the causes noticed by the Secretary, a few may deserve a place in this report. Our leading varieties have borne fruit for several successive years, heavy crops in some cases. Except in rare instances the orchards have received no special attention in the way of dressing or care, and many of the trees suffering from the effects of the scab fungus in 1894 were unable to develop fruit buds for a crop in 1895. The orchards that received the best treatment bore the most fruit, but even this was inferior to the product of ordinary years. Some have claimed that it was the frost in the spring that caused the failure in the crop. This could not be the case, for as already stated, few if any fruit buds were developed the year before. This deserves special notice as it brings into prominence the fact that a spring frost rarely, if ever affects the apple blossoms in Maine. In this respect we have the most favorable climatic conditions for apple growing. The quality of the fruit was inferior in consequence of the scab, the codling worm and the trypetta pomonella. The results reached in spraying emphasize its importance, and it is not far away when successful fruit growers in the State will spray their trees to destroy the scab and codling worm. The spread of the trypetta is a cause of alarm among fruit growers, since no effective, practicable remedy is known. With its life history so well known it is hoped that our experiment station may be able to discover some effective means of holding the destructive pest in check.

The prices have been low, although choice lots have sold readily.

Of other fruits there was a small crop, although where not affected by the drouth there was a good crop of raspberries and blackberries. Pears being in full bloom at the time of the freeze suffered from the cold. This is especially true of several popular varieties. In some parts of the State the freeze destroyed the currant and gooseberry crop.

In this connection it is well to emphasize the importance of better culture and a more careful study of all the conditions that bear in any way upon this important industry. This would be preferable to the planting of more trees.

EXTENSION OF FRUIT CULTURE.

Many trees were set during the year, and although the quality is known to be inferior, I am satisfied that more of the Ben Davis have been selected than of any other variety. The high price this apple commands in the foreign market may be an apparent excuse for setting the trees, but it is very questionable, although the Ben Davis tree is a good grower and makes a good tree to top graft into some other variety.

Among the small fruits it is a great pleasure to observe the increased interest shown in their culture. People are learning fast that they may raise them readily and in abundance. No subject is listened to with closer attention at our meetings. Knowledge of methods of culture and varieties are eagerly sought. Best of all more people are enjoying this luxury, which is within the grasp of every man who controls a few feet of land.

PUBLIC MEETINGS

A public meeting was held in Deering April 11th, at which Prof. B. M. Watson, Jr., gave an instructive address upon "Hardy Trees and Shrubs."

The public meeting during the annual exhibition was addressed by Mrs. Alonzo Towle of Freedom, N. H. The attendance was large and the lecture was much enjoyed.

Desiring to extend the influence and usefulness of the society as far as possible to all parts of the State, it was thought best to accept the cordial invitation of Mr. John W. Dudley of Castle Hill and other citizens of Aroostook and hold the winter meeting in Presque Isle. Later it was arranged to make this a union meeting with the Board of Agriculture, and Secretary McKeen cordially joined with us to make the meeting one of the best. At this meeting special prominence was given to the culture of small fruits, and we were especially fortunate in securing the services of Mr. J. H. Hale of South Glastonbury, Conn. The papers and discussions awakened general interest in the subjects presented, and it is believed our efforts will prove of substantial benefit to that section of the State. The members of the society and other visitors were cordially received, and carried to their homes the pleasantest recollections of the people of Aroostook.

EXHIBITIONS

In view of the short fruit crop in the State, fears were entertained that the exhibition would be small. It was a great relief to the officers when the fruit came in to find the tables well filled. The winter fruits, of course, were immature, in consequence of the earliness of the exhibition and many of the specimens of other apples were wormy and more or less affected by scab fungus. The increasing injury caused by the trypan pomonella was apparent to all, a larger number of varieties being affected than heretofore.

In the matter of making awards, the Executive Committee adopted a scale of points for use in judging such general exhibitions and special plates as might seem necessary to have the awards based upon the merit of the exhibits. In the general exhibition a table of ratings was prepared for each variety. These ratings constituted not exceeding one-half of the score for each variety. As the number of varieties exhibited in the various collections varied, the average score was made the basis of awarding the premiums. To illustrate, there were five collections and the figures were as follows:

First. Twenty varieties, 1,743 score, 667 rating, average 120.

Second. Forty varieties, 4,711 score, 1,163 rating, 117 average.

Third. Thirty-seven varieties, 3,121 score, 1,180 rating, 116 average.

Fourth. Thirty-one varieties, 2,597 score, 988 rating, 115 average.

Fifth. Thirty varieties, 2,429 score, 979 rating, 113 average.

The average shows how and why the premiums were awarded. At first some of the exhibitors felt that the awards had not been justly made, but in a careful review and examination of the fruit, the Executive Committee, as well as all disinterested observers recognized that the basis of making the awards was correct and that merit had been fully taken into account. It is possible that in some of its parts the plan may be imperfect, but the general idea is certainly correct, and some basis ought to be adopted by judges in order to do full justice to all exhibitors.

A BROAD FIELD.

The Secretary desires to express in this public form the thanks of the officers for the cordial co-operation and assistance rendered them by the press and by those interested in our work. When we realize how many people there are in the State who prefer to have their wives and daughters go out into the pastures and back lots to gather wild fruits and then not have half enough, there is abundance of educational work yet to be done. There is not a rural home in Maine that could not be made more attractive and healthful by the growing of fruits. Perhaps not all kinds could be grown, but some can. Again, there are many homes that have few, if any flowers, while nature has made it possible to raise many. Some of our towns and cities are made beautiful by parks and shade trees, but in all there are streets that are unadorned by nature and even

their natural beauty is mutilated by the hand of man. So we might enumerate the opportunities that are open for the society. Its usefulness in the past has been somewhat circumscribed by its limited means, but the liberality of the State has opened the way for future progress by giving more liberally to promote the great industry we represent. Onward has been the watchword of the Society. The field is a broad one, and to the extent of every possible resource, it is the blessed privilege of the society to urge the more general culture of fruits and flowers and the adornment of our homes and public places.

Again, in behalf of the officers, I desire to thank all who have aided us in the work of the Society. All have treated us with the utmost courtesies and many have shown an active interest in our affairs. At the present time the Society has a permanent fund of \$1,250, made up from the fees of 125 life members. It would seem in a State like ours that there should be a membership of at least a thousand. The income from a \$10,000 permanent fund would insure the establishing of the most valuable helps to the fruit growers of Maine. The fund has been husbanded with the greatest solicitude for its safety. Now, let us roll it up to \$10,000, remembering that the harvest cannot be large unless the sowing has been made with a liberal hand. A general effort to secure this grand result will bring us a liberal reward. Let each one lend a hand in the great work.

D. H. KNOWLTON, *Secretary.*

FARMINGTON, 1895.

OFFICERS FOR 1896.

President.

JOHN W. TRUE, New Gloucester.

Vice Presidents.

S. H. DAWES, Harrison.

D. P. TRUE, Leeds Center.

Secretary.

D. H. KNOWLTON, Farmington.

Treasurer.

CHARLES E. WHEELER, Chesterville.

Executive Committee.

The President and Secretary, *ex-officio*; A. E. Andrews, Gardiner;
Z. A. Gilbert, North Greene; C. H. George, Hebron.

Trustees.

Androscoggin County,	C. M. Skillings, West Auburn.
Aroostook	“ J. W. Dudley, Castle Hill.
Cumberland	“ W. G. Bailey, Freeport.
Franklin	“ Herman Corbett, Farmington.
Hancock	“ C. G. Atkins, Bucksport.
Kennebec	“ E. A. Lapham, Pittston.
Knox	“ Alonzo Butler, Union.
Lincoln	“ H. J. A. Simmons, Waldoboro’.
Oxford	“ S. M. King, South Paris.
Penobscot	“ F. L. Harvey, Orono.
Piscataquis	“ H. L. Leland, East Sangerville.
Sagadahoc	“ A. P. Ring, Richmond Corner.
Somerset	“ James S. Hoxie, North Fairfield.
Waldo	“ Fred Atwood, Winterport.
Washington	“ J. F. Sprague, Charlotte.
York	“ John Hanscom, Saco.

Member of Experiment Station Council.

Chas. S. Pope, Manchester.

Committee on New Fruits.

S. M. King, South Paris; Willis A. Luce, South Union; John W. Dudley, Castle Hill.

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	Gilbert, Z. A.	North Greene
Andrews, Charles E.	Auburn	Goddard, Lewis C.	Woodfords
Arnold, C. A.	Arnold	*Godfrey, John E.	Bangor
*Atherton, H. N.	Hallowell	Gurney, Lemuel.	Hebron
Atherton, Wm. P.	Hallowell	Hackett, E. C.	West Gloucester
Atkins, Charles G.	Bucksport	Hansecom, John.	Saco
Atwood, Fred.	Winterport	Harlow, S. C.	Bangor
Averill, David C.	Temple	*Harris, N. C.	Auburn
Bailey, W. G.	Freeport	Harris, N. W.	Auburn
Bennoch, John E.	Orono	Harris, William M.	Auburn
Bisbee, George E.	Auburn	Harvey, F. L.	Orono
Boardman, Samuel L.	Augusta	*Hersey, T. C.	Portland
Briggs, D. J.	South Turner	Hobbs, M. Curtis.	West Farmington
Briggs, John.	Turner	*Hoffses, Elmas.	Warren
Burr, John.	Freeport	Hoxie, James S.	North Fairfield
Butler, Alonzo.	Union	Hoyt, Mrs. Francis.	Winthrop
*Carter, Otis L.	Etna	Ingalls, Henry.	Wiscasset
Chase, Henry M., 103 Federal St.,	Portland	Jackson, F. A.	Winthrop
Chase, Martin V. B.	Augusta	*Jewett, George.	Portland
*Clark, Eliphalet.	Portland	Johnson, Isaac A.	Auburn
Cole, Horatio G.	Boston, Mass	*Jordan, Francis C.	Brunswick
Corbett, Herman	Farmington	*Kenniston, E. H.	Arnold
Crafts, Moses.	Auburn	Keene, Charles S.	Turner
*Crosby, William C.	Bangor	Knowlton, D. H.	Farmington
Cummings, Mrs. Anthony.	Auburn	Lapham, E. A.	Pittston
Dana, Woodbury S.	Portland	Larrabee, O. L.	West Levant
Dawes, S. H.	Harrison	Litchfield, J. H.	Auburn
DeRocher, Peter.	Bradentown, Fla	Lombard, Thurston M.	Auburn
Dirwanger, Joseph A.	Portland	*Low, Elijah.	Bangor
Dunham, W. W.	North Paris	*Low, S. S.	Bangor
Dyer, Milton.	Cape Elizabeth	Luce, Willis A.	South Union
*Emerson, Albert.	Bangor	McLaughlin, Henry.	Bangor
Emerson, Charles L.	South Turner	Merrill, T. M.	West Gloucester
Farnsworth, B. B.	Portland	*Metcalf, M. J.	Monmouth
Frost, Osear F.	Monmouth	Moody, Charles H.	Turner
*Gardiner, Robert H.	Gardiner	Moore, William G.	Monmouth
Gardiner, Robert H.	Boston, Mass	Moor, F. A.	Waterville
George, C. H.	Hebron	Morton, J. A.	Bethel

*Deceased.

LIFE MEMBERS—CONCLUDED.

*Morton, William E.....	Portland	Stanley, Charles.....	Winthrop
*Noyes, Albert	Bangor	Stanley, O. E.....	Winthrop
Perley, Chas. I.	Cross Hill	Staples, G. K.....	Temple
Pope, Charles S.	Manchester	Strout, S. F.....	West Falmouth
Prince, Edward H.....	West Farmington	Strattard, Mrs. A. B.....	Monroe
Pulsifer, D. W.....	Poland	*Sweetser, S. R.....	Cumberland Center
Purinton, E. F.....	West Farmington	*Taylor, Joseph	Belgrade
*Richards, F. G.....	Gardiner	Taylor, Miss L. L., (Lakeside)	Belgrade
Richards, John T.....	Gardiner	Thomas, William W., Jr.....	Portland
*Richardson, J. M.....	Gardiner	Thomas, D. S.....	North Auburn
Ricker, A. S.	Turner	Tilton, William S.....	Boston, Mass
Ridley, B. H.....	Jay	Townsend, Mrs. B. T.....	Freeport
Roak, George M.....	Auburn	True, Davis P.....	Leeds Center
Robinson, Henry A.....	Foxcroft	True, John W.....	New Gloucester
Rolfe, Samuel	Portland	*Varney, James A...The Dalles,	Oregon
Sanborn, Miss G. P.....	Augusta	Vickery, James.....	Portland
Sawyer, Andrew S.....	Cape Elizabeth	Vickery, John.....	Auburn
Sawyer, George B.....	Wiscasset	Wade, Patrick.....	Portland
*Shaw, Stillman W.....	West Auburn	Walker, Charles S.....	Peru
Simmons, H. J. A.....	Waldoboro	Waterman, Willard H.....	East Auburn
Skillings, C. W. ..	North Auburn	*Weston, James C.....	Bangor
*Smith, Alfred.....	Monmouth	Wharff, Charles S.....	Gardiner
Smith, Henry S.....	Monmouth	Wheeler, Charles E.....	Chesterville
Starrett, L. F.....	Warren	Whitney, Edward K.....	Harrison
Stetson, Henry.....	Auburn	*Woodard, Mrs. S. M.....	Gardiner
*Stetson, Isaiah.....	Bangor	Woodman, George W.....	Portland
Stilphen, Asbury C.....	Gardiner		

ANNUAL MEMBERS, 1895.

Archer, Mrs. George F.....	Clifton	Lemont, J. M.....	Bath
Bartlett, B. W.....	East Dixmont	Merritt, Frank C.....	Houlton
Blanchard, Mrs. E. M.....	Lewiston	Munson, W. M.....	Orono
Chandler, Lucy A.....	Freeport	Norris, J. F.....	Foxcroft
Crooker, W. W.....	Monson	Nowell, F. E.....	Fairfield
Dudley, John W.....	Castle Hill	Ridley, B. H.....	Jay
Eastman, A. A.....	Dexter	Ring, Abbe E.....	Richmond Corner
Grover, Mrs. F. D.....	Bean's Corner	Ring, A. P.....	Richmond Corner
Hathaway, W. S.....	East Auburn	Sleeper, F. L. H.....	Lewiston
Judkins, Charles H.....	Chesterville	Tarr, Edward.....	Castle Hill
King, S. M.....	South Paris	Waterman, Mrs. C. E.....	East Auburn
Larrabee, O. L.....	West Levant	Wright, L. E.....	Woolwich
Leland, H. L.....	East Sangerville		

ANNUAL MEMBERS, 1896.

Dudley, A. M.....	Mapleton	Sturgis, C. G.....	Auburn
Eastuan, A. A.....	Dexter	Tarr, Edward.....	Castle Hill
Emery, Edward H.....	Sanford	Whittier, Phineas.....	Farmington Falls
Hayford, Columbus.....	Maysville		

TREASURER'S REPORT.

RECEIPTS.

Cash on loan	\$ 100 00
Cash from State on deficiency account	1,000 00
Cash from State stipend for 1895	1,000 00
Interest:	
Garliner National Bank.....	\$12 00
Farmington Water Company	7 00
Deposit.....	2 00
	21 00
Annual members:	
W. M. Munson, Orono.....	\$1 00
J. F. Norris, Foxcroft	1 00
W. W. Crooker, Monson	1 00
Chas. H. Judkins, Chesterville.....	1 00
O. L. Larrabee, West Levant	1 00
H. L. Leland, East Sangerville.....	1 00
B. H. Ridley, Jay.....	1 00
S. M. King, South Paris	1 00
Edward Tarr, Castle Hill.....	1 00
John W. Dudley, Castle Hill	1 00
Mrs. C. E. Waterman, East Auburn	1 00
Mrs. E. M. Blanchard, Lewiston.....	1 00
Mrs. F. D. Grover, Bean's Corner.....	1 00
A. P. Ring, Richmond Corner.....	1 00
Mrs. Geo. F. Archer, Clifton.....	1 00
F. L. H. Sleeper, Lewiston.....	1 00
F. E. Nowell, Fairfield	1 00
A. A. Eastman, Dexter	1 00
J. M. Lemont, Bath	1 00
L. E. Wright, Woolwich	1 00
B. W. Bartlett, East Dixmont.....	1 00
W. S. Hathaway, East Auburn.....	1 00
Frank C. Merritt, Houlton.....	1 00
Abbie E. Ring, Richmond Corner.....	1 00
Lucy A. Chandler, Freeport.....	1 00
Edward Tarr, Castle Hill—for 1896.....	1 00
C. G. Sturgis, Auburn—for 1896.....	1 00
	27 00
Life members:	
Edward H. Prince, West Farmington	10 00
Chas. S. Keene, Turner	10 00
Geo. E. Bisbee, Auburn.....	10 00
J. H. Litchfield, Auburn	10 00
O. L. Larrabee, West Levant.....	10 00
B. H. Ridley, Jay.....	10 00
Mrs. Anthony Cummings, Auburn	10 00
	70 00
Maine State Agricultural Society.....	500 00
Cash on hand December 31, 1894.....	193 65
	\$2,911 65

EXPENDITURES.

D. H. Knowlton, Secretary, expenses at winter meeting.....	828 62
C. E. Wheeler, Treasurer, expenses and services as treasurer, 1894	32 90
W. M. Mumson, Executive Committee, expenses	19 76
Chas. S. Pope, President, expenses, 1894.....	14 95
A. E. Andrews, Executive Committee, expenses.....	18 25
J. W. True, Executive Committee, expenses.....	18 80
Remitted to life members.....	3 00
Notes paid.....	700 00
Interest on notes	12 58
B. M. Watson, Deering lecture	10 00
D. H. Knowlton, Secretary, salary, 1894.....	125 00
D. H. Knowlton, Secretary, salary, 1895.	150 00
D. H. Knowlton, Secretary, expenses	22 36
Frank Jones, Deering, hall.....	6 00
Legal services, A. M. Spear	25 00
A. E. Andrews, Executive Committee, expenses	3 30
Chas. E. Wheeler, Treasurer, expenses.....	27 30
W. M. Mumson, Executive Committee, expenses.....	9 84
Miss Olive C. Adams, report of Deering meeting.....	5 50
C. S. Goddard, plants for children.....	20 00
Knowlton, McLeary & Co., engravings for Transactions.....	8 75
Mrs. Alonzo Towle, services as judge at State Fair.....	25 00
A. W. Pottle, exhibition phials	4 80
D. H. Knowlton, Secretary, expenses.....	18 00
D. H. Knowlton, Secretary, expenses.	25 35
R. C. Pingree & Co., flower stands.....	20 00
Miss G. P. Sanborn, labor at Fair.....	8 00
Warren Fenno, judge on fruit ..	28 50
John Milliken, labor at Fair	10 00
Clerks at Fair.....	18 00
Miss Callahan, Elocutionist, Fair meeting	5 00
O. E. Stanley, services at exhibition	3 75
Dover Stamping Company, exhibition plates	18 00
A. E. Andrews, Executive Committee, expenses	9 55
Chas. E. Wheeler, Treasurer, expenses	16 80
A. E. Andrews, Executive Committee, expenses	25 85
C. H. George, Executive Committee, expenses.	14 30
John W. True, President, expense.....	13 95
Burleigh & Flynt, printing.....	3 00
N. Dingley, Jr., & Co., printing.	9 00
Knowlton, McLeary & Co., printing.....	34 47
D. H. Knowlton, Secretary, expense	4 95
John W. True, President, expenses.....	1 25
C. H. George, Executive Committee, expenses ..	2 50
A. E. Andrews, Executive Committee, expenses	3 40
Chas. E. Wheeler, Treasurer, services and postage	21 25
Deposited in Wiscasset Savings Bank, Permanent Fund	100 00
Deposited in Augusta Safe Deposit and Trust Company ..	200 00
Permanent Fund, Chas. E. Wheeler, Treasurer:	
Premiums at Winter Meeting.....	48 00
at State Fair	821 85
	<hr/>
	869 85
Cash in treasury December 31, 1895.....	135 18
	<hr/>
	\$2,911 65

**FINANCIAL CONDITION OF THE SOCIETY DECEMBER 31, 1895,
SO FAR AS KNOWN TO THE TREASURER.**

Assets.

Bounty due from State	\$1,000 00
Property owned by society	250 00
Permanent fund.	1,021 31
Interest due (estimated)	10 00
Cash in treasury.....	135 18
	<hr/>
	\$2,416 49

Liabilities.

Outstanding bills and accounts.....	\$ 50 00
Due permanent fund.....	228 69
	<hr/>
	\$278 69

PERMANENT FUND.

Dr.

Deposit in Wiscasset Savings Bank.	\$121 31
First National Bank, Farmington	400 00
Merchants' National Bank, Gardiner	200 00
Farmington Water Company.....	100 00
Augusta Safe Deposit and Trust Company	200 00
Balance due fund	228 69
	<hr/>
	\$1,250 00

Cr.

By 118 life members to January 1, 1895	\$1,180 00
By 7 life members received in 1895:	
George E. Bisbee, Auburn.....	10 00
Mrs. Anthony Cummings, Auburn	10 00
Charles S. Keene, Turner.....	10 00
J. H. Litchfield, Auburn.....	10 00
O. L. Larrabee, West Levant	10 00
Edward H. Prince, West Farmington.	10 00
B. H. Ridley, Jay.....	10 00
	<hr/>
	\$1,250 00

CHARLES E. WHEELER, Treasurer.

Chesterville, December 31, 1895.

BUSINESS TRANSACTIONS.

ANNUAL MEETING.

September 6th. Met in accordance with the following call—"Annual Meeting—The Annual Meeting of the Maine State Pomological Society for the election of officers and the transaction of other business will be held in the Exhibition Building in the Park, Lewiston, Thursday evening at 6.30 P. M.

Proceeded to the election of officers for the year 1896. [See page 7.]

WINTER MEETING.

In accord with arrangements entered into with the Secretary of the State Board of Agriculture and by invitation of Mr. John W. Dudley in behalf of the citizens of Aroostook, the meeting was held in Academy Hall, Presque Isle, January 8 and 9, 1896.

The meeting was called to order by President True at the appointed hour, and the Treasurer and Secretary presented their annual reports. [See preceding pages.]

On motion of the Secretary, committees were appointed by the President as follows:

On Exhibition of Fruits Listed—A. E. Andrews, Edward Tarr and Ezra McGlauffin.

On Aroostook Seedlings—Charles S. Pope, C. H. George and J. W. Dudley.

On Resolutions—B. W. McKeen, W. H. Vinton and F. L. Harvey.

On recommendation of Professor Harvey it was

Resolved, That a committee on cranberries be appointed by the Society to look up cranberry culture for Maine in all of its phases, as to the feasibility and desirability of extending the culture in the State, the committee to report to the Society at some future meeting. The following committee was then appointed: F. L. Harvey, D. H. Knowlton, and W. M. Munson.

The reports of the committees on an exhibition of fruits were read by the Secretary. [See schedule of awards.]

Secretary McKeen, in behalf of the committee on resolutions, reported, expressing thanks to the people of Aroostook for their courtesies, and to the hotel and railroads for reduced rates. The report was adopted.

Mr. McKeen of the Board of Agriculture, expressed his pleasure at the excellence of the meeting and the interest shown by the people of Aroostook. He thanked them for the courtesies shown the visitors, and expressed the hope that great good might result from the meeting.

MEETINGS OF EXECUTIVE COMMITTEE.

April 11, 1895. Met at Preble House, Portland.

Voted, To adopt a scale of points for collective exhibitions of apples, pears and plums.

The schedule of premiums was revised for the next annual exhibition.

Voted, To instruct President True to procure four hundred exhibition plates.

Voted, To purchase one or more gross of phials for the cut flower exhibition.

Voted, That the Treasurer be instructed to draw all money due from State and deposit same in some bank.

Adjourned to attend a meeting at Deering, which was addressed by Prof. B. M. Watson, Jr., of the Bussey Institution of Harvard University. (A condensed stenographic report of this address appears among the Papers, Discussions, &c.)

August 6th. Met at Elm House, Auburn.

Prof. Munson's absence abroad was noted and the Secretary and President were requested to fill the vacancy.

Voted, That the Secretary employ experts for the fair.

Voted, That President True be requested to meet with the trustees of the State Agricultural Society and confer with them in regard to certain changes in the exhibition room. Visited the buildings and so far as possible arranged for exhibition.

September 6th. Meeting held in Lewiston.

Voted, To refer the time and place of holding the annual meeting to the President and Secretary.

Voted, To request the treasurer to give a bond for two thousand dollars, subject to the approval of the President and Secretary.

Voted, To instruct the President and Treasurer to invest sufficient money to make good the permanent fund to date.

October 30th. Meeting held in Elm House, Auburn. The Secretary presented the schedule of premiums awarded at the Annual Exhibition, amounting to \$821.85, and the Treasurer was authorized and instructed to pay the same.

Voted, To hold our next Winter Meeting in Aroostook county at such point as may be determined by the President and Secretary. Dates also referred to them.

The President and Secretary were instructed to prepare and issue premium list for Winter Meeting. Express on fruit to be paid by the Society. They were also instructed to prepare a programme for the Winter Meeting, in conference with the Secretary of the Board of Agriculture.

January 8, 1896. Met in the Presque Isle House. Treasurer's account was examined and approved.

Voted, To arrange with the State Treasurer or some reliable bank or deposit company in Augusta to hold in trust the securities representing our permanent fund, for the protection and safety of the Society.

Voted, To instruct Messrs. Andrews and Knowlton to carry into effect the vote of committee regarding the permanent fund, and that the receipt for the same be forwarded to the Treasurer as voucher for the same.

The following day Messrs. Andrews and Knowlton visited Augusta and deposited the papers and securities belonging to the permanent fund with the Augusta Safe Deposit and Trust Company, "subject to demand on order of Executive Committee."

PREMIUMS AWARDED.

Annual Exhibition Held in Lewiston, September 2, 3, 4, 5 and 6, 1895.

APPLES.

Best general exhibition of apples: O. L. Iarrabee, West Levant, first, \$20; S. H. Dawes, Harrison, second, \$15; third, B. H. Ridley, Jay, \$10.

Best exhibition of apples grown in Androscoggin county: First, A. S. Ricker, Turner, \$10; second, John Wallingford, West Auburn, \$8; third, D. P. True, Leeds Center, \$5.

Same in Aroostook county: First, J. W. Dudley, Mapleton, \$10; second, Edward Tarr, Castle Hill, \$8.

Same in Cumberland county: First, S. H. Dawes, \$10; second, John W. True, New Gloucester, \$8.

Same in Franklin county: First, G. K. Staples, Temple, \$10; second, E. F. Purington, West Farmington; third, M. C. Hobbs, West Farmington, \$5.

Same in Kennebec county: First, E. A. Lapham, Pittston, \$10; second, Wm. R. Wharff, Gardiner, \$8; third, Charles S. Pope, Mauchester, \$5.

Same in Knox county: First, Alouzo Butler, Union, \$10; second, I. B. Tolman, Union, \$8; third, Willis A. Luce, South Union, \$5.

Same in Oxford county: First, C. H. George, Hebron, \$10; second, Lemuel Gurney, Hebron, \$8.

Same in Penobscot county: First, C. A. Arnold, Arnold, \$10; second, L. P. Toothaker, Simpson's Corner, \$8; third, J. P. Kenniston, Simpson's Corner, \$5.

Same in Sagadahoc county: First, A. P. Ring, Richmond Corner, \$10; second, J. M. Lamont, Bath, \$8; third, L. E. Wright, Woolwich, \$5.

Same in Somerset county: First, F. E. Nowell, Fairfield, \$10; second, J. S. Hoxie, North Fairfield, \$8.

Same in Waldo county: First, Mrs. A. B. Strattard, Monroe, \$10; second, B. W. Bartlett, East Dixmont, \$8.

Exhibition of new fruits originated by Peter M. Gideon, gratuity; E. F. Purington, \$2.

Baldwin: First, S. H. Dawes, \$5; second, C. A. Arnold, \$3; third, O. L. Larrabee, \$2.

Gravenstein: First, C. S. Pope, \$3; second, John Wallingford, \$2; third, A. S. Ricker, \$1.

Hubbardston Nonsuch: first, S. H. Dawes, \$3; second, D. J. Briggs, South Turner, \$2; third, B. H. Ridley, \$1.

Northern Spy: First, W. S. Hathaway, East Auburn, \$3; second, W. A. Luce, \$2; third, S. H. Dawes, \$1.

Rhode Island Greening: First, B. H. Ridley, \$5; second, Lemuel Gurney, \$3; third, O. L. Larrabee, \$2.

Roxbury Russets: First, D. J. Briggs, \$3; second, Alonzo Butler, \$2; third, R. H. Gardiner, \$1.

Tompkins King: First, S. H. Dawes, \$3; second, F. E. Nowell, \$2; third, O. L. Larrabee, \$1.

Yellow Bellflower: First, R. H. Gardiner, Gardiner, \$3; second, C. A. Arnold, \$2; third, W. R. Wharff, \$1.

Alexander: First, F. E. Nowell, \$1; second, D. S. Thomas, North Auburn, 50c.

Golden Russet: First, G. K. Staples, \$1; second, Lemuel Gurney, 50c.

Ben Davis: First, H. E. Fairbanks, North Monmouth, \$1; second, Lemuel Gurney, 50c.

Deane: First, G. K. Staples, \$1; second, Chas. S. Pope, 50c.

Duchess of Oldenburg: First, A. A. Eastman, Dexter, \$1; second, Chas. S. Pope, 50c.

Fallowater: First, A. A. Eastman, \$1; second, C. I. Perley, Cross Hill, 50c.

Fall Harvey: First, D. J. Briggs, \$1; second, B. H. Ridley, 50c.

Fameuse: First, C. I. Perley, \$1; second, C. A. Arnold, 50c.

Garden Royal: First, C. I. Perley, \$1; second, D. C. Averill, Temple, 50c.

Granite Beauty: First, C. I. Perley, \$1; second, D. J. Briggs, 50c.

Jewett's Fine Red: First, Wm. R. Wharff, \$1; second, S. H. Dawes, 50c.

King Sweeting: First, C. I. Perley, \$1; second, O. L. Larrabee, 50c.

Large Yellow Bough: First, Alonzo Butler, \$1; second, F. E. Nowell, 50c.

McIntosh Red: First, C. I. Perley, \$1; second, J. W. Dudley, 50c.

Milding: Second, O. L. Larrabee, \$1.

Mother: First, Chas. S. Pope, \$1; second, R. H. Gardiner, 50c.

Munson Sweet: First, B. H. Ridley, \$1; second, E. F. Purington, 50c.

Peck's Pleasant: First, R. H. Gardiner, \$1; second, J. S. Hoxie, 50c.

Pomme Royal: First, C. S. Pope, \$1; second, C. H. George, 50c.

Porter: First, S. H. Dawes, \$1; second, E. A. Lapham, 50c.

Pound Sweet: First, S. H. Dawes, \$1; second, Alonzo Butler, 50c.

Primate: Second, S. H. Dawes, 50c.

Red Astrachan: First, Alonzo Butler, \$1; second, C. H. George, 50c.

Rolfe: First, F. E. Nowell, \$1; second, O. L. Larrabee, 50c.

Russell: Second, B. H. Ridley, 50c.

- Somerset: First, B. H. Ridley, \$1; second, F. E. Nowell, 50c.
 Stark: First, A. A. Eastman, \$1; second, D. S. Thomas, 50c.
 Starkey: First, F. E. Nowell, \$1; second, Chas. S. Pope, 50c.
 Talman: First, Chas. S. Pope, \$1; second, F. E. Nowell, 50c.
 Twenty Ounce: First, S. H. Dawes, \$1; second, R. H. Gardiner, 50c.
 Wagener: First, D. S. Thomas, \$1; second, F. E. Nowell, 50c.
 Wealthy: First, J. W. True, \$1; second, A. A. Eastman, 50c.
 Williams' Favorite: First, L. Morrison, West Farmington, \$1; second, O. L. Larrabee, 50c.
 Winthrop Greening: First, Wm. R. Wharff, \$1; second, E. A. Lapham, 50c.
 Yellow Transparent: Second, F. E. Nowell, 50c.
 American Golden Russet: First, W. A. Luce, 50c.
 Autumn Strawberry: First, John Wallingford, 50c; second, Alonzo Butler, 25c.
 Beauty of Kent: First, O. L. Larrabee, 50c.; second, C. A. Arnold, 25c.
 Bailey Sweet: First, S. H. Dawes, 50c.
 Bloomfield: First, S. H. Dawes, 50c.
 Black Oxford: First, E. A. Lapham, 50c.
 Blue Pearmain: First, R. H. Gardiner, 50c.; second, S. H. Dawes, 25c.
 Colvert: First, Alonzo Butler, 50c.; second, F. E. Nowell, 25c.
 Cooper's Market: First, F. E. Nowell, 50c.; second, Alonzo Butler, 25c.
 Early Harvest: First, W. A. Luce, 50c.; second, B. H. Ridley, 25c.
 Fall Jenneting: First, Alonzo Butler, 50c.; second, S. H. Dawes, 25c.
 Fall Pippin: First, S. H. Dawes, 50c.
 Grimes' Golden: First, E. A. Lapham, 50c.; second, S. H. Dawes, 25c.
 Gloria Mundi: First, B. H. Ridley, 50c.; second, E. A. Lapham, 25c.
 Golden Ball: First, C. A. Arnold, 50c; second, M. C. Hobbs, 25c.
 General Grant Crab: First, C. A. Arnold, 50c.
 Hightop Sweet: First, O. L. Larrabee, 50c.; second, F. E. Nowell, 25c.
 Hoyt Sweet: First, C. S. Pope, 50c.
 Hurlbut: First, W. A. Luce, 50c.; second, Alonzo Butler, 25c.
 Haas: First, C. A. Arnold, 50c.
 Holden Pippin: First, Alonzo Butler, 50c.
 Hyslop Crab: First, Alonzo Butler, 50c.; second, C. A. Arnold, 25c.
 Kilham Hill: First, A. S. Ricker, 50c.; second, F. H. L. Sleeper, 25c.
 Ladies' Sweet: First, C. H. George, 50c.
 Lyscom: First, W. A. Luce, 50c.; second, C. A. Arnold, 25c.
 Mann: First, A. A. Eastman, 50c.
 Montreal Peach: First, S. H. Dawes, 50c; second, J. W. True, 25c.
 McClellan: First, B. H. Ridley, 50c.
 Mammoth: First, F. H. L. Sleeper, 50c; second, B. H. Ridley, 25c.
 Maiden's Blush: First, F. E. Nowell, 50c; second, C. A. Arnold, 25c.
 Minister: First, Alonzo Butler, 50c; second, A. S. Ricker, 25c.
 Newtown Pippin: First, S. H. Dawes, 50c.

- New England Beauty: First, C. H. George, 50c.
 Orange Spec: First, C. H. George, 50c.
 Orange Sweet: First, Alonzo Butler, 50c.; second, C. A. Arnold, 25c.
 Pumpkin Sweet: First, O. L. Larrabee, 50c.; second, S. H. Dawes, 25c.
 Pewaukee: First, C. A. Arnold, 50c.; second, E. A. Lapham, 25c.
 President: First, F. E. Nowell, 50c.; second, A. S. Ricker, 25c.
 Pennoch Red Winter: First, W. A. Luce, 50c.
 Rome Beauty: First, S. H. Dawes, 50c.; second, C. H. George, 25c.
 River: First, F. E. Nowell, 50c.; second, C. H. George, 25c.
 Rubicon: Second, D. S. Thomas, 25c.
 Ribston Pippin: First, A. S. Ricker, 50c.; second, E. A. Lapham, 25c.
 Rambo: First, D. P. True, 50c.; second, Alonzo Butler, 25c.
 Spitzenberg: First, John Wallingford, 50c.; second, S. H. Dawes, 25c.
 St. Lawrence: First, Lemuel Gurney, 50c.; second, F. E. Nowell, 25c.
 Sweet Baldwin: First, B. H. Ridley, 50c.; second, D. P. True, 25c.
 Sops of Wine: First, F. E. Nowell, 50c.; second, S. H. Dawes, 25c.
 Scott's Winter: First, G. W. Whitney, West Newburg, 50c.; second, M. C. Hobbs, 25c.
 Skaar: First, D. P. True, 50c.
 Transcendent Crab: First, C. A. Arnold, 50c.; second, John Wallingford, 25c.
 Whitney's Red: First, S. H. Dawes, 50c.
 Wallbridge: First, C. I. Perley, 50c.; second, J. W. True, 25c.

PEARS.

- General exhibition of pears: First, S. H. Dawes, \$10; second, C. I. Perley, \$8; third, D. P. True, \$5.
 Clapp's Favorite: First, A. S. Ricker, \$3; second, S. H. Dawes, \$2.
 Bartlett: First, S. H. Dawes, \$3; second, A. S. Ricker, \$2.
 Sheldon: First, A. S. Ricker, \$3; second, B. H. Ridley, \$2.
 Belle Lucrative: First, C. I. Perley, \$1; second, Alonzo Butler, 50c.
 Beurre d'Anjou: First, C. I. Perley, \$1; second, D. P. True, 50c.
 Beurre Bosc: First, John W. True, \$1.
 Beurre Superfin: First, D. P. True, \$1.
 Beurre Clairgeau: First, D. J. Briggs, \$1; second, O. L. Larrabee, 50c.
 Beurre Diel: First, D. J. Briggs, \$1; second, C. I. Perley, 50c.
 Buffum: First, D. P. True, \$1; second, S. H. Dawes, 50c.
 Doyenne Boussock: First, S. H. Dawes, \$1; second, C. I. Perley, 50c.
 Duchesse d'Angouleme: First, S. H. Dawes, \$1; second, C. I. Perley, 50c.
 Goodale: First, C. I. Perley, \$1.00; second, S. H. Dawes, 50c.
 Howell: First, S. H. Dawes, \$1; second, J. S. Hoxie, 50c.
 Louise Bonne de Jersey: First, S. H. Dawes, \$1; second, O. L. Larrabee, 50c.
 Seckel: First, A. S. Ricker, \$1; second, D. J. Briggs, 50c.
 Souvenir du Congress: First, S. H. Dawes, \$1; second, C. H. George, 50c.

- Lawrence: First, Lemuel Gurney, \$1; second, S. H. Dawes, 50c.
 Flemish Beauty: First, S. H. Dawes, 50c.; second, B. H. Ridley, 25c.
 Beurre Gifford: First, C. S. Pope, 50c.
 Eastern Belle: First, J. S. Hoxie, 50c.
 Keiffer: Second, S. H. Dawes, 25c.
 Keiffer Hybrid: Second, D. P. True, 25c.
 Dearborn Seedling: First, S. H. Dawes, 50c.
 Vicar of Wakefield: First, S. H. Dawes, 50c.
 Rostiezer: First, S. H. Dawes, 50c.
 Rutter: First, S. H. Dawes, 50c.
 Tyson: First, D. P. True, 50c; second, S. H. Dawes, 25c.
 Dana's Honey; First, S. H. Dawes, 50c.
 Brandywine: First, D. P. True, 50c.
 Glout Morceau: First, C. I. Perley, 50c.

PLUMS.

- General exhibition of Plums: First, W. A. Luce, \$6; second, S. H. Dawes, \$4.
 Bavay's Green Gage: First, W. A. Luce, \$1.
 Bradshaw: First, W. A. Luce, \$1; second, B. T. Townsend, 50c.
 Green Gage: First, B. T. Townsend, \$1.
 Purple Gage: First, B. T. Townsend, Freeport, \$1.
 Red Gage: First, F. E. Nowell, \$1.
 General Hand: First, Lemuel Gurney, \$1.
 Japan Plums—Burbank: First, Chas. Miller, East Union, \$1.
 Jefferson: First, John W. True, \$1.
 Lawrence: First, S. H. Dawes, \$1.
 Lombard: First, Lemuel Gurney, \$1; second, C. H. George, 50c.
 McLaughlin: First, W. A. Luce, \$1.
 Moores Arctic: First, S. H. Dawes, \$1; second, W. A. Luce, 50c.
 Quackenbos: First, W. A. Luce, \$1.
 Yellow Egg: First, W. A. Luce, \$1; second, S. H. Dawes, 50c.

SMALL FRUITS IN GLASS IN PRESERVING FLUID.

- Strawberries: First, A. A. Eastman, 50c.
 Currants: First, A. A. Eastman, 50c.
 Gooseberries: First, A. A. Eastman, 50c.
 Raspberries: First, A. A. Eastman, 50c.
 Burbank Plums: First, A. A. Eastman, 50c.

MISCELLANEOUS.

Peaches: First, S. H. Dawes, \$1; second, D. J. Briggs, 50c.

Blackberries: Gratuity, Alonzo Butler, 50c.

Quince: First, D. P. True, \$1; second, S. H. Dawes, 50c.

Collection of Grapes: First, S. H. Dawes, \$3.

Collection of Canned Fruit, Preserves, etc.: First, Mrs. F. D. Grover, Bean's Corner, \$8; second, Mrs. A. A. Eastman, Dexter, \$5; gratuity, Mrs. Annie S. Corbett, Farmington, \$3; gratuity, Mrs. Francis Hoyt, Winthrop, \$2.

Canned Blackberries: First, Miss Abbie E. Ring, Richmond Corner, 50c; second, Mrs. Francis Hoyt, 25c.

Canned Blueberries: First, Mrs. Annie S. Corbett, 50c; second, Mrs. F. Hoyt, 25c.

Canned Cherries: First, Mrs. F. D. Grover, 50c; second, Mrs. F. Hoyt, 25c.

Canned Gooseberries: Second, Mrs. F. Hoyt, 25c.

Canned Pears: First, Mrs. F. D. Grover, 50c; second, Mrs. Annie S. Corbett, 25c.

Canned Plums: First, Mrs. F. Hoyt, 50c.

Canned Raspberries: First, Mrs. F. D. Grover, 50c. second, Miss Abbie E. Ring, 25c.

Canned Strawberries: First, Mrs. F. Hoyt, 50c.; second, Mrs. F. D. Grover, 25c.

Canned Tomatoes: First, A. A. Eastman, 50c.; second, Mrs. F. Hoyt, 25c.

Preserved Apples: First, Mrs. C. A. Arnold, Arnold, 50c.; second, Mrs. F. D. Grover, 25c.

Preserved Currants: First, Mrs. F. Hoyt, 50c.; second, Mrs. A. A. Eastman, 25c.

Preserved Cherries: First, Mrs. C. A. Arnold, 50c.; second, Mrs. Francis Hoyt, 25c.

Preserved Pears: First, Mrs. F. D. Grover, 50c.; second, Mrs. Annie S. Corbett, 25c.

Preserved Plums: First, Mrs. Annie S. Corbett, 50c.; second, Mrs. C. A. Arnold, 25c.

Preserved Raspberries: First, Mrs. F. D. Grover, 50c.; second, Miss Abbie E. Ring, 25c.

Preserved Strawberries: First, Miss Abbie E. Ring, 50c.; second, Mrs. Francis Hoyt, 25c.

Assorted Pickles: First, Mrs. F. D. Grover, 50c.; second, Mrs. F. Hoyt, 25c.

Tomato Catsup: First, Mrs. F. Hoyt, 50c.

Collection of Apple Jellies: First, Mrs. F. D. Grover, \$3; second, Mrs. Annie S. Corbett, \$2.

Apple Jelly: First, Mrs. Annie S. Corbett, \$1; second, Mrs. F. Hoyt, 50c.

Crab Apple Jelly: First, Mrs. F. D. Grover, 50c.; second, Mrs. Annie S. Corbett, 25c.

Currant Jelly: First, Mrs. F. D. Grover, 50c.; second, Mrs. F. Hoyt, 25c.

Grape Jelly: First, Mrs. F. D. Grover, 50c.; second, Mrs. Annie S. Corbett, 25c.

Raspberry Jelly: First, Mrs. F. D. Grover, 50c.; second, Mrs. Annie S. Corbett, 25c.

Rhubarb Jelly: Second, Mrs. Francis Hoyt, 25c.

Strawberry Jelly: First, Mrs. F. D. Grover, 50c.; second, Mrs. Annie S. Corbett, 25c.

Maple Syrup: First, C. H. George, 50c.; second, Lemuel Gurney, 25c.

Maple Sugar: First, Lemuel Gurney, 50c.

Evaporated Apples: First, Lemuel Gurney, 25c.

FLOWERS.

Display Cut Flowers grown by Florist: First, Miss G. P. Sanborn, Augusta, \$10; second, Lucy A. Chandler, Fryeburg, \$8; third, C. S. Goddard, Woodford's, \$5.

Display Cut Flowers: First, Mrs. Chas. Stanley, Winthrop, \$10; second, Mrs. B. T. Townsend, Freeport, \$8; third, Mrs. A. B. Strat-
tard, \$5.

Roses: First, Miss G. P. Sanborn, \$5.

Dahlias: First, Mrs. Chas. Stanley, \$2; second, Mrs. George F. Archer, Clifton, \$1.

Chinese Pinks: First, Mrs. B. T. Townsend, \$2; second, Mrs. Chas. Stanley, \$1.

Carnations: First, Lucy A. Chandler, \$2.

Lilies: Second, Mrs. Geo. F. Archer, \$1.

Asters: First, Mrs. Charles Stanley, \$1; second, Mrs. George F. Archer, 50c.

Pansies (named): First, Mrs. A. B. Strat-
tard, \$2.

Pansies: First, Mrs. Annie S. Corbett, \$1; second, Francis Hoyt, 50c.

Zinnias: First, Mrs. Francis Hoyt, \$1; second, Mrs. Chas. Stanley, 50c.

Phlox Drummondii: First, Mrs. B. T. Townsend, \$1; second, Mrs. Chas. Stanley, 50c.

Perennial Phlox: Second, Lucy A. Chandler, \$1.

Stocks: First, Mrs. Geo. F. Archer, \$1; second, Mrs. Chas. Stanley, 50c.

Sweet Peas: First, Mrs. F. Hoyt, \$1; second, Mrs. Annie S. Corbett, 50c.

Balsams: First, Mrs. Geo. F. Archer, \$1; second, Mrs. F. Hoyt, 50c.

Petunias: First, Mrs. Chas. Stanley, \$1; second, Mrs. Geo. F. Archer, 50c.

Gladioli: First, Mrs. George F. Archer, \$2; second, Lucy A. Chandler, \$1.

Verbenas: First, Mrs. E. M. Blanchard, Lewiston, \$1; second, Mrs. B. T. Townsend, 50c.

Vase of Cut Flowers: First, Mrs. A. S. Corbett, \$3; second, Mrs. Anthony Cummings, Auburn, \$2; third, Mrs. D. H. Knowlton, Farmington, \$1.

Six Button-hole Bouquets: First, C. S. Goddard.

Floral Design (professional): First, C. S. Goddard, \$8; second, Miss G. P. Sanborn, \$5.

Corsage Bouquet: First, C. S. Goddard, \$2; second, Miss G. P. Sanborn, \$1.

Floral Design (amateur): First, Lucy B. Burr, Freeport, \$5; second, Mrs. A. B. Strattard, \$3.

Dish of Cut Flowers: First, Mrs. A. S. Corbett, \$2; second, Mrs. A. Cummings, \$1.

Basket of Cut Flowers, (professional): First, Miss G. P. Sanborn, \$2; second, C. S. Goddard. (Amateur,) first, A. S. Corbett, \$2; second, Mrs. F. Hoyt, \$1.

Design in Grasses: Gratuity, Mrs. Geo. F. Archer, \$1.50.

Greenhouse Plants: First, Miss G. P. Sanborn, \$20; second, C. S. Goddard, \$15; third, Mrs. E. M. Blanchard, \$10.

Pot Plants: First, Mrs. B. T. Townsend, \$10; second, Mrs. A. Cummings, \$8.

Exhibition of Ferns: First, C. S. Goddard, \$3; second, Miss G. P. Sanborn, \$2.

Exhibition of Geraniums: First, Mrs. A. Cummings, \$3; second, Mrs. E. M. Blanchard, \$2.

Foliage Begonias: First, C. S. Goddard, \$2; second, Mrs. B. T. Townsend, \$1.

Exhibition of Coleus: First (professional), Mrs. E. M. Blanchard, \$2; first (amateur), Mrs. A. Cummings, \$1.

Rose plants: Second, Mrs. A. Cummings, \$3.

Double Geranium: First, Mrs. A. Cummings, 50c.; second, Mrs. E. M. Blanchard, 25c.

Single Geranium: First, Mrs. E. M. Blanchard, 50c.; second, Mrs. A. Cummings, 25c.

Ivy-leaved Geranium: Second, Mrs. A. Cummings, 50c.

Pelargonium: Second, Mrs. A. Cummings, 50c.

Foliage Begonia: First, Mrs. A. Cummings, 50c.; second, Mrs. E. M. Blanchard, 25c.

Flowering Begonia (not tuberous-rooted): First, Mrs. E. M. Blanchard, 50c.; second, Mrs. B. T. Townsend, 25c.

Tuberous-rooted Begonia: Second, Mrs. E. M. Blanchard, 50c.

Coleus: First, Mrs. E. M. Blanchard, 50c.; second, Mrs. B. T. Townsend, 25c.

Fuchsia: First, Mrs. A. Cummings, 50c.

Ever-blooming Rose: First, Mrs. A. Cummings, \$1.

Hydrangea: Gratuity, James D. Pulsifer, Auburn, \$1.

Pressed Maine Ferns: First, C. H. Knowlton, Farmington, \$2.

Cut Wild Flowers: First, Mrs. C. E. Waterman, East Auburn, \$3.

Pressed Wild Flowers: First, Frank C. Merritt, \$5; second, Mrs. C. E. Waterman, \$3; gratuity, Rockland High School, \$10.

Children's Plants, First Premiums: Ralph Rowe, George Judkins, Carl Pomeroy, Henry Glidden, Charles Holderman, Grace English, Edna Chipman, Alberta Rowe, Leon Ross, John Riley, George Babbett, Harold Durgin, Clarence Noyes, Celia Towne, Franklin Fisher, Maurice McCarthy, Thomas Duncan, Lucy Craig, Edgar Barnes, Lewiston; Allen Keene, Jennie Rogers, Ralph Emery, Hazel Sprague, Vina Keyes, Flossie G. Holland, Daniel Coleman, Linn Wood, Mabel Clement, Chandler Bearce, Lila Yeaton, Wallace Hancock, Gladys Lothrop, Helen Sprague, Carl Spearing, Auburn, 30 cent each.

Second Premiums: Carl Wing, Edith Clarke, Annie Wood, Earl Mace, Alice Marshman, Fanny Ridlon, Mabel Sawyer, Wallace Cooms, John O'Connell, Bessie Parker, Geneva Babcock, Charley Fraser, Grace Jackson, Daniel Lisherness, Howard F. Fogg, Della Wilson, Lewiston; Ethel Wentworth, Ralph Chase, Howard Stetson, Helen Randall, Lizzie Briggs, Maud Larrabee, Harry Paul, Ralph Currier, Mary Morris, Charlie Bailey, Lester Brett, Bessie Noyes, Nellie Lombard, Flossie Royal, Allie Garcelon, Susie Dewing, Auburn, 20 cents each.

LIST OF PREMIUMS AWARDED AT THE WINTER MEETING HELD IN PRESQUE ISLE, JANUARY 8 and 9, 1896.

APPLES.

Best Exhibition of Apples: First, O. L. Larrabee, West Levant, \$5; second, Chas. S. Pope, Manchester, \$4; third, B. H. Ridley, Jay, \$3; gratuity, S. W. Taber & Son, Washburn, \$2.

Golden Russet: First, B. H. Ridley, Jay, \$1; second, Phineas Whittier, Farmington Falls, 50c.

American Golden Russet: Gratuity, Willis A. Luce, South Union, 50c.

Baldwins: First, O. L. Larrabee, West Levant, \$1; second, Chas. S. Pope, Manchester, 50c.

Ben Davis: First, A. A. Eastman, Dexter, \$1; second, C. H. George, Hebron, 50c.

Deane: First, E. F. Purington, West Farmington, 50c.; second, B. H. Ridley, Jay, 25c.

Dudley's Winter: First, John W. Dudley, Castle Hill, \$1; second, Edward Tarr, Castle Hill, 50c.

Fallowater: First, A. A. Eastman, Dexter, 50c.; second, Chas. S. Pope, 25c.

Fameuse: First, S. W. Taber & Son, Washburn, 50c.; second, Columbus Hayford, Maysville, 25c.

Hubbardston: First, Chas. S. Pope, \$1; second, B. H. Ridley, 50c.

Nodhead: First, J. W. True, New Gloucester, 50c.; second, A. A. Eastman, Dexter, 25c.

McIntosh Red: First, A. M. Dudley, Castle Hill, \$1; second, Edward Tarr, Castle Hill, 50c.

Milding: First, O. L. Larrabee, \$1.

Mother: First, Chas. S. Pope, 50c.

Northern Spy: First, A. A. Eastman, \$1; second, Phineas Whittier, Farmington Falls, 50c.

Pound Sweet: First, J. W. True, New Gloucester, 50c.

Rhode Island Greening: First, Phineas Whittier, Farmington Falls, \$1; second, O. L. Larrabee, 50c.

Rolfe: First, A. A. Eastman, 50c.

Roxbury Russet: First, Phineas Whittier, \$1; second, O. L. Larrabee, 50c.

Starkey: First, Chas. S. Pope, 50c.

Stark: First, A. A. Eastman, 50c.; second, E. F. Purington, 25c.

Talman Sweet: First, Chas. S. Pope, \$1; second, A. A. Eastman, 50c.

Tompkins King: First, E. F. Purington, West Farmington, \$1; second, O. L. Larrabee, 50c.

Wagener: First, O. L. Larrabee, 50c.; second, B. H. Ridley, Jay, 25c.

Wealthy: First, A. A. Eastman, 50c.; second, J. K. Damon, Presque Isle, 25c.; gratuity, Geo. E. Farnham, Caribou, 25c.

Yellow Bellflower: First, O. L. Larrabee, \$1; second, Phineas Whittier, 50c.

Alexander: First, J. W. Dudley, Castle Hill, 50c.; second, A. M. Dudley, 25c.

Black Oxford: Gratuity, C. H. George, Hebron, 50c.

Sweet Baldwin: Gratuity, O. L. Larrabee, 50c.

Blue Pearmain: Gratuity, A. A. Eastman, 50c.

Ribston Pippin: Gratuity, B. H. Ridley, 50c.

Granite Beauty: Gratuity, J. W. Dudley, 50c.

Duchess of Oldenburg: Gratuity, J. K. Damon, Presque Isle, 50c.

Aroostook Seedlings: Best exhibition, first, Orrin Hubbard, Castle Hill, \$2; second, Delano Moore, Presque Isle, \$1.

Seedling, called Stowe: First, Mrs. Ella Miller, Perham, \$1; second, Orrin Hubbard, 50c.

PEARS.

Beurre d'Anjou: First, D. P. True, Leeds Center, \$1.

Vicar of Wakefield, Beurre d'Anjou: First, D. P. True, \$1.

MISCELLANEOUS.

Canned Apples: First, Mrs. F. D. Grover, Bean's Corner, \$1.

Evaporated Apples: First, Phineas Whittier, Farmington Falls, \$1.

Apple Jelly: First, Mrs. F. D. Grover, Bean's Corner (4 tumblers), \$1; second, Mrs. J. W. Dudley (2 tumblers), 50c. Crab, first, Mrs. Eva McGlauffin, South Presque Isle, 50c.; second, Mrs. Ezra McGlauffin, South Presque Isle, 25c.

- Jellies, 3 kinds: Gratuity, Mrs. J. B. Dow, Mapleton, 50c.
 Jelly, made from the fruit of the high bush cranberry, *Viburnum opulus*: Gratuity, Mrs. Eva McGlauffin, 50c.
 Jelly, made from Moore's Arctic: Gratuity, Mrs. Eva McGlauffin, 50c.
 Quince fruit: Gratuity, D. P. True, Leeds Center, 50c.
 Case of Insects: Gratuity, Delano Moore, Presque Isle, \$1.

SUMMARY OF AWARDS AT ANNUAL EXHIBITION.

Apples	\$420 75
Pears	65 75
Plums	26 50
Miscellaneous	57 50
Flowers	251 35
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	\$821 85
Awards made at the Winter Meeting at Presque Isle.....	59 00
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Total	\$880 85

PUBLIC MEETINGS

OF THE

Maine State Pomological Society.

PAPERS, DISCUSSIONS, Etc.

PUBLIC MEETING,
City Hall, Deering, April 11, 1895.

ANNUAL MEETING, LEWISTON, SEPT. 5, 1895.

UNION WINTER MEETING,
Presque Isle, January 8 and 9, 1896.

PUBLIC MEETINGS.

PROGRAMMES.

DEERING MEETING, APRIL 11, 1895.

This meeting was held in City Hall, Deering, at 8 o'clock P. M. The exercises consisted of an address by Prof. B. M. Watson, Jr., of the Bussey Institution of Harvard University, on "Hardy Trees and Shrubs."

ANNUAL MEETING DURING THE EXHIBITION.

Election of officers.

Address by Mrs. Alonzo Towle, Freedom, N. H., "People and Homes."

UNION WINTER MEETING AT PRESQUE ISLE, JAN. 8 and 9, 1896.

WEDNESDAY.

9.00 A. M. Tables will be in readiness for display of fruit.

11.00. Business meeting. Report of Treasurer. Report of Secretary.
Other business.

AFTERNOON.

Address of Welcome, John W. Dudley, Castle Hill.
Response.

President's Annual Address, John W. True, New Gloucester.
Our Native Crauberrries, Prof. F. L. Harvey, State College.

EVENING.

Music.
Small Fruit Culture, J. H. Hale, South Glastonbury, Conn.
Music.

THURSDAY.

FORENOON.

Paper, Chas. E. Wheeler, Chesterville.
Raising Apples for Profit, Chas. S. Pope, Manchester.

AFTERNOON.

A Talk upon Codlin Moth Borers and Curculio, Prof. F. L. Harvey, State College.
Plum Culture for Maine, Willis A. Luce, South Union.

EVENING.

Music.

A Talk on Maine Birds,

Lew M. Felch, Ricker Institute.

Music.

Food Value of Nuts and Fruit,

Miss Anna Barrows, Boston.

Music.

Papers, Discussions, etc.**AT THE DEERING MEETING.****HARDY TREES AND SHRUBS.**

By Prof. B. M. WATSON, Jr., of Bussey Institute of Harvard University.

Of late years, particularly during the last eight or ten, a great deal of ornamental planting has been done in the vicinity of the cities and the large towns. This has had the effect of enhancing the value of the land and I think it is now universally conceded that any ornamental planting is likely to increase the value of the real estate on which the trees and shrubs are planted and the real estate in its immediate vicinity.

BOOKS, ETC., ON HARDY TREES AND SHRUBS.

In regard to the literature on the subject of planting hardy trees and shrubs, there is almost nothing that can be recommended in book form for the New England States. There are plenty of books in French and German; there are English books, but none of them meet the requirements of this country. Our best information on these matters comes from the periodical press.

In regard to the methods which one should choose for planting trees and shrubs, time will hardly permit us to go extensively into this matter; an excellent book on this subject has been written by Mrs. Van Rensselaer, "Art Out of Doors," and any one who is contemplating the establishing of any considerable amount of planting, or if they are considering the reclamation of any considerable amount of land, will find valuable hints and information from this book.

BELT PLANTING.

As a general thing it might be said that any planting which was done for protection would be done more or less under the head of "belt plantation." We have a certain amount of land; this land may have a distinct value for growing purposes; it may be good grass land, it may be land from which large crops come and any intermingling or interspersing of trees throughout the body of the land might possibly result

in poor crops. The surrounding edges or borders of the field only need be planted. We could have a growth there which is both thoroughly good and which is at the same time useful. There are plenty of crops, particularly those which require more warmth than the climate provides for, a low line of shubbery is an important addition to their welfare and often makes a good crop instead of a poor one.

Trees and shrubs may also be used in the form of a belt plantation to bring out some distant view in the landscape. On the north, north-west, and northeast, you must make the planting pretty dense, and on the south, southeast, and west openings can be left, and the trees and shrubs will act as a frame, precisely as a frame enhances the value of a picture. Just in the same way that trees and shrubs can be planted for enhancing the view of the landscape, so any detrimental appearance can be blotted out, you can plant it out with your trees and shrubs. A modern method of planting shrubs which is obtaining a good deal of consideration from the landscape gardeners of the present day is this: Wherever a house rises out of grass land, there always is a certain amount of bareness between the foundation stones of the house and the ground. This bareness can be bridged over by a comparatively small and inexpensive planting of rather low-growing shrubs.

It is most objectionable to scatter shrubs through grass. You very often see this where the land is comparatively limited, where only a small amount can be planted, where the owner, perhaps, desires to get a great many different sorts of shrubs he will scatter them through his grass land. If he will confine his planting to the borders and make the belt plantation of which I speak, it would not only be more desirable and the shrubs will be better in every way, but the effect of the planting will be very more harmonious. Avoid a spotty look. Do not dot things round and round; the plants should grow together; they should not be left two or three to themselves.

In regard to cultural directions. The most important matters of which I can speak under this head are in respect to the preparation of the soil. The most frequent mistake that is made by our amateur planters, I mean by those who have had little experience in these matters, is in this connection; they fail to give the soil adequate preparation for the proper growth of the plants.

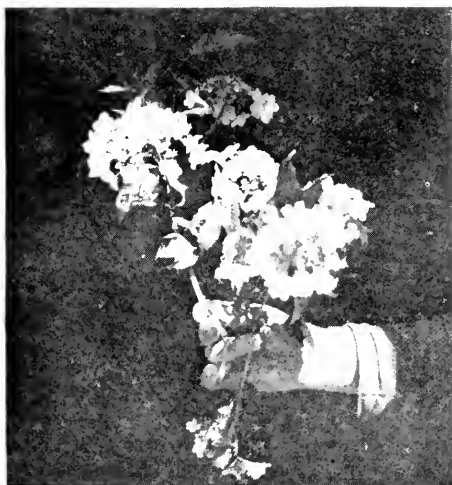
Wherever any considerable amount of land is to be planted, i. e., if you are planting by the acre in large quantities, the cost excludes practically any other preparation than by plowing, but this can be made very thorough. You can plow and sub-soil, you can turn and till the ground to the depth of eight or ten inches in ordinary soils, and there is no need to say that under these circumstances a certain amount of manure can be incorporated in the soil and if the soil is light and sandy, as it often is along the seashore, there is nothing better that can be added than leaf mold, decayed vegetable or other organic matter.

Where, however, a small number of plants are to be set the best preparation is by trenching. You can trench at comparatively small expense to the depth of eighteen inches or two feet; or if you want a little better work you can go to the depth of three feet, but more than that will not be required.

When you trench you have an excellent opportunity not only of discarding those portions of the soil which are poor, throwing out any stones which may interfere with the proper cultivation of the soil, but you can also add manure. In this connection it should be stated that, if you would give the most careful cultivation to our choicer shrubs you must make the same preparation that you would give for growing fruits, you should make your border deep, you should have mellow soil and you should incorporate manure so that it would last not only for the first two or three years but for fifteen or twenty years; but the expense is very considerable and you would do this only for the very choicest sorts of plants, azaleas, rhododendrons, etc., from which we expect a very considerable return in the form of flowers and foliage.

As far as cultivation is concerned, you must give to such plants at least as good care as you would give potatoes or corn. The plant or tree after it has become established will withstand hard winters, loss of food and trouble with the water supply; but if you want the very best results until these trees become established, I beg of you that you will give them the same care that you would give to the crop of potatoes or corn that you are growing, we will say, in competition for a prize. Go over the ground, weed and see that the surface of the soil, particularly during the hot, dry weather, is kept stirred once a week or once a fortnight. It is very little trouble and it will result not only in a better growth of the tree or shrub, but what is more important it gives the tree a good send-off; it makes it capable of resisting untoward circumstances from the first. Whenever there is any extensive planting to be done it is well to establish a nursery.

Set aside a portion of the ground which is to be devoted to the growth of trees and shrubs and in that plant thickly and still give them space to develop, have the rows three and one-half or four feet apart so as to permit of horse-hoeing and in the rows plant a foot to six feet apart, depending upon the growth we expect, and there let the trees and shrubs grow for a number of years. In the first place, you save money on the first cost; you can get small plants cheaper than you can get big ones; you do not have to pay so much freight; you can have your plants grown under your own eyes, and, if you give them the same care that you would give corn or potatoes, they will grow well. In fact, one of the principal reasons for establishing a nursery is that you have the plants so grown absolutely at your command. If the season opens in March, you can plant in March; if the season does not open until the last of April, you need not be in correspondence with the nurseryman hurrying him up nor are you troubled by too early arrival of the plants. You have them at your command; you can choose that week of the season, that day of the week, which is most suitable for planting.



SPRAY OF HIGH-BUSH CRANBERRY.
(*Viburnum Opulus*.)

Take this in the matter of all coniferous trees. Coniferous trees are somewhat difficult to handle, but when these trees have been grown in the nursery under your own care you have this advantage; you can lift and plant at the proper time at a very considerable saving of money. There is a great demand for our native trees and shrubs. These native trees and shrubs are practically unobtainable in the nurseries, they are not grown to any appreciable extent and almost the only way to get these plants is to go in the woods and dig them up. If you go to the woods and dig them up and plant them you are very likely to suffer severe loss. You must select those plants which are most suitable; the smallest plants are always the best. You are not looking for large plants; you are not looking for plants that will make an immediate show; you are looking for plants that will make the best growth and you take plants that are six inches high instead of three feet. You put them in the nursery and grow them from one to three years and you not only have plants that are otherwise practically unobtainable, but you have them better and cheaper.

IN REGARD TO THE VARIETIES

which are recommendable for planting, you must consider the beauty, the symmetry, the natural good appearance of the tree. It may be beautiful for its flowers, for its foliage, or for its fruit; some trees happily combine two or three of these requisites, while others are grown for their foliage or flowers alone. The plant must be hardy: that is, it must be capable of resisting the circumstances under which it is to be grown; it may be hardy in one place and not in another. This is important particularly when you are planting rather large trees, such trees as would be selected for street planting.

Horse chestnuts are good; they are trees which especially recommend themselves to be planted in the vicinity of houses; their growth and symmetry commend them for that purpose.

The sugar maple is to be especially commended for any purpose where a large, handsome, well-shaped, deciduous tree is desired. There is nothing better than the sugar maple; it is almost impossible to find any fault in it. Its chief rival is the elm; the elm is somewhat more graceful than the sugar maple; it, however, has the bad habit of losing foliage early and it is in some ways perhaps not quite so easily established. Between the sugar maple and the elm it is very difficult to choose; it is almost a matter of taste, about which we know there is no dispute. You will very often when clearing land preserve a scarlet maple. The scarlet maple has the happy faculty of succeeding in land which is wet.

There is one tree which is planted quite extensively, one of the maples, commonly known as the soft maple, sometimes the silver-leaved maple, which I do not consider worthy of planting. If we had no sugar maples or scarlet maples we might plant the soft maples, but the only reason

for planting soft maple is that it will grow quickly and you can get a specimen in a few years. If you will plant it with the distinct understanding that it will be cut down when it is thirty or forty feet high to give way to the more desirable maples, well and good; otherwise discard it.

The next is the Norway maple. It is not as good as our sugar maple, but it presents a pleasing contrast. It does not bloom so freely as the scarlet maple, but it blooms before the leaves are well developed and the flowers are a pretty shade of yellow. The Norway maple has been used for street planting, but I think those who have planted it wish they had chosen the sugar maple. It is a very fair tree and it has this pleasant peculiarity, the yellow flowers, which cover the tree early in the season. If the sugar maple was not such a magnificent tree the Norway maple would be a very good tree; but the sugar maple overshadows it entirely.

The yellow locust is a fine tree but very difficult to grow where borers abound. The honey locust, or three-thorned acacia, is very graceful, a quick grower and deserves to be more largely cultivated.

There is here a little group of flowering trees, the hawthornes, flowering apples, flowering cherries and flowering plums. The flowering plums make beautiful specimens when you desire a tree fifteen or twenty feet in height, with a spreading, compact top, fairly good foliage most of the season, fairly symmetrical, you can have nothing better than the flowering plums and apples. The variety which is known as Parkman's is one of the most ornamental of low-growing trees. We have the old English hawthorn with their double pink and white and single scarlet flowers. The trees are very desirable and quick to grow.

The American mountain ash is a charming tree, giving you an abundance of fruit during the autumn months. The American ash and American sassafras are grand trees.

Of elms we have the American elm and the English elm, which is nearly as good. The English elm lacks, however, the graceful beauty of the American elm. The English elm is a compact tree that grows straight up, and has not that beautiful fall of branches that the American elm has. It has an advantage over the American elm in some parts of the country; where the canker worm abounds the English elm does not suffer.

All the oaks are good; the red oak, the black oak, the scarlet and the pin oak are the best. The white oak is a beauty but of such slow growth that it is hardly recommendable for planting. These oaks have a bad reputation among tree men. They are supposed to be slow growers. If you dig up an oak which is eight or ten feet high and plant it in your garden you will find it is a slow grower; but if you begin with a nursery grown tree a foot high and plant in a hole which is made two or three feet across and about a foot deep filled in with good soil, and if you will give it a little care so that it will not be run over by grass or eaten up by cattle, you will find that oak will make a beautiful tree in eight or ten years.

There are in the Arnold Arboretum many specimens which have not been planted more than fifteen or sixteen years which are five or six inches through at the butt. This is true of the pin oak especially; it is one of the quickest growing oaks we have. These oaks were grown under favorable circumstances, they were cared for as you would care for a peach tree.

The same thing is true of the hickory, butter-nut or shag-barks, but if you try to move them from the woods you experience difficulty on account of that long tap root. But if you grow them in the nursery you get plenty of fibrous roots and they will respond quickly to generous treatment.

The American chestnut is one of our best trees; so also is the beech. A man does not want to plant many purple beeches but one or two are desirable.

For quick-growing trees we have the various birches which are highly to be recommended. The European white birch is one of the fastest growing trees we have; wherever it is planted even if in poor soil it will grow and flourish. Willows and poplars have their uses; for wet land there is nothing better than the white willow or the golden variety.

EVERGREEN SHRUBS.

Among evergreen shrubs the Rhododendrons and mountain laurel represents the large and important class of broad-leaved evergreens which are hardy and thrive in New England.

The Hybrid Rhododendrons under careful treatment,—one of the most important factors of this treatment is seeing that they do not suffer from lack of water during the summer months and planting in favorable situations in a deep, rich soil,—are likely to thrive in almost any localities throughout New England. There is a difference in them; some are hardier than others. It is somewhat difficult to draw up a proper list of Rhododendrons without having a knowledge of the locality or experimenting with the plants themselves.

The mountain laurel is hardy throughout New England and also Rhododendron Maximum, although they suffer more or less from hot and dry seasons. Whether it is the winter's cold or the dryness of the summer it is hard to say, but the probabilities are that it is the dryness of the summer which affects the plant so that it is unable to stand the winter. The turning brown of the leaves does not appear until spring and we are in the habit of laying it to the winter, but I think it is the dryness of the preceding summer which has done the damage.

In deciduous shrubs the list is a very extended one. Beginning with barberries, I would like to say a good word for the new Japanese barberry which has lately been introduced. a low-growing, very compact shrub, it has a great amount of fruit and I wish especially to recommend it to anyone who is planting with the intention of feeding game birds, quail, partridges, or song birds during the winter months. The fruit is better, although not more abundant, than that of the common

barberry; but there is something in the fruit that makes it very acceptable to the birds: where a large quantity of this Japanese barberry is growing side by side with the common barberry, the latter remains untouched while the Japanese barberry is eaten so fast that it is almost impossible to save seeds.

Among low-blooming shrubs we have the althaea, and hydrangea paniculata grandiflora. They are desirable because the flowers come late in the season after the usual bloom of summer shrubs, and in this class is the witch hazel; it is one of the beautiful things that cheer the landscape in the dull October and November days.

There are many beautiful spiræas. These are plants that I would recommend you to put in about the foundation walls of your houses, wherever you want a comparatively low shrub. One of them grows perhaps two or three feet in height and the other seven or eight feet in height. They are both comparatively newly introduced plants, but their hardiness, their durability, has been thoroughly tested. The low-growing Spiræa, Thunbergii, is distinguished by the great mass of small white flowers early in the season. The flower as seen in a mass is fine, for use as cut flowers it is of small account. The foliage, however, is good. It is rather a light yellowish green and stays on well and during the autumn months it presents the brightest, the gayest of autumnal coloring.

When you plant elms or maples in the street perhaps it may not have occurred to you that one reason for choosing them, was because they were easy trees to handle. If they are nursery grown they soon provide themselves with fibrous roots.

We are debarred from using many of our useful and beautiful trees, simply because they cannot be transplanted easily. A tree that will be suitable for the purposes of which I am speaking must be fairly long-lived.

I mention this because there are a great many European trees which have been largely planted throughout the New England and Middle states which are beautiful trees for a short time only. The English oak is one of them; after they attain a certain age they begin to fade; they are not long-lived trees. A good many of the trees will be debarred from the list which I am to present to you simply on that account,—they are good for a short time, but they are not sufficiently long-lived to warrant our planting in any considerable quantities.

This list of plants I have divided into various groups. In the first place, we have the evergreen trees. We have a few evergreen shrubs; I am sorry to say the list is very limited. Then we have deciduous trees, the maple, the elm and the like; we have the deciduous shrubs; there is also a small class of vines which are convenient and useful for many purposes.

We come to Maine to get what I consider our handsomest evergreen tree, that is the white pine. I hope I shall not seem foolish in recommending you ladies and gentlemen in Maine to plant white pines; but there is no tree that is better. It is a tree which will last our lifetime and the lifetime of generations to follow; it is one of the most graceful,

symmetrical trees; it is hardy, it will succeed in almost any situation: there are some unfortunate sections of the country where it does not succeed, but there are no conifers, except one, which are easier to handle than the white pine. The white pine is suitable for purposes of protection. There is nothing better than the white pine for a windbreak.

Another good pine is also a native of this part of the country. The nurseries are now having their attention called to the red, or Norway, pine. There is a foreign pine, which composes the celebrated Black Forest in Germany, the Austrian pine, which very much resembles the red pine. It is the handsomer tree of the two; it has a more compact head, it is more symmetrical and at a little distance, in certain stages of their growth, it would be very difficult to distinguish them. If you plant them side by side they will both make a beautiful growth for thirty or forty years, sometimes more, generally less; then the Austrian pine will begin to deteriorate. What happens it is hard to say: sometimes it is an insect that attacks it; sometimes a fungus; something is lacking in our soil, climate or atmosphere which is detrimental, which prevents the tree from making its growth.

The pitch pine for certain work is unsurpassed. It is a very tough tree; it will grow in the most exposed situations, along the sea coast where the winds come off water. You will find that the needles of the white pine, under those circumstances, will turn brown; apparently it does not hurt the tree but it makes it look used-up in the spring. But in this situation you can plant the pitch pine and have it succeed admirably.

There is one foreign pine which is to be recommended; in fact there are two, of one of which I have spoken. The Austrian pine is a thoroughly good plant for a short-lived tree. It sometimes happens that it is desirable to plant a tree that will last only twenty to thirty years, and for such a purpose the Austrian pine makes a thoroughly good tree. The trouble is that it is for a short time only.

The Scotch pine makes this same sort of growth. The Scotch pine, however, grows in much more exposed situations than either the white, red or pitch pine and it will grow in much poorer soil. We very often use Scotch pines to form protection for a number of years, five or ten years, until the plantations of the more enduring white pines, red pines or pitch pines have become established.

The white spruce, another of your common Maine trees, is of great value. Here, again, we have a little difficulty. It is rather hard to get white spruce in any considerable quantity. You can get the plants by the dozen, you can get them by the hundreds and occasionally by the thousands, but they are not to be had in any very large quantities.

The Norway spruce, that is the *Abies Excelsa*, which resembles very much the black spruce, is in some ways the only evergreen tree which will succeed under any and all circumstances. If you have a poor soil, if you have an exposed situation where nothing else will grow, where nothing else will live, you may be sure that you can

establish the Norway spruce. There is only one situation, where the wind comes on the water for a considerable length of time during the year, that the Norway spruce will occasionally fail. All you have to do then is to plant a few Balm of Gilead trees, put up a wind-break, make use of a fence or oldstone wall, and you can establish your Norway spruce and under the lea of the Norway spruce you can get any of the pine or deciduous trees to grow. It is one of the most important plants in planting for protection; it is used by market gardeners and by fruit growers all over the country and takes the place of the board fences.

There is a new species, the Colorado spruce, which is a favorite now among modern tree planters which comes from the highland in Colorado. It is one of the northernmost forms of this plant and promises extremely well. No trees, however, have been in cultivation more than twenty to twenty-five years and we do not know what its future will be.

Another tree from Colorado, the *Abies concolor*. There is no common name for this plant that I have yet heard. This is a beautiful tree; it might be called the ostrich plume. Its long needles very much resemble an ostrich feather, and this fir is a beautiful tree. It has been grown in some of our gardens and seems to succeed admirably. It has proved hardy and thrives apparently in all soils and situations.

The hemlock, the balsam fir, the European white fir and silver fir, are all good. The hemlock tree is perhaps the best; it is a graceful tree and it relieves the stiffness, the sombreness of the pine and spruce. If you wish to protect your gardens from the cold winds, put in a belt of Norway spruce, then white pines and on the garden side finish it off with a row of hemlocks. You will find that the beauty, the grace of the hemlock will make a much more desirable background for the flowering plants and shrubs in the garden. There is another Colorado species, the Douglas fir, which could be mentioned in any list such as I am giving you now; but it is a comparatively untried tree; we cannot tell what its future will be, but so far as we know it is a magnificent tree, but what it will be in the next fifty years no one can forecast.

Among deciduous trees our choice is much more difficult. The first one I have on my list is the tulip tree; how likely that is to endure your severe winters it is difficult to say, but I should attempt its cultivation. It succeeds admirably with us provided we will begin with small specimens. If you plant a tulip tree ten or twelve feet high you are almost sure to have it die down to the ground. The same thing is true of the magnolias and the Southern cypress when brought north. They ultimately become hardy, if you plant thrifty trees the roots will live and send up shoots and one of those shoots will establish itself. If you begin with trees a foot or eighteen inches high, you are very apt to avoid these unpleasant experiences. If you plant any tulip trees or magnolias, at any rate away from the seashore, I should advise that small plants be selected.

The next tree is the linden and here there is nothing better than the American linden but it is one of the most difficult trees to get in the nurseries that I know of. It is one of our hardiest and toughest trees, especially where the exposure is along the seashore. It will stand along the seashores within a few feet of high-water mark and will withstand the attacks of wind and wave. I do not mean that it makes huge trees under these circumstances, but it will grow and live and that is as much as we can expect. Although it sheds its leaves a little earlier in the autumn than some of our trees, it is not so quick to shed its leaves as the European linden; the European linden leaves us bare poles by the end of August. The the American linden flower is most acceptable to bees.

I consider the European linden a beautiful tree but I want to say emphatically that the American linden is much better and that it should be planted—something that is seldom done largely because it is so difficult to obtain it.

The other spiræais *Spiræa Van Houttei* and is a garden hybrid. It is about eight feet when fully developed under extremely favorable circumstances and has an abundance of flowers about the last of May. The flowers grow in such great masses that the tree is often bent almost to the ground. It is one of the most symmetrical growers and should be more commonly planted.

I will pass over the well known Hybrid roses, the yellow roses, and climbing roses, and say a word or two in regard to the single roses that have lately been introduced. *Rosa rugosa*, the most remarkable, come from Japan and have attracted the most notice. There are two forms, the purple and white, and they are thoroughly established in gardens; it seems to succeed thoroughly and is one of our most important plants. This has a large single flower measuring perhaps four or five inches in diameter, one purple and the other white. The foliage is dark green and keeps in good condition during the summer months and the flowers are succeeded by bright, handsome rose heads during the autumn.

The other rose, which is sometimes called the Japanese multiflora to distinguish from an old multiflora that we grow in the greenhouses, is a thoroughly hardy plant and is a rapid grower. It is a fine plant for a trellis or for covering a wall or fence; it must be trained, however, and during the latter part of June is covered with quantities of small white flowers. The individual flower is only, perhaps, the size of a ten cent piece, but there are hundreds and thousands of these flowers on the plant. It is being introduced in some places as a hedge plant and it promises to be a very good one. It has enough thorns, it has a sufficient amount of sturdy thorny growth to fairly protect a field against children or dogs; not against cattle or horses, however.

There are various mock oranges, or so-called syringas. Here is a plant that is desirable because it will grow in the shade. Not grow better in the shade,—it will grow best in the open air and in the brightest sun-

shine—but if you have shade and you want something or other to grow there, *Philadelphus* is likely to succeed. This and the red—snowball are almost the only important plants which would grow under this adverse treatment.

The cornels are good, Tartarian honey-suckle, elder, or elder blows, particularly the one with golden foliage, make a lawn or belt of shrubbery plantation attractive when the plants are no longer in flower.

There are a great many *Viburnums* which attract attention at the present time and two are well known to you, the tree cranberry and snowball, easily attainable from the ordinary nursery.

A Japanese shrub which is worthy of mention is *Forsythia*. There are two or three species; the best is probably *Forsythia Fortuni*.

The lilacs are all desirable. There are not only the old common white and purple, but new hybrids are introduced in wonderful colors; they remind you of the French millinery colors in their shades, from the purest white to the deepest purple, almost black. Then we have some new ones from Japan. These are called tree lilacs. If one buys them with the expectation of getting the flowers which we associate with our common lilacs he is disappointed; but they have beautiful clusters, two or three times bigger than the ordinary lilacs, but without the fragrance.

HARDY VINES.

For vines there is nothing better than the various clematis. Everything depends upon the use to which the vine is to be put. To cover a fence or to cover a stone wall plant the *Clematis Virginiana*, or Virginia's Bower, our wood clematis, and intermingle with it the woodbine, the combination is as good as anything obtainable. If you want a little rarer or less common clematis and one which is perhaps to grow on the porch of the house, use *Clematis Jackmani*. This blooms in July or early in August. *Clematis Paniculata* is a clematis from Japan and is very much like our own "Traveller's Joy," but gives us flowers late in September instead of early in July.

One of the best vines where a number are required, as for instance in adorning the porch or piazza of a house, is Hall's Japanese honeysuckle. It is a plant which has now been established in its cultivation for some twenty-five years, which is thoroughly durable. It gives you a mass, great quantity of white flowers early in the season, as sweet and fragrant as they can be and when September comes it repeats the crop; it is truly an ever-blooming honeysuckle.

The wisterias are among our finest and best vines. We have the Chinese, that which gives you great large of blue flowers early in the season before the leaves are fairly developed, and then we have two from Japan, one with blue and one with white flowers, and these give you clusters of flowers a foot or even eighteen to twenty-four inches in length. Whether or not these will be hardy it is more difficult to say. All the wisterias are subject to bad attacks from the winter, but with us these Japanese wisterias are proving as hardy as the Chinese.

What I have given you I think are likely to withstand your Maine winters; your coverings of snow more than compensate for the lowness of the temperature, and all these plants to which I have called your attention, unless we have made an exception, are plants which stand with us practically without any signs of winter-killing.

At the State Fair Meeting.

PEOPLE AND HOMES.

Mrs. Towle's object in preparing this lecture was to compare the people and homes in other lands with those in the same sphere of existence in our own, also to study, somewhat, their social conditions and broaden our knowledge of the human element if so we can while remaining at home. We are invited to take a hasty trip around the world. To Central America, South America, France, British Isles, Scandinavia, Germany, Russia, Greece, Italy, Spain, the French colonies, Egypt and India. She says finally that, tired of foreign lands and people, gladly we turn our steps homeward, satisfied that "our first-best country is ever at home." We have learned these facts: That in the United States the average standard of living is higher than in any other country; that our independence inspires ambition; that, as Americans, we have much to boast of, and, as New Englanders, much to be proud of. We have learned that we have a variety of climates; that we produce the vines like France, fruit like Spain and all the products of the temperate zone.

Others may choose as they like, but we shall select as a place for a home, the hills of New England, where we are neither scorched with excessive heat, nor shivering from extreme cold, where we fear neither cyclone nor blizzard and where friends are not only dear but near. Strong civilizations have for their keynote and foundation-stone, homes of the right sort; they are built upon truth. Such homes are found scattered all over New England, on the hillsides and in the valleys, each having its clean sweep of lawn, with leafy oaks, maples or venerable elms casting their inviting shadows, telling of grace and charms in nature which are dear to every home-loving soul. It has been said that we cannot produce as much wheat or corn as Kansas and Nebraska, nor such fruit as California, but we have raised men; men whose intelligence and inventive genius have proved the farmer's best friends. These are not accidental happenings. The first fine laws governing homes spring from within, and are directed towards the needs and necessities of the times. Our ancestors in the truthfulness of their lives, recognized these facts. Here boys and girls in the past received their first impressions which have made them a help and blessing in their generation. They were given an inheritance of happiness which comes to those only who make a correct use of life and its privileges. Upon the farm they are taught

the things they ought to know, are disciplined to do, dare and bear, are trained to keep their expenses within their income, which is a matter of vast importance at this time when the extravagant ideas of the young are such a hindrance to their financial success and a barrier to marriage.

The farmer and his wife are always in partnership in their business. Although they are ever conscious that many of the opportunities of life and society are lacking, yet they are in a measure recompensed by the gradual strengthening of mutual affection, the result of close comradeship, as the years pass by. One of our needs as a people is, to dignify our profession more and more, to make it not only well paying, but more and more popular every year. Let no chance slip by unimproved when by effort we can in any way help our work to a higher level in public recognition. How shall we save this American home? Sometimes we are fearful it may become a thing of the past and nothing can take the place of refined and lovely homes, not homes for show and name, but *real* homes. This is an age of intellectual activity. Perhaps we need to understand some of the facts involved. Physicians tell us that the third and fourth generations born on the soil have degenerated; that women have deteriorated. They also tell us at the same time that women can be developed intellectually, and brought to as high a standard as men; in fact, are able to go beyond them, but then, as a rule, they cease to be able to reproduce their kind in health and strength. Mental effort exhausts as much as manual labor without the recompense of exercise. When girls are over-stimulated at an age when they ought not to be, and then are crammed and jammed until their lives go out at their eyelids the whole nation must suffer the effects sooner or later. As the American woman only can produce the American man we certainly should be interested in making and preserving these *farm* homes as one saving factor in American sociology.

While women of foreign blood are paying strict attention to making homes, rearing children, etc., the American women are putting aside maternal instincts and refusing to do their best work. The call for a higher education is an inspired call, let no one dispute it; but education is only a means to an end, that end being a higher, happier and better living for ourselves and help extended to those nearest us. Who can predict precisely what the result of any new method will be? We can say only what common sense and a knowledge of natural laws would seem to indicate that the education which most surely puts us in possession of our best selves physically and gives us the knowledge of how and the manner by which we can most surely utilize ourselves, is the best way by far. The path of wisdom and understanding is so broad and leads up to such heights that if we do the best we are able we can leave the imprints of but few footsteps therein. All that we can possibly learn in any direction, compared with what there is to know, is as one drop of water compared with the vast ocean. Therefore with our limited time for work let us choose the most helpful and beneficial. Domestic science, the culinary art and sanitation embrace all the natural sciences and will

give to girls a broad culture, at the same time healthy discipline. By thus facing practical work there will be created a new sentiment that will re-instate the duties of every day life and place them pre-eminent, opening the way to the masses of workers, to that respectable place that has long been occupied by those who have not put their hands in joint partnership with their heads. Train boys in their business as well. Let the two well trained classes meet and the result will be the establishing of real homes in peace with prosperity. And when the hillsides and valleys shall have applied to them the result of scientific thought and research they will "blossom like the rose."

At the Presque Isle Winter Meeting.

ADDRESS OF WELCOME.

By JOHN W. DUDLEY, Castle Hill.

Mr. President and gentlemen of the State Pomological Society and Maine Board of Agriculture:

It is with a feeling of pleasure that we of Aroostook county gather with you here to-day, as it is something almost unexpected, living as we do so far from the fruit center of the State, we could hardly urge you to come so far; but we know it is your motto to do all in your power to encourage fruit culture in all parts of the State.

It has been but a few years since we, here in Aroostook, have taken much interest in fruit raising, but we have demonstrated beyond all doubt that fruit growing here can be made a profitable business. Of course we don't expect to raise those fine varieties of apples that you do in the older parts of the State. But there are kinds that we can raise that will, in a measure, take the place of them; and we are getting some good seedlings that originated here that stand our cold climate well. There are a large variety of them that are exhibited at our fairs each year, and we are in hopes that in the near future we can raise all the apples that will be needed for home consumption, and of varieties that are good enough to please any man's taste. Of course we all understand that this has been a poor fruit year for the State of Maine and Aroostook is no exception to the other parts of the State, and as there are less fruit growers and less varieties it could not be expected that we could make an average show here at this time. But I am satisfied that your meeting with us here will be a great help to those who are trying to make a success in fruit culture, and I hope you may see many of them at your fall and winter fruit shows in the future.

I have attended several of these winter meetings in different parts of the State and have always been well paid for time and expense. My first meeting with you was at Damariscotta, eight years ago, and from that time forward I have taken a greater interest in fruit growing. Our friend

here, Mr. Hale from Connecticut, was there at that time, and I remember of telling my neighbors when I got home that they ought to have heard his talk on small fruits, and it is a pleasure to me that he is with us today for I am well satisfied that this meeting will be very instructive to us all, as well as very entertaining. At the present time, here in Aroostook, I think the farmers will be more than glad to have their attention drawn from the potato question, for we, at the present time, seem to be potato poor, if there is such a thing, but we have one thing to console us, and that is, our cellars are full of potatoes and salt is cheap, and there is no need of any of us going hungry, even if these are hard times, as people seem to be crying.

But if we should stop to compare with the times as they were thirty-five years or so ago, when we used to make shaved shingles and lug them out of the woods on our backs and get them to market the best way we could and sell them for a few groceries getting as low as \$1.75 or \$2.00 per M. At that time buckwheat and cedar shingles were the only legal tender we had.

This was about the time the Rebellion broke out and every one needed a few postage stamps to send letters to friends who went South, at this time you had to almost beg to get money enough out of a load of shingles to buy a postage stamp. I think those were the hard times instead of now. At that time all of our shingles were hauled to Bangor with teams and goods were taken in return and brought back. And you, Mr. President and gentlemen, could not have enjoyed a ride at that time as you have now over the beautiful systems of the Maine Central and Bangor & Aroostook Railroad.

I remember well, although I was but a small boy, when my father with a family of seven of us started from the town of China to move to this county; we had an express wagon with one horse to haul the family and a double team to carry the goods and we were twelve days getting to this town and the weather wasn't very good either; and now we can cross this continent and back in that time. Now we are within fifteen hours' ride from Boston, one of the best markets in the United States. So you can see there has a wondrous change come to this county within a few years, and the latest and best of them all is the finishing of the Bangor and Aroostook Railroad, which is one of the best systems in New England. Look at our villages covering our beautiful valleys and hillsides, showing that we are a prosperous and happy people. We have also some fine school buildings in our different villages showing that we are alive to the work of giving our children a suitable education to fit them for the work of life; we have also good churches in all parts of our county showing that we are looking after the spiritual part as well as the temporal and educational. The villages of Houlton, Caribou, Fort Fairfield and Presque Isle are lighted by electricity, and each has a good system of water works.

What has built up these prosperous villages living in so remote a part of the State? It is not manufacturing by any means, it is because they

are surrounded with the best farming lands in New England, if we are not the shrewdest managing farmers.

I know we are not too old to learn and it may be that this potato deluge as some call it, with the assistance of the Board of Agriculture in its institute work, and this meeting may work a wondrous change in the methods of farming here in this county.

I wish you could all take a trip to this county in the summer or early fall, we could take you to many places of interest, for you know it was in this part of the State that the great bloodless Aroostook war was fought. Houlton on the southeastern part of the border had its barracks and soldiers and Fort Fairfield had its block-house, and there was Fort Kent on the northern border overlooking the St. John river, and quite a conspicuous place was Castle Hill in those times; their fortress was built on a high hill overlooking the Aroostook river where they could blow the Britishers sky high if any should happen to float up the river.

A story is told, although I would not vouch for the truthfulness of it, that at that time they brought a one-horse load of cannon balls from Augusta to that place and when they got them there they found that they were a size too large for their guns. But I presume the Red Coats never found it out, and it may be that that iron in the soil is what makes fruit trees thrive so well in that section. Perhaps you may think this more like an elegy than an address of welcome.

"But when things don't go to suit you
And the world seems upside down,
Don't waste your time in fretting,
But drive away that frown.

Since life is oft perplexing,
It is the wisest plan,
To bear all trials bravely
And smile when e'er you can."

I believe that this Society and the Board of Agriculture are becoming a great educator to our farmers throughout the State and I see bright prospects ahead if they will but heed the admonition given by you each year. And now, Mr. President and gentlemen, in behalf of the citizens of Presque Isle and vicinity, and in behalf of the agricultural societies of this county I bid you a warm welcome to our village and to our homes, hoping that you may spend the time so pleasantly that when you return home you may say as one did of old, "the half has never been told."

RESPONSE.

Secretary Knowlton was called upon to respond to the address of welcome. In behalf of himself and numerous visitors on the present occasion he thanked the people of Aroostook for their cordial reception. There were special reasons for holding the Winter Meeting in Aroostook. In years past the farmers have found profit in raising potatoes, though year by year the profit has been growing less, till this season there seems a deficit rather than a profit. If our meeting here shall convince some

of you that there is both profit and pleasure in growing fruit it will not be in vain that we have come to this border county. The speakers who will address you are conversant with their subjects. They are here to teach, and it is your privilege to draw from them all they can give. There can be no doubt about your raising fruits successfully here. Some varieties you may have to pass by, but you may bear in mind that you are learners and that your experience in fruit growing in Aroostook already illustrates, or rather foreshadows what may be done in the future.

If only we satisfy you that you can raise your own fruits so that Aroostook money earned in other industries may be saved to educate your children and give you more of the luxuries of modern civilization, we shall feel that our efforts have been rewarded. The cordial welcome tells us that you have warm hearts, and it is our hope that our meeting here may result in good to you. We come for this purpose, and at the same time we are glad to meet you and hope the associations may continue in the future. Our society in its work needs the co-operation of all and we believe there are some in Aroostook who will find pleasure and profit in associating with our society. Again thanking you for your cordial words of greeting, may you gain from this opportunity knowledge that will be of service and profit to you all.

THE PRESIDENT'S ANNUAL ADDRESS.

By JOHN W. TRUE, New Gloucester.

Members of the Maine State Pomological Society, Ladies and Gentlemen:

I am much pleased to meet the people of Presque Isle and Aroostook county, to hold our Winter Meeting in connection with the Maine Board of Agriculture, not for the purpose of educating you, but for an interchange of experiences; both of success and failure, for many times it is valuable knowledge to know that this or that method of handling trees or fruit, or in fact anything, was a *failure*.

By the programme you will see that one item calls for an address by the President. It would be impossible for me to present a paper worthy of that formal title, and in place of that I will briefly review some of the transactions of our Society for the past year and add a few suggestions for your consideration in regard to the future.

You will see by our secretary's report for 1894 that, although the legislature of 1893 increased our appropriation from \$500 to \$1,000, by an oversight somewhere it failed to appear in the appropriation bill and we did not receive the additional \$500; and further on he gives you the result of a request made to the legislature of 1895. That additional amount has been received for the years of 1893 and 1894 and our treasurer's report shows what has been done with it. You will see that our indebtedness to the permanent fund has been reduced from \$460.27 to \$228.69 at the present time. I am very much interested to have that balance against the society paid, and to have our permanent fund so

placed and guarded that it shall never again be depleted or drawn upon to pay premiums or the running expenses of the society: and I would suggest that a committee be appointed to devise "ways and means" to bring about this much desired condition. One of the ways that might be well for the committee to consider is whether or not it would be wise to carry all annual membership fees to that account for that purpose.

At our annual exhibition an expert judge was employed, and in the main I think gave good satisfaction. A score card was used in judging collective exhibits, with a scale of points prepared with much care by the Secretary after consulting the best authority obtainable, and published in a pamphlet presented to all former exhibitors and others who called for it. This principle of judging I am convinced is right, but the ratings of the different varieties and the manner of applying the scale should be made the subject of very careful study, so that in its application every exhibitor can see and be thoroughly convinced that he has received justice.

Another subject I would like to call to the attention of the members of this Society (for united action after a full discussion of a subject will secure results that individual effort can hardly accomplish), and that is the immense amount of money and effort that is being spent on testing new varieties of fruit. The "tree agent" has his instructions to push certain new kinds at outrageous prices, and ninety-nine per cent of the money and effort thus spent is wasted. Something in the line of testing new varieties is being carried on at our State Experiment Station, but the location of the station will not answer for the whole State. Varieties that are hardy and desirable for propagation at the station may be wholly unsuited to Aroostook county and the northern part of the State, and the same may be said in the opposite direction in regard to the southern part. As an illustration we will take the Wealthy apple. There is no doubt but that it is a very desirable apple for this section of the State, being a very hardy tree and a winter apple; but in the southern part of the State I maintain that it is not proving satisfactory to the fruit growers, being an early fall apple. That variety alone has cost the farmers many thousands of dollars to test its qualifications and find them wanting. True, they can be re-topped, but that takes time, and much valuable time has been lost already. And what is true of the Wealthy will apply to other varieties almost without number.

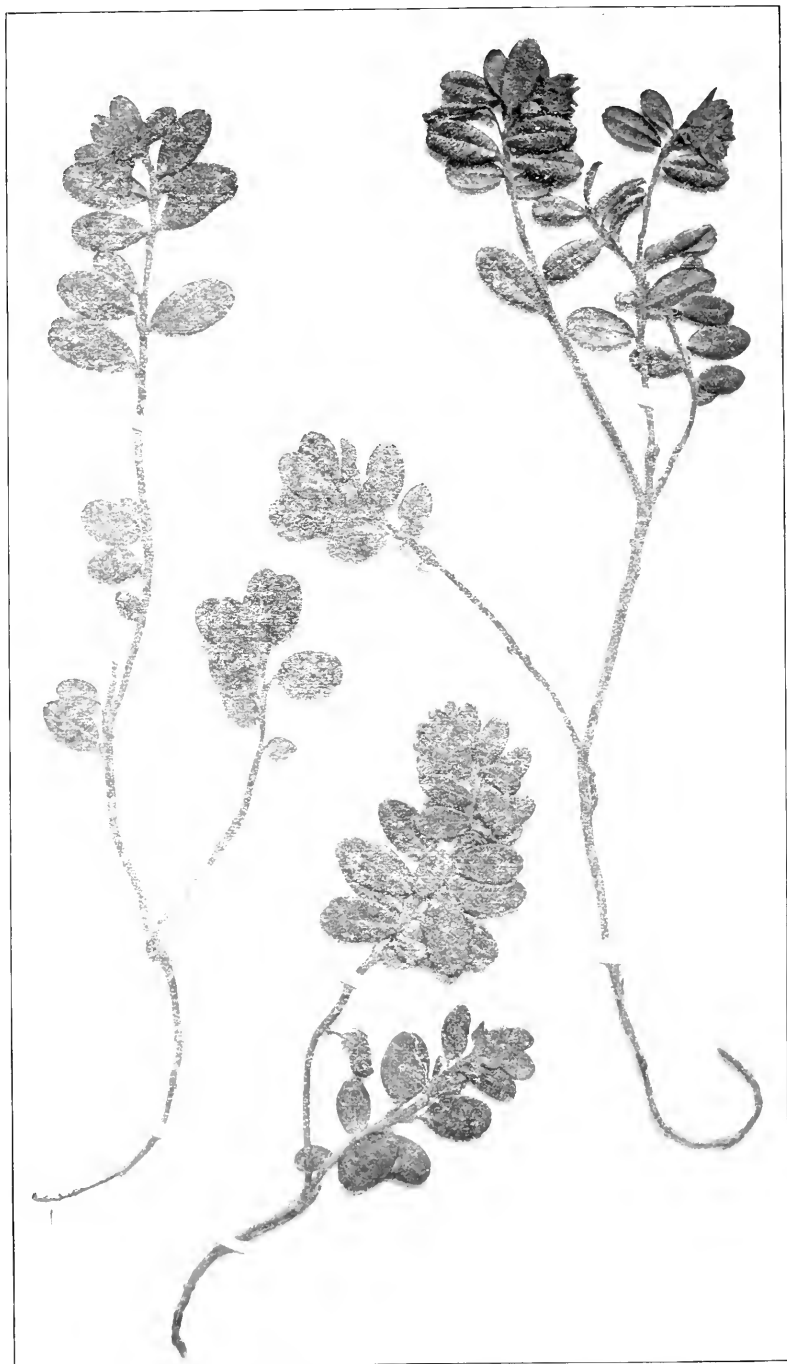
Would it not be practical for our Experiment Station, which is maintained by appropriations by the general government for the benefit of our whole State, to establish two or three experimental plantations in different parts of the State, at a very moderate outlay, to do just this kind of testing that depends entirely upon location and climatic conditions for success or failure, thereby saving to our farmers and fruit-growers many thousands of dollars? This will cover not only apples but the many varieties of small fruits that are being extensively introduced and cultivated throughout our State. And as results were obtained, a list of the varieties tested could be published, giving the standing of each

variety, and the location to which it was adapted, and then the persistent "tree agent" could be met with this list, and if it was not there refer him to your local experiment station to have his tree or plant tested and the time would come when he would make few sales of such stock compared with what are being sold to-day.

We have many inquiries as to what varieties of fruit shall be set; that is all right, for it makes a vast difference whether the orchard is set with the *best* or *worthless* varieties. I say worthless, for it is a fact that some of the varieties sold by the tree agent, with his little book full of fancy, high-colored plates, are absolutely worthless, for certain sections at least, and an absolute damage to the fruit grower who takes them and sets them out.

It would be more to the advantage of our State and an object for which this society should put forth more energy, to stimulate the desire and cause more inquiry to be made as to how we shall take better care of what trees we have already set. As we travel through our State what proportion, think you, have fairly good treatment, to say nothing of the best treatment that would be profitable to the owner? I will hazard the estimate that not one in ten receive such care and attention. Many trees are planted out, a small proportion of them receive care for a time, and in a few years are left to care for themselves; and it is surprising to see the results that have been attained in this State even with this kind of management, showing that the soil and climate of our good old State of Maine are peculiarly suited to the raising of apples of the finest quality. I verily believe that if every apple tree in our State should receive proper treatment for the next ten years the apple crop would come very near, if not quite, at the top as one of the productions of our farms. And the attainment of this condition is a worthy object for which to put forth our best efforts, and in this way show the tax-payers of the State that we are worthy of all the help that we have received at their hands.

As a contrast to the general condition of our orchards one was visited the past season which is owned by one of our members and one who has taken a deep interest in our Society. I think I may say that it is a model fruit farm, containing as it does some 1,500 trees, all kinds of small fruits and many varieties of each kind, and every tree and each plant showed by its appearance that it had received the best of care and attention in every respect. In cultivation and fertilization there was no lack; in pruning, care had been given each tree as it required from the time it was set, showing that it is seldom necessary to remove large limbs from a growing tree; the foliage was of the proper tint of green; no borers found a safe abiding place in their trunks; no worm's nests disfigured their branches; the ground was perfectly level and smooth; the small fruits and vegetables (for they were in connection) were entirely destitute of weeds; the hedge rows of raspberries, blackberries, currants and gooseberries being in perfect order, all trimmed and cared for, as nearly as I could see, to perfection. And some of the results of such care were to be seen, as the strawberry beds were literally red with large, luscious



MOUNTAIN CRANBERRY (*Vaccinium Vitis-Idaea*). See page 49-53.

fruit, the tables in the commodious, well-arranged fruit house were loaded with crates of berries ready for the market, the raspberry and blackberry canes giving promise of an immense yield, showing that care and cultivation would surely bring their reward. And the thought came that if all our fruit trees could be as well cared for as they were in this orchard, what an advanced position our State would take in the list as a producer of fine fruit.

There is one obstacle with which our fruit growers are now contending, and that is the apple maggot (*tripeta pomonella*), with very little success, and we are hoping that some of the members or our State Experiment Station will soon give us relief from this terrible pest in some practical and efficient treatment, for as it now stands some of our choicest varieties are entirely worthless.

In concluding these few remarks I would say that many more points could well be mentioned as proper subjects for this society to deal with, some of which will be brought forward by the different papers presented at this meeting, and we hope that all present will feel at liberty to ask questions in regard to the subjects presented and enter into the discussions that are to follow, as in this way, many times, we believe that as much thorough, practical information is obtained as we receive from the original paper.

THE CRANBERRIES OF MAINE.

By Prof. F. L. HARVEY, State College.

The term cranberry is derived from *crane* because the slender stalk has been compared to the long neck and legs of a crane, or possibly because the berries grow in bogs frequented by cranes. The application is not obvious. The term is quite loosely and widely applied, being used to designate the fruit of several species of *Vaccinium* belonging to the heath family (*Order Ericaceae*); to a species of *Viburnum* (high-bush cranberry) belonging to the honeysuckle family (*order Caprifoliaceae*) and in Australia, New South Wales and Tasmania to the fruit of three distinct species of the *Order Epacridaceae*, a family of plants related to the heaths. The cranberries of Europe and Asia are the high-bush cranberry, *Viburnum Opulus*, L., which is also a native of North America; the cowberry, *Vaccinium Vitis Idæa*, Linn., also known as the mountain cranberry; and the small cranberry *Vaccinium Oxyccocus*, Linn., known in Europe as the bogwort, mossberry or moorberry. The latter is the kind extensively marketed in Europe and Asia. The others are of no special importance in Europe though the fruit is sometimes used as a substitute for the small cranberry.

Besides the above mentioned European species which are also all natives of America, there are two kinds which are peculiarly American, viz: The white fruited cranberry which is the fruit of *Vaccinium erythrocarpon*, Mx., a shrub growing in the mountains of Virginia and

southward and the large-fruited cranberry product of *Vaccinium macrocarpon*, Ait. All the American species excepting the white-fruited cranberry occur in Maine and are considered in the order of their importance.

THE COMMON AMERICAN CRANBERRY.

(*Vaccinium macrocarpon*, Ait.)

Description—Stems about one to eight feet long, the branches bearing flowers ascending; leaves oblong, obtuse, glaucous underneath, four to six lines long and the margins somewhat revolute; pedicels lateral, several; filaments about one-third the length of the anthers; blossoms in June. Properly an evergreen but the leaves become brown in winter.

Fruit from one-fourth to one inch or more in diameter. Light green while growing, but changing in ripening to various shades of red or crimson, or sometimes mottled in color. Ripens in September or October. Flavor considered by most people superior to all others, though size and color take precedence to flavor.

Varieties—Three principal varieties are recognized by writers, viz: Bell, Bugle and Cherry, depending upon the resemblance in shape or color to these objects. These varieties run together and produce intermediate ones. The Mansfield Creeper variety is said to grow on uplands.

Distribution—Cranberry bogs are found along the coast of Maine and in the interior; in Massachusetts, Connecticut, Vermont, Canada, northern New York, New Jersey, Virginia, North Carolina, Ohio, Michigan, Wisconsin, Illinois, Indiana, Minnesota, Iowa, Oregon, Washington Territory, Alaska and the Aleutian Islands. The crop of the country is divided into, namely, New England, New Jersey and Western. The New England crop includes all raised in the New England States, three-fourths of which is raised in the vicinity of Cape Cod and known in the markets as Cape cranberries. The Western crop includes that gathered in Michigan, Wisconsin, Minnesota, Iowa, northern Ohio and Indiana. There is also quite a yield in the northwestern part of the United States.

Production is variable being influenced by the soil, moisture, frosts care, fertilization, insects and fungous pests. The yield is from 50 to 300 bushels per acre. A fair average for the county being 110 bushels. Sometime the yield on small areas is at the rate of from 500 to 700 bushels per acre, showing the possibilities if the right conditions could be obtained over large areas. The yield for the county is on the increase. Statistics show that in 1872 the yield was 275,000 bushels, and for 1890, 800,000 bushels. This probably includes both wild and cultivated crops marketed. If to this be added those consumed at home and not reported, the amount would be much increased. Large quantities are exported in barrels to Europe. The barrels hold 100 quarts, but we have no statistics at hand to show the amount, but it is on the increase. In 1874, Mr. P. T. Quinn visited firms in London and Liverpool, with a view to trade arrangements. He found that American berries at that time were virtually unknown in

the London markets, that eight years before, five barrels would have satisfied the markets in Liverpool, but in 1874 the demand had reached 100 barrels.

HOW GATHERED AND MARKETED.

In Massachusetts it is done largely by hand. In our Maine bogs quite largely with a cranberry rake to which a bay is attached.

The hand pickers get about ten cents for every six quarts. The money is paid when the berries are handed in or a check is given, redeemed every night or once a week. Lines four feet apart are stretched from ditch to ditch to keep the pickers in place and to secure clean picking. The fruit is put in bushel crates or stored on shelves crib style, the layers twelve inches deep. The fruit is hand sorted for market or sorted by machinery.

USES.

Cranberries are used to make sauce which is largely served with meats, especially poultry. It is also used as a filling for tarts, puddings, cakes and pies. As the fruit is quite acid considerable sugar is required. The berries are stewed fresh. So far as we know they are not extensively canned, but sometimes preserved for winter use.

ANALYSIS OF DARK RED CRANBERRIES FROM NEW JERSEY

Given in the United States Department of Agriculture, 1875, p. 149, is as follows:

Moisture.....	86.50
Organic matter.....	13.25
Inorganic.....	0.25
	<hr/>
	100.00

ANALYSIS OF INORGANIC MATTER.

Insoluble silica.....	0.874
Soluble silica.....	2.563
Lime.....	2.710
Magnesia.....	Trace
Peroxide of iron.....	1.253
Phosphoric acid.....	19.309
Sulphuric acid.....	5.870
Chlorine.....	1.260
Potassa.....	56.683
Soda.....	9.338
	<hr/>
	99.860

It will be noticed that the quantity of ash is very small, being only one-quarter of one per cent.

Of the ash nearly one-fifth is phosphoric acid and over one-half potassa.

We have not been able to find an analysis of the organic portion of cranberries. The organic part is the most important, making up over

one-eighth of the weight of the berries. We eat fruits for the beneficial effects of the organic compounds which are laxative, and anti-scorbutic. The organic part must be quite different at the various stages of growth and ripening. The starch of the young berries changes to sugar and the fruits are more acid when mature.

Fertilization: The analysis of cranberries shows, that phosphoric acid and potash salts would be demanded, and experience carries out this fact as guano and wood ashes have been applied with marked increase of yield. Ashes are cheap and are largely used on the Cape by successful growers to supply potash.

Mr. Hersey in a recent paper, read at the Plowman's Farmers' meeting in Boston, states that he does not use any fertilizers on his bogs, but would apply phosphoric acid if anything. In bogs rich in decaying organic matter or in bogs watered by streams charged with plant food in solution, fertilizers would not be needed. The natural resources of the bog should then decide the needs.

Varieties of Cranberry Soils. 1st. Savanna, which consists simply of sand and a small proportion of peaty matter. 2d. Black sand, which consists of pure sand combined with a large proportion of peaty matter. 3d. Turf or moss and sand combined. 4th. Solid peat free from sand. 5th. Pure white sand watered by solutions of peat from adjacent bogs.

A sandy matrix for the plants seems essential for success.

CULTURE OF CRANBERRIES.

The first attempts to cultivate cranberries in this country were made on Cape Cod in 1812 by Mr. Henry Hall of Denuis, Mass. For thirty years the subject claimed but limited attention. At present the cranberry is cultivated in Maine, Connecticut, Minnesota, New Jersey and Massachusetts. New Jersey and Massachusetts giving the most attention to it.

We have no data of the acreage in the various states but it must amount to several thousand acres.

COWBERRY, UPLAND CRANBERRY, MOUNTAIN CRANBERRY, FOXBERRY.

Vaccinium Vitis-Idæa, L.

Description—Low (6-10 inches high); branches erect from tufted creeping stems; leaves obovate with revolute margins, dark green, smooth and shining above, dotted with blackish bristly points beneath. Corolla bell-shaped, 4-cleft. Blossoms in June.

Fruit—Dark red, acid and rather bitter but losing the bitterness when cooked.

Distribution—Coast and mountains of New England to north shore of Lake Superior and far northward. In Maine it is very abundant on the islands along the coast and on the rocky hills and mountains of the interior. We regard this as of next importance to the large fruited cranberry in Maine.

At the request of Mr. Knowlton, I wrote Miss L. Annie Hunter of Machias, Me., regarding this species and received the following interesting reply :

MACHIAS, Me., December 30, 1895.

Mr. F. L. Harvey.

DEAR SIR: Mr. Knowlton must refer to the berry so much prized by "us 'long shore people," and called by us "upland cranberry." I send you a specimen from my herbarium, also a sample of the preserved fruit; a bit of vine as it is found in winter, with its roots and soil.

No berry during the year is thought so much of by the middle class people, along the coast,—the sauce eating class,—as this cranberry. The poorest soil, not more than two inches deep is best for its growth. Small families "lay down" at least a bushel of the fruit every fall, that is, the berries are washed and stewed and packed away in stone crocks and as it is needed it can be made into fresh, delicious sauce by adding equal parts of sugar and stirring well. The fruit thus preserved never spoils. There is no need of straining out the skins, which are very tender, and there is no loss from the berries drying or decaying as with the bog cranberry.

In our local markets the fruit sells for three dollars and a half per bushel so readily that there are none left to ship except as special orders. One bushel is equal to one and a half of the large fruit. I do not know of a case where the berry has been cultivated, as it grows everywhere among rocks on bad land.

A great deal more could be gathered in Washington county than is now used. The case is that every housewife gets her supply and the berry pickers bring no more to town. After the snow goes off in the spring, we see the fruit for sale at the stores for a few weeks. These frost berries are considered very nice, but I have never used any.

These berries will grow on any rocky island on the Maine coast where moss can cling. They only need protection from sheep. I am well acquainted with the coast in this county, and have noticed this plant make its appearance one season, and the next have gathered quantities of berries from the new vines.

Our people have long talked about the worth of the fruit and no summer visitor has ever tried the sauce to my knowledge, either with meat or "warm biscuit" without declaring it much nicer than any cranberry they ever ate.

A law of the State protects the fruit till September 1st, but it is often ripe in August.

The sample I send is not sweetened. If sugar is added in equal parts with perhaps a very little boiling water to help it dissolve, the fruit will jelly as it cools and be very nice.

We have every other variety of cranberry in great abundance. We ship them and use them for jelly to be eaten with meats. They do not at all take the place of the upland cranberry.

I will gladly answer any further questions and can secure roots for planting if desired.

Yours with interest,

L. ANNIE HUNTER.

The following letter addressed to Mr. Knowlton shows that this berry is in great demand in the markets of the large cities.

NEW YORK, May 11, 1895.

D. H. Knowlton, Esq., Secretary of Maine Horticultural Society, Farmington, Maine :

DEAR SIR: We have been referred to you by the United States Department of Agriculture, and would ask you if you could refer us to some party who raises a small cranberry, similar to the one which is raised in Germany, and called (Preiselberren), (Kronsberren).

We understand that these grow in Maine, and as we can use large quantities of the same, we would be thankful to you for referring us to the right party.

Thanking you in advance, we remain

Yours truly,

F. G. STROHMEYER & H. ARPE,

Department for Food Products.

GUSTAVE PORGES,

Manager.

We have submitted the sauce to quite a number and all regard the flavor as superior to that of the large cranberry. The marketmen and grocers inform me that the fruit is offered for sale sparingly in the fall, and brings about the same price as that of ordinary native berries. The ease with which it can be prepared, stored and kept for winter use does away with the objection to its keeping qualities.

As it grows readily and flourishes on waste, rocky lands, it deserves more attention than it has received. The size might also be improved by selection and culture. As there is much less waste its size would be less objectionable.

THE SMALL CRANBERRY.

(*Vaccinium Oxyccoccus*, L.)

Description. Stems very slender (4'-9'), long leaves ovate acute with strongly revolute margins (2'-3" long), pedicels terminal 1-4, filaments more than half the length of the anthers. June.

Fruit—3"-4" broad spotted with white when young, red when mature.

Distribution. Peat bogs New England and Pennsylvania to Minnesota and northward. It is rarely gathered for market in this country because of its small size and sparse bearing. The flavor is regarded as good, and in Europe, where it is the only available species, it is largely marketed. It is exported from Russia, into Europe. It grows in the moors of England. The importation of the large American berry will no doubt make it less important than formerly. We do not know whether attempts have been made to grow the American berry on the European bogs.

In this country it is regarded as a nuisance in bogs where the large berry grows.

THE HIGH-BUSH CRANBERRY.

Viburnum Opulus, L.

Description—Nearly smooth, upright 4-10^o high; leaves three to five ribbed, strongly three-lobed, broadly truncate or wedge-shaped at the base, the spreading lobes pointed and toothed at the sides. Petiole with two glands at the apex.

Fruit—Acid, a one-celled, one-seeded stone fruit, (drupe) pulp soft, stone thin crustaceous.

Distribution—Low ground along streams. From New Brunswick far westward and south to Pennsylvania. It is rather common in swamps and along the river bottoms in Maine. But little need be said about it. No one would be likely to use the fruit for sauce when the bog cranberry or Mountain berry could be obtained. The flavor is regarded as inferior and the stones in the fruit would require the sauce to be strained. In Aroostook county the fruit is quite largely used for making jelly. Samples on exhibition had a very pleasant flavor. It is used to flavor the jelly of other fruits with good results. I saw the bushes quite abundant on Sandy Bay stream near Jackman last summer, and I understand the plant is common in Aroostook county.

PRACTICAL BEARING OF THIS SUBJECT TO THE STATE OF MAINE.

We annually import for home consumption large quantities of cranberries from Massachusetts and New Jersey which retail in our markets from eight to fifteen dollars per barrel according to season and quality.

If we could in any way increase the yield of our natural bogs sufficient to supply home trade it would be a great saving to the State. Our natural berries are light colored and are not so marketable as the imported red ones, though the light colored fruit is of superior flavor and none goes to waste. Our berries are light colored because they have to be picked before they mature to escape frosts. They would be greatly improved by ditches and flood gates to protect the berries until they mature. Lessons could be learned from growers who know how to manipulate light colored berries so as to lighten the color.

Fertilizers might be added to our natural bogs so as to increase the size and yield of the fruit and the quality of the pulp. Size, color and quality of pulp determine the grade of the fruit. The success that has already attended the efforts to improve natural bogs in the State, show that there are greater possibilities. The experience of growers in Massachusetts for the past sixty years proves that this crop brings much larger returns for the labor and capital invented than ordinary farming. Mr. Hersey says the price is never so low but what there is a profit, and that cranberry growers make a good living and are anxious to increase the acreage of their bogs. We know cranberries are a luxury and the market can not be cornered for fabulous prices, but the market is not liable to be glutted as the demand at reasonable prices far exceeds the yield. The

culture of cranberries is not attended with greater impediments than successful agriculture or fruit growing of large fruits or other small fruits. The returns come quicker and a cranberry bog properly fixed will yield a fair return for a life time. We have no doubt but what there are places along our coast and in the interior well adapted for artificial bogs. Success has already attended the efforts of Mr. Barker of Mt. Vernon, Mr. Wellman of Augusta, Mr. Dill and Silas Wing of Phillips, Mr. A. C. Greenleaf and John Perham of Farmington, and Mr. A. K. Gile of Alfred and others in the improvement of natural bogs and the preparation of artificial ones. So for Maine the experimental stages are past. With some capital, suitable lands, and an interest in the matter success is assured. Nothing at present is definitely known of the area of natural bogs, the amount of land suited for artificial culture, the yield of native berries, the conditions under which the berries flourish best in the State, the difficulties that would be in the way of extending the culture nor the native cranberry fungi and insects. It seems to me that we have here for investigation a subject of State importance. It would seem to me to be a legitimate and important subject for the consideration of the State Pomological Society.

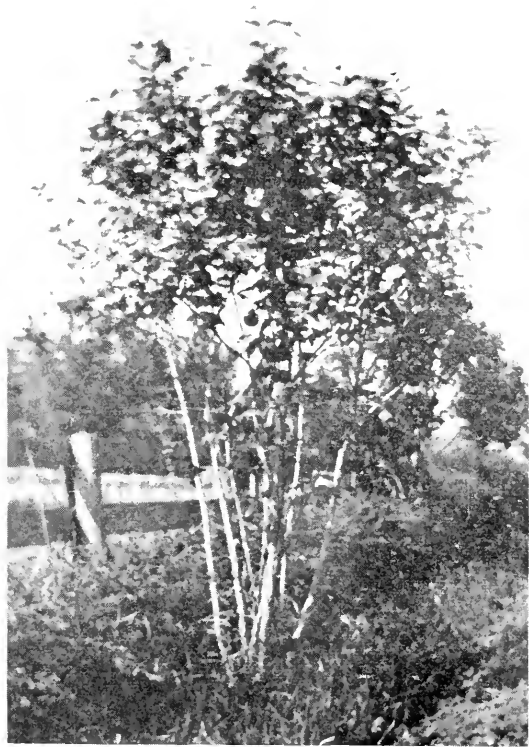
We would therefore suggest that a committee on cranberries be appointed by the society, whose duties would be to look up cranberry culture for Maine in all its phases, as to the desirability and feasibility of extending cranberry culture in the State, the committee to report to the society at some future meeting.

(A committee was appointed, consisting of F. L. Harvey, D. H. Knowlton and W. M. Munson.)

DISCUSSION.

Ques. Suppose I wish to prepare a cranberry bed, what shall I do?

Ans. The first point would be to select a bog. A suitable bog for the cultivation of cranberries would be one where sand could be found near by, and where you could control a stream of water that would do for flooding. The stream would have to pass through the bog so that you could build a dam above it, and flood it at the proper season of the year. It would need to be drained by a drain running down the center so that it would bring the water about eighteen inches below the surface; then drains should be made from above down to this central drain, and a drain should be made on the border to prevent the water from the sides running into the bog. If you select a place where there are trees, the trees will have to be removed; or if there is grass, the sod will have to be removed. And the whole surface of the bog should be covered with sand. I think from what I understand in regard to the culture in Massachusetts that it is not necessary to take off the bog material to any great extent, only to level it and get it in good shape. This matter serves as plant food. The important point is to drain the bog so that you can keep the water from coming up to the roots of the plant, and this bog material beneath would help to serve this purpose. In some of the successful bogs the sand has been put right over the top of the muck. I



HIGH-BUSH CRANBERRY (*Viburnum Opulus*). See pages 49, 55.

can give you only general information, and you will have to work out the question in accordance with the peculiarities of the situation.

Ques. Are the plants set in the sand?

Ans. The plants are set in the sand in rows about one foot apart, and three or four inches deep. The root plants are better, although the branches will take root and grow. In the winter season it is best to flood the land, then in the spring let off the water; and along toward fall, as the fruit has set, keep the ditches pretty full, and if there is likely to be a frost flood the bog, letting the water off the next morning as soon as the temperature will allow, because the water ought not to stand upon the plants very long.

Ques. What are the enemies of the cranberry?

Ans. There are quite a number of insects that affect cranberries, and also they are sometimes affected by a species of fungus which causes decay. In Massachusetts the insects are drowned by flooding the bogs. The flooding of the bogs during the winter has quite a tendency to keep them free from these pests.

Ques. How long will it be after a bed is set before it will come into bearing?

Ans. It will bear the next year, though of course not a full crop. The plants will keep thickening up until they cover the ground, which I think they will do in from five to seven years.

Ques. Don't you believe that very many of the farmers of Maine may with little difficulty prepare a cranberry bog, say six or ten rods square, as the case may be, and get more profit from that piece of land than they can possibly get from such a piece of land in any other way?

Ans. It seems to me that the returns would be very good, and there is but little expense. I noticed in looking up this subject an instance where a man had a bog of several acres, the expense of caring for which amounted to but a few dollars, a mere pittance a year, and it yielded good returns. At any rate, in a country where fruits are as scarce as they are in northern Maine, I should think a good many cranberries might be grown for the home market. I do not know how extensively the bog cranberry grows in Aroostook county, as I have not travelled about much; but it does not necessarily follow that cranberries must be growing at the present time to prove that they may be grown. In a place that is suitable an artificial bog can be made if the conditions are present. If you have the flowage, the peaty soil and sand near by to cover it, you can make an artificial bog, even where cedars or some other trees are growing.

MR. HALE. The professor speaks of sanding the bog; is it absolutely essential to cranberry culture nowadays to sand the bog at all?

Ans. I have Mr. Hersey's article which was read not more than a week ago, in which he states that sand is necessary for the successful growth of cranberries, and I think it is so regarded. One important feature in sanding is to keep the weeds down.

MR. HALE. The reason I asked the question is that in many of the bogs in Wisconsin the fields have been turned over, and then immediately

after drainage they have been planted very thickly, and the vines allowed to take full possession of the ground. The tendency of such a growth is to stop any grass or weed growth and to keep the berries clean. None of the larger bogs have been sanded. These bogs are peat bogs.

PROF. HARVEY. Our natural cranberries grow upon the top of peat sometimes. I presume there would be local problems that would have to be considered. It might be a matter that would have to be experimented on in different parts of the State, the soils differ so much. In some places they put the sand right on top without taking anything off at all, and in other places they skim the top off before putting on the sand. In some cases there seems to be no peat material underneath but simply a sand bank. The cranberries grow because they are watered from adjoining bogs with water containing organic matter in solution for the food, but it would appear that they are growing on very sterile soil.

Ques. Did you mean to convey the idea that bog cranberries are raised in the State with financial success?

Ans. Yes, sir; I think they are. Several parties are doing quite a little business with them. I think Mr. Knowlton can tell you of some bogs that he knows of.

MR. KNOWLTON. I cannot give data in regard to that, but I am conversant with a number of localities where they are grown quite successfully. I have in mind a very fine cranberry bed within a short distance of one of the largest mountains in the State. The bed is not large, but the success of the owner in cultivating it is very marked indeed. And the only thing strange about it is that he does not take the hint which nature has offered him, of his opportunities, and as the boys say sometimes, "Wade in." For he invariably has a crop of cranberries. To be sure he is favorably situated. He has at the head of his bog an abundant supply of water, and in a couple of hours time he can completely flood the bog, and he can drain it equally quick. He has there somewhere from fifteen to twenty-five acres of bog land, and over fifteen acres of it certainly can be cultivated and cranberries grown upon it without any trouble. The last time I saw the man and talked with him he and his son were putting in three or four short rows of cranberries every year. It requires considerable work to get the bog in condition. It has to be drained, the turf has to be taken off and it has to be sanded. But he is making more money from his farm, I think, than any other man in the town in which he lives, and it is very largely because he is operating this bed.

I am reminded of one thing suggested by the questions which were asked in regard to the success of cranberry beds in the State. I know of quite a number of localities where the beds are run out, and the idea somehow prevails that it does not pay to raise cranberries. The fact in regard to that is just the same as it is in regard to any kind of farming—it does not pay to half do it. But if you take advantage of the opportunities which nature has offered to you in almost any direction, you do not know how speedily and how bountifully she will respond to your efforts. The neglect of improving these opportunities is the occasion

for many of these bogs being run out, and the idea is abroad that it does not pay to raise cranberries. The object (if you will pardon me for referring to it) in having this matter presented at this meeting is to call attention to the resources which nature has given us in the State, and to suggest or to emphasize the line along which we can work the most successfully. There are a few small beds in the State where enterprising farmers, who want a few cranberries for themselves, have set out a few vines, and they are getting quite a lot of cranberries; but they are not raising them as a market crop or anything of that kind, but simply for their own satisfaction; and there is an unlimited pleasure in that sort of thing. I hope that what the professor has told us here will encourage us to investigate this thing still more and experiment along the line that nature suggests, thus insuring more profitable work in this matter of cranberry culture.

Mr. VINTON. The simple truth in regard to us in Maine is that we do not try to do anything with this crop. It is amazing that we should permit that state of things to exist. We have the bogs, lots of them and of the best kind, and all that is necessary is for us to go to work and raise the cranberries. Two things may be said in regard to this crop and said with truth. First, it takes but a very small piece of ground to produce a barrel of cranberries; second, the cranberries are worth \$12 a barrel. Now isn't that better than raising potatoes this year?

Prof. HARVEY. Let me quote a few words from Mr. Hersey: "Never engage in cranberry culture unless you can locate where the conditions are favorable; never purchase the plants from localities where destructive insects have injured them; never set plants that are not prolific bearers and do not produce berries of a thick flesh (of course it requires some care if you are going to select them from your own home bog, or you would have to deal with reliable growers); never half build a bog; and finally, let the business alone unless you care enough about it to make yourself familiar with all of its details, from the selection of the bog to the marketing of the fruit."

Ques. We have quite a number of high bush cranberry vines, but some years we do not get any cranberries. What can we do to cause those vines to bear?

Mr. KNOWLTON. I have no doubt that annual fertilization and pruning would improve those bushes. I have had but very little experience with the high-bush cranberry which grows so spontaneously all through Maine. I always admired the beauty of the flowers; and, by the way, it is one of the most beautiful decorative shrubs that you will find in the State or in New England. If you examine the reports made by those who are familiar with the subject and who recommend varieties or species of trees and shrubs for ornamentation in New England, you will find that almost without exception this viburnum is recommended. It is a beautiful thing in flower, and it is a beautiful thing in fruit. Some years ago when I settled on the place where I now live I wanted some of these shrubs for the flowers, and I have three or four bunches of them. They happen to be growing where they get a good deal of wash from

the garden, and when I am going around with ashes or bone meal I take a good deal of pleasure in throwing a few handfuls around the roots of the shrub: and up to this time I never have failed to have an abundance either of flowers or fruit. This may perhaps answer the inquiry which was made in regard to the matter. At any rate for ornamental purposes if for no other, the shrub deserves a place on our grounds.

Mr. HALE. I have been interested in this discussion, and the remarks from the gentleman on my right in relation to what may be produced from a few square rods of ground properly planted and cultivated, in cranberries, are unquestionably correct. But to give out the idea that because cranberries are selling this year for twelve or fourteen dollars there is any possibility of obtaining that as a commercial price is a little misleading. The average market price for the last ten years will hang pretty close around five dollars. But even at that price it is well to consider the value of our swamp lands here in New England. I think we have overlooked that altogether too much. Wherever there is an opportunity to develop those lands by the production of some crop which will take the place of the grass and worthless weeds, it is our duty so to do; and as the cranberry grows wild, there is no reason if the conditions are favorable, why those bogs may not be turned into a profitable piece of property. But I question whether it will pay to establish small bogs, an eighth to a quarter of an acre, as the expense in preparing for flooding is so great as to eat up the profit. There are many large bogs, however, all through New England, that could be taken up as commercial propositions and made worth many times more than the whole farm. A few years ago there were cheap swamp lands in sections of Michigan and Ohio which were not considered worth five dollars an acre. Some bright, intelligent man took a small tract and developed it into a celery farm, and to-day you hear about the celery that comes from Kalamazoo, Mich., and Akron, Ohio, and you cannot buy that land for five hundred dollars an acre. It is not worth a dollar more, but some man has shown the possibilities of it, and it is turning out celery that is brought right into our New England markets. Our people do not awaken to the importance of what our soil has within it. Our opportunities in all these lines are almost too good; we do not take advantage of them. We can live by neglecting the most of them, and so we do. If it were a little harder to make a living on a Maine farm we should get more out of it.

Prof. HARVEY. In regard to the price of cranberries, what I meant was this; I do not believe that any one person in Maine has bought cranberries at retail for less than eight cents a quart, and as there are thousands of bushels imported for home consumption it will be a good while before there are enough raised to glut the market, so that we could not get the retail price.

Mr. KNOWLTON. There are two points that I want to emphasize a little. The cranberry which the young lady from Machias has written the professor about is a variety that grows all along the coast on land that, as it stands, is absolutely not good for anything except to drive over to

get from one place to another, and perhaps chase deer and in a few spots dig out granite. There is hardly any soil at all. There is a lot of waste land that is peculiar to a large part of our State. Now if we can only manage to scatter these cranberries abroad in such places, we can utilize this land, and we can have a great many more cranberries than we have now. That is one point.

The other point is in the line of work which we, as fruit growers, have reason to expect from our Experiment Station. It is established, of course, to teach us so far as possible, the possibilities of the State, and here is a line along which I hope they will work, hoping that in the future we may get out of it perhaps a more profitable cranberry even, than they have on the Cape, by cultivation. At any rate, if we can get something where we now get nothing we will be so much better off, materially, spiritually and every other way.

Prof. HARVEY. The people all along the coast from Penobscot Bay east, use these berries that the Secretary speaks of for home consumption in preference to the others, and there is an abundance of them. We find them abundant in the markets in Bar Harbor in the fall season. They grow even up on Katahdin, and seem to thrive well on our Maine sterile soil.

SMALL FRUIT CULTURE.

By J. H. HALE, South Glastonbury, Conn.

The subject that has been assigned me this evening is that of small fruit culture, but before entering upon that, in a rambling way I want to say a word upon the general subject which is considered at these meetings, and the work which is fostered by this Pomological Society. Within the past five or six years it has been my privilege to study the fruit industry of this entire United States. Several of the special investigations of the last census were under my direct charge, and in studying the problems that came before us I was impressed with the magnitude of the fruit industry of this country, and with the growing consumption of fruit throughout the country. In travelling through the Central and Western states, in the far West, beyond the Rockies, and in the South, I found great orchards and vineyards being established, 50 or 100, or 200, 300 or 500 acres in extent, by business horticulturists who are seeking to get liberal returns from their capital. Investigating further as to what is going to be done with this fruit,—finding an orchard beyond the Rockies, in Arizona, in New Mexico or Georgia, as the case might be,—I found that the majority of those planters were looking to the northeastern section for their money. If you ask them where they are going to ship their fruit they will say north and east, and tracing it down I found that the great majority of them were looking to the extreme northeastern part of the country, I

mean the territory east of Philadelphia, which comprises largely our great New England. In my study of the floral culture of the United States I asked a great many questions through the regular census enumerators. I found the number of floral establishments to be 5,000. The superintendent of the census gave me liberty to begin my investigations where I would, and I went back to the beginning of this century. I found that there was but one commercial florist's establishment in 1800; during the next ten years twenty or thirty were added, during the next ten, forty or fifty, and so on down to 1860; from 1860 to 1870 several hundred of these establishments were added, and from 1880 to 1890 nearly 3,000. These florists were selling, in 1890, twelve million dollars worth of cut flowers and about fourteen million dollars worth of potted plants. Twenty-five million dollars paid at wholesale by the people of the United States for these beautiful flowers to adorn their homes! What has that to do with fruit culture? Refinement, and the love of flowers, and the love and taste for fruit go hand in hand. As people become more cultured they demand more of the finer products of the soil and less of the coarser. We asked a great many questions in our investigations, as the census enumerators always do. We asked the florists a great many questions about their business, whether it was increasing or decreasing, etc.,—seven or eight hundred different questions. To sum it all up, we found that as the people became more cultured and refined they were buying more flowers. And I found that in my dear old New England they were buying twice as many flowers per capita as anywhere else in the United States; showing that the people had the ability to buy and the taste to buy. And the same thing holds of the fruits. But when I went off North and South and West and found these great commercial orchards, I wondered why it was that the people of New England did not wake up to the fact that right here is the best market on the face of the globe for these fine products; and I realized that these farmers were neglecting their opportunities to open up a market and supply the market with what they might produce. Here in New England we are restricted by climatic conditions to certain varieties, but there are many fruits that we can grow here better than anywhere else in the Union.

The first thought that came into my mind as I came into the hall and saw these apples was, why is not Maine advertising as they are in Missouri. You see in all the papers, "Come to the land of the big red apple!" Why is not the State of Maine advertising, "Come to the land of the big red apple!" and you might add, of a good quality, too. We are missing our opportunities that we do not take hold of some of these things.

This is entirely out of the line of what I intended to say, but I am glad that you have in this State a pomological society that is taking an interest in this matter, and that you citizens of Aroostook county, by your attendance here are showing that you are taking an interest in the pomology of your State, in the production of these finer products of earth.

This subject of small fruit culture is of particular interest at this time and place because, owing to your climatic conditions, you cannot grow all the choicer varieties of tree fruits that may be grown in other sections of this State, or in other sections of New England. But the small fruits may be grown almost anywhere. They have a decided advantage over any other fruits inasmuch as they come so quickly into fruitage after planting. Strawberries planted one year will, the next summer be in full and abundant fruitage, yielding almost as many bushels to the acre as you can get potatoes in Aroostook county. I sold my strawberries at from three to five dollars a bushel, and you can hardly match that with potatoes. Most of the other small fruits come into bearing in one year; some need two or three years. There is nothing in the way of fruits, for the ease of culture and the quick time in which they give us returns, that will compare with small fruits in value, and most of them are very hardy. From a great number of varieties we may select species that can be grown on almost any soil and under almost any changes of climate. So I bring them to your consideration here to-night as an important factor in home life upon the farm, or home life anywhere where you own or are able to till a single rod of ground; as something that, for the money, time and labor invested, will give you greater returns in health and happiness than anything you can put into the soil. The question of dollars and cents is another one; but as the Secretary said in his talk this afternoon, that is not the big thing to be considered. We should not get the dollar before our eyes so big that it clouds everything else. The first thing to be considered, it seems to me, is the health and happiness of our families. We must, of course, produce that which will give us enough money to provide for our wants, carry on the burdens of the county and State, etc., but life is pretty short, and I believe that everyone should get just as much enjoyment out of his business and in his home life as he possibly can. This is the first thing to secure, and the greater number of dollars is secondary. But naturally we are apt to lose sight of this fact. Life on the farm is hard, and what little money we get comes harder, and in the struggle for that we get led away from the higher and better things of life.

But in regard to the matter of small fruit culture, there is no reason so far as I know, and I know something of your soil in this county, why every home in this county should not have a full, liberal, well rounded out supply of small fruits through the three months of summer, and in the southern part of the State, all the year. How many of you are growing a good supply of small fruits for your families? I tell you your wife and children will enjoy strawberries a great deal better than they do raw potatoes. There is more fun and happiness in growing them. You grow potatoes to make your back ache; you load them into the cart and haul them to the station and ship them to Boston in order to get something to make your family happy, while right out there were bushels of choice fruits that might be had for the asking without any freight to Boston and back, by selecting the hardy varieties that would stand your climate and cultivating them.

First, the strawberries. There is no serious problem about the culture of strawberries. It is not much more difficult for me on my farm to grow a bushel of strawberries than a bushel of potatoes. There isn't any deep secret in success in that line. For a family garden, select a good piece of land as near the house as may be, plant in long, straight rows your strawberries, blackberries, currants and gooseberries, and let the old horse and cultivator work up and down those rows every summer. Lay down the raspberries and blackberries in the fall if they are the tender kinds; give them a little pruning at the right time, a little pinching here and a little pinching there, and that is all there will be to it. It is not because you do not like them, or because your families do not like them that you do not cultivate more of these choice fruits. Strawberries may be planted in rows two and one-half or three feet apart and fifteen or eighteen inches apart in the row, according to the variety; one plant in a place. In the spring they should be cultivated once or twice a week and hand hoed once in two or three weeks, and so on through the summer, and mulched in the fall. The next season from that bed take some plants and set out a new bed and plow under the old one, and so on year after year, with little expense in field culture. If it is too much work to hoe them you may plant in check rows and run the cultivator two ways between the rows until the plants begin to run, and then one way. Raspberries and blackberries should be set in hills five or six feet apart each way, and the horse and cultivator made to do all the work. When they attain a height of fifteen or eighteen inches pinch the tops and let them stop growing. Currants should also be planted in check rows so that the horse can cultivate them, and given a little judicious pruning at the right time. They may be planted either in the fall or spring; even with your trying climate you could not kill the currant bushes if planted in September or October. Liberal pinching in of the new growth in midsummer will stimulate the setting of fruit buds and you may grow from a single currant bush from six to ten quarts, under a high state of cultivation. Gooseberries require much the same treatment, planting either in the fall or spring, pinching back in midsummer, thinning out the crowded branches and manuring deeply. There is nothing difficult about the cultivation of these fruits, they are the most kindly things that grow. Plant small fruits in almost any way you will and cultivate them in the most shiftless manner and yet they will give you returns; but like the apple tree or the good dairy cow, the more skill and care you apply the greater returns they will give. You may grow strawberries, twenty-five bushels to the acre, under the most shiftless culture, up to 250 or 300 bushels under the highest method of culture. It simply rests with the owner of the soil what his returns shall be.

The question of soil depends greatly on the variety. You may grow strawberries, as a general principle, upon any soil that would be good potato soil. Some potato soil may be a little too damp and heavy for certain varieties. Some varieties grow very much to foliage, and need

lighter, drier land; other varieties will not grow on the driest land. There is a natural selection of the soil.

In growing raspberries and blackberries you want the most hardy varieties. Many of the varieties that will thrive in Delaware and Maryland, like the Wilson's Early blackberry and the old Hudson River raspberry, will not stand your climate. Others like the Snyder, varieties of that kind, with a little winter protection, would fruit here every year. The more hardy of the Doolittle type of raspberry, planted on high ground and given a little winter protection, would undoubtedly thrive here. Currants and gooseberries are hardy enough anyway.

The question of winter protection is not a very serious one. We talk about laying down raspberries and blackberries, and it looks like a very difficult job. But the men who do it by the acre say that it can be done at a cost of eight or ten dollars per acre. For a family supply you do not want an acre, or a half acre; a half a bushel of fruit a day is a good rational supply with a clear conscience and a large family. Those of you who buy two or three quarts occasionally will think this is a good deal, but the difference between the fruits you buy and the choice fruits raised on your own farm makes a difference with your appetite and the power of consumption. We have a great many farmers who do not grow any berries, but tell their families it is cheaper to buy. They say, "I tell my family I will buy them all the fruit they want," but they do not come up to it, anywhere near. We save back some berries on Saturday for these neighbors. Some of them will drive up and say, "Have you got any strawberries to-day, Hale?" We will say yes. "Well what are they worth?" Perhaps they are worth ten or fifteen cents, and he will pull out a pail and say, "What will that hold?" We will say, perhaps, eight quarts. "Well, fill it up." And he pays for it with the air of a man who says, "Oh, I give my family everything under the sun they want." He gives you a sort of impression that he is wonderfully liberal. Ten chances to one he don't get home in time for supper, and they don't have them for breakfast, as the people who do not raise strawberries do not get accustomed to having them for breakfast, and so they hang around till noon. Perhaps just about the time they go to church the old man who has been so liberal, will say, "Mary, I would like a shortcake for dinner to-day, wouldn't that be nice?" She heaves a sigh and says, "Yes." And then says, "I guess I wont go to church to-day." He goes to church and prays for the heathen, and she stays at home and works for the heathen right in her own family. That is about all the strawberries that family gets. And there are a great many families where that thing is true, in New Hampshire and Massachusetts at least. Maine may be free from it, but I think you might find it true in some part of Maine, probably down in the southern part.

This is an important question,—the supplying of your families with the best of everything. There is no one on earth that can live as well for a little money as the farmer and his family; and there is nothing that

will help them along to-day any more for the money invested than the cultivation of flowers and small fruits; and next the other fruits.

The question of fertilizing the small fruits is much the same problem that enters into the feeding of all our fruits. Liberal applications of potash and phosphoric acid should be made, but very little nitrogen. The use of nitrogen, either in stable manures or commercial fertilizers, stimulates a rapid wood growth which is more susceptible of blights and more liable to be injured by winter frosts. For the most successful culture of small fruits dodge the nitrogen. I would prefer not to use stable manure, but I would use that rather than none at all. Bone meal and potash in its most economical form, probably wood ashes in this locality, will give you strong, healthy growth and a hardy wood to stand the frosts of winter, and at the same time will give you firm, bright colored and high flavored berries.

In strawberry culture it is well not to let the plants crowd too much. The worst foe of the strawberry is the strawberry itself. If allowed to grow too thickly and mat in the rows the vines will produce small berries, and you will not get as good results. They want to be given an abundance of room.

Here is this wonderful county of Aroostook where you have such magnificent fields of strong, fertile soil and late seasons which give you the markets southwest of you, it seems to me there is a wonderful chance for commercial small fruit growing. I believe if some of you here, instead of planting so many acres of potatoes would plant those same fields in strawberries or raspberries your returns would be much greater. Blackberries would come so late as to come into competition with peaches in the markets of Boston or Portland, but strawberries would come into the market after the other growers had ceased to supply them. I do not know what the express rates are, but certainly if your neighbors over here in Nova Scotia can grow strawberries and send them to the market at the very great profit which they are getting, you people here can exceed them in many ways. And I think there is a wonderful opportunity for commercial strawberry growing in this county and in this vicinity. I believe a ten acre patch of strawberries, well planted with proper selections of varieties, and well cared for would bring greater net cash returns than any fifty acres of potatoes in your county. Of course the cost of production would be far greater, as there would be the cost of picking, and the cost of culture would be more and the cost of plant food, for they are liberal feeders and require to be fed well. Farming is similar to manufacturing processes; the greater amount of raw material we supply the greater returns we get. In entering into the business from a commercial standpoint you want to produce the largest and finest colored berries you can get, and then, after you get the size and color, as good quality as you can get. If we want to open the pocket books of the people in the markets we must get their eye first, not their taste. You will have to select raspberries with some firmness, because your markets are at some distance. Pick in the cool of the day

and grade as you pick, into two sizes. Pack the fruit nicely from top to bottom, with no topping up to make it appear better than it really is. Do good, honest packing. Have your baskets well rounded, and make them just as showy as you can. Select the whitest baskets you can find, pack the fruit nicely in these and put them in white clean crates. Of course make it just as cheap as you can, but have a handsome package. Then select some retail dealer or commission man who has a name and a good reputation in the market, and impress on his mind that you are trying to produce fine fruit. Toot your horn all you want to after you have produced fine fruit, and then make the public pay for it, and they will do it. The men who are making money in small fruits, just as in any other business, are the men who are doing business in the best way. There is no thinking that you can fool the public. If you put inferior grades of small fruit or apples into the baskets or barrels, and a finer quality on top, you will get for the whole the price of the lowest grade. But if you pack the fruit nicely you will soon get a big price for it, and after a time you will have a name; and a good name is not only better than great riches, but it *is* great riches.

I think there are opportunities in this line that have been neglected, and I think the possibilities for strawberry growing in this section of Maine are very great indeed. There are certain kinds of fruit that people will eat for a time and then drop. But there are two things that they will never drop as long as they can get them in good condition,—strawberries and peaches. They will eat these as long as they can get them. They are beginning now to eat strawberries from California and they would eat them in August if they could get them, long after the Massachusetts and New Hampshire crops are out of the market.

We are too apt to imitate one another in all our work. In one section of the country a few men are successful in producing a certain crop, others follow them and that neighborhood gets into that one rut, and you all produce one crop. The men who are succeeding in agriculture and in fruit growing are the men who strike out in new lines for themselves. The men who succeed in manufacturing lines are those who have individualized their own work, made themselves known by making a special product. And so it is with us farmers. We follow along the same lines that our grandfathers and fathers did, or even that we ourselves started in; but we must adapt ourselves to the times, and there is a wonderful growing demand for these fruits and some one has to supply it. Why should it not be you people here as well as some one else? To give you some idea of the wonderful increase in the small fruit business, I will give you a little instance. I have been a lover of fruits from a boy. I was born on a farm, reared there and had to stay there; but my taste was in fruit-growing lines and so I drifted entirely into that, and I thank the Lord that he headed me that way. In my boyhood days the city of Hartford, to which I lived adjoining, had a population of more than 40,000, and at that time there was but one commercial establishment in that city that sold fruit. Standing in front of that store one day, looking at the pineapples and other fruits that were there, the proprietor,

who was standing outside in his shirt sleeves, slapped me on the shoulder and said, "I have sold six bushels of strawberries to-day! What do you think of that?" I thought it was wonderful, and I hoped the time would come when I could grow two or three bushels. There were at that time in the county but two commercial strawberry growers, and they both brought their fruit there for him to sell. A few years ago I took a special census, and I found more than 200 establishments in Hartford selling berries, and they are selling over 600 bushels a day. An increase from six bushels to six hundred in a short lifetime. I was talking with Mr. J. E. Eddy at our last pomological meeting two weeks ago, and he said they were consuming 1,000 bushels a day in the height of the season. Just think of that! An increase from six bushels a day to 1,000 in the last thirty-five years, and the population now is less than 60,000. An increase of thirty or forty per cent in population and 1,000 per cent in the consumption of berries. And that increased consumption is going on everywhere. Since I have been in the business I have heard about its being overdone, and the market is occasionally overstocked, but it is with poor goods. There is never an over supply of the best goods. Of course you could all go to raising strawberries and overstock the market here. You have to find a market that wants the goods and the time it wants them, and then you will get your money back, there is no question about it.

I cannot come here and tell you just what varieties to plant and just what soil to plant them on. You must work out those problems for yourselves. Those of you who are growing strawberries here can tell the farmers about that better than I can. I can give you a few hints, and I do want to stimulate your thought in the line of these choicest of fruits. I have in mind that possibly currants would be a very profitable crop here. I have friends in Nova Scotia who began planting currants for the Boston markets a few years ago. They planted a few acres at first, and within the past year they have said they intended to enlarge their operations, one to about ten acres and the other to about eighty acres. They say they are very profitable, and I believe you here would find the currant a very profitable crop. It is hardy, very productive and long lived. You could not get half as much from an acre as from an acre of strawberries, but it will not cost nearly as much to produce them. The cost of production is very small as compared with strawberries. They should be planted in check rows, perhaps five or six feet apart each way. The bushes when a year old need cultivating six or eight or ten times during the season, the more the better. They will require two years' growth before they will come into bearing at all. The first year they might be planted between potatoes, and the next year given the full use of the ground. The third year they will come into moderate bearing and the fourth year into full bearing. And then if fed, cultivated and judiciously pruned they will bear almost indefinitely.

A good currant crop may be kept up for fifteen or twenty years and sometimes more, though if forced to their utmost you will get the best

returns within that time. The yield on naturally stony soil will be in the neighborhood of one hundred bushels per acre. And these would come into the market when there is no competition. It is a good thing to be just ahead of or just behind the other fellow, and with currants it is a good thing to be just behind. The bulk of the market will come in perhaps Monday or Tuesday. Everybody picks them and runs them in the first of the week. The mistress wants half a bushel and she consults Bridget. "The ironing won't be done before Wednesday night, and Thursday I have all the swaping to do, and I couldn't get at it before Friday." And by that time they are all gone. Not half of them come into the market when the people are ready to handle them. We find an advantage with the Victoria in that they will stay on the market for a week or so. We hold them until the others are out of the market and then double up the price. And I believe that as your currants up here come late you would find a good market for them. Currants are never sold at a very large price, and the market is never overstocked, but is always steady. From \$2.50 to \$3.00 a bushel is the wholesale price. They are not perishable on the way, and you could ship them by freight at a moderate cost. I think the strawberry and the currant are the two small fruits that should be considered here from a commercial standpoint. The others will come in their places, red raspberries next and black raspberries fourth. There is a moderate demand for gooseberries, but none of the markets handle them in any large quantities. Choice gooseberries are in moderate demand, and the manufacturing towns where there is a great number of English population buy more than any other places. Blackberries would come late and come in competition with peaches; that is the one objection to them.

DISCUSSION.

Ques. What do you consider your best variety of red currant?

Ans. This best variety depends upon a great many things. The largest and choicest currant is the Fay, but it is fickle. The Fay on certain soils is very vigorous in growth and very productive. On other soils it makes but a moderate growth and is a shy bearer. It seems to bear itself out in three or four years. If liberally fed and properly pruned it may bear enormously for three or four years, but will not bear so heavily after that. The old Cherry is probably the best known and the most generally planted. It is a fine currant but makes a straggling bunch. The Victoria is a medium sized currant, a little larger than the old red Dutch. It is vigorous in growth, holds its foliage until late in the season, holds its fruit for a week or ten days and makes a good jelly. For all around purposes I consider the Victoria the best of the currants that are well known. Do not plant anything that has not a good foliage, especially in a trying climate like this. A good foliage is an indication of character and strength and is of great value. My experience is that a bush or tree that holds its foliage late in the fall is in a better condition to stand the winter than one that sheds its foliage early.

Ques. In regard to propagating gooseberries and currants?

Ans. Currants are readily propagated. In the fall after the foliage is off cut the new wood of the season's growth into sticks six or eight inches long, as may be most convenient. An eleven inch stick you could cut in two, but you could hardly do this with an eight inch stick. Try to make them six or eight inches long; then take those cuttings and bunch them up, putting the tops all one way, and bury them in sand in the cellar, or if you wish in a side hill where there is a good drainage; or plant them directly in the field where they are to grow. Plow a piece of land in October—plow it thoroughly, and stick them in the ground with a dibble, or in any way to get them so that they will be level with the ground. Tread them down and cover them with a heavy mulch. In the spring take off the mulch and tread down again. I prefer to put them in in the fall. Many keep them in sand and put them in in the spring. Gooseberries may be treated in the same way, but unless you have a cool, moist spring not more than forty per cent of them will start, and not more than half of those will take root and make a good growth. The general custom of most propagators of the gooseberry is, in midsummer when the plants are growing well, to bank right up around the bush with earth three or four inches above where the sprouts are growing, and the most of this young growth under the earth will take a little root. In the fall cut those off, and in the spring plant them in nursery rows.

Ques. What are the qualities of the Moore's Ruby?

Ans. It is one of those new varieties that none of us know very much about. I know that it originated with Jacob Moore, of Brighton, N. Y., but I know nothing about it myself, only as I have seen the samples of fruit. It is of the Fay type, not quite as large a berry but a little better bunch, perhaps.

Ques. What can you tell us about the Prince Albert?

Ans. It is another one of the newer varieties that is not generally grown. I think it originated in Indiana, and I believe it is grown a little in Central and Western New York, but I know nothing about it from experience. Mr. Willard of Geneva thinks very highly of it. It is a good grower and a good bearer but of a poor quality.

Ques. What about the Long Branch Holland?

Ans. It is fair, but not so good as the Victoria in any way. A good many nursery men put this out for the Fay.

Ques. What are you raising for a commercial strawberry now?

Ans. I am planting more of the Greenville than anything else. The Greenville, Bubach, Lovett and Princess I am planting most extensively. I have 25 acres in commercial fields and those varieties predominate. Then I have many other varieties in test lots.

Ques. Have you tried the Marshall?

Ans. I have. It is a vigorous growing plant with heavy foliage, but it is rusting and it is not a safe plant to put out. It grows some large berries of good quality but not in great quantity. I paid ten dollars a dozen for the plants that I bought, and I have several thousand now that

I would like to sell for ten cents a dozen. I would not advise anybody to take them at that price. I do not think the Marshall is going to be a success.

Ques. Is the tree currant a success?

Ans. No, sir. One of the troubles of currant culture is the currant borer. If you have grown a single stem and that is bored and killed your jig is up for that bush. But if you have them in bush form the killing of a single cane will not hurt your bush. The tree currant is nothing but an ordinary cane made to grow tall by cutting off the buds. It is a mighty taking name and the tree agents get a big price for it. When you can buy currant bushes at fifty cents a dozen they can sell a tree currant for a dollar a tree. The tree currant is a little novelty, but I think there is no advantage in gathering the fruit.

Ques. How do you deal with worms?

Ans. I give the bushes one or two dustings with dry hellebore, mixed with a little plaster.

Ques. How do you apply it?

Ans. With one of those dusters that are made for that purpose.

Ques. Have you ever had any experience with the fly that lays its eggs in the currants causing them to drop?

Ans. I have not. I have heard of it in some sections.

Prof. HARVEY. This is a serious pest in Southern Maine. It begins with the larger ones, stinging them on the upper end, and continues to sting as long as they last.

Prof. HARVEY. I spent a whole week last year on the head waters of the Kennebec about Jackman, and all through that region I did not see a single blackberry. I found on the mountain region over towards Sandy bay some blackberry bushes, but not the high bush blackberry common in the southern section of Maine,—another variety of blackberry. I do not know the reason for this unless it is that the high bush blackberry is a more southern species,—its natural habitat is further south. I can see no reason in the soil or anything of that kind, to account for its not growing in Aroostook county, but simply in the fact that it is a species of plant that reaches its northern limit. It is not an arctic plant, but belongs to the New England flora.

Ques. Are there any better varieties of the blackberry than the Agawam and Snyder?

Ans. Not for this latitude. The Agawam is one of the most hardy varieties for New England. The berries are medium in size, and it is one of the best blackberries for table use. Very large berries are showy but of inferior quality, having a large core in the center.

Ques. How many strawberries did you ever sell in any one year and how much did you get for them?

Ans. I never keep run of the amount of money I get, it varies with the year. Sometimes I will get four or five or six thousand dollars, and again not as many hundred. The yield varies from fifty bushels in a dry season up to 150 or 200 bushels. The greatest drawback to successful

strawberry culture is the lack of moisture just at the time when the crop is in fruitage. You may cultivate the plant through the whole year, and have it blossom and set the green fruit and the fruit begin to mature, and then in the two or three weeks in which it is maturing if water is withheld you may lose half or two-thirds of what the yield might be if liberally supplied with water. The strawberry needs a liberal supply of water. On this account this past fall I have been building a system of water supply for the purpose of irrigation and now have between fifty and sixty acres that I can irrigate thoroughly. So I will never have any more trouble with short strawberry crops on account of lack of moisture.

Ques. Is there any danger of strawberries getting too much water? Will it do to put them on low, moist ground?

Ans. Strawberries do not like wet feet any more than you and I do. No plant will thrive well with wet feet. The strawberry wants well drained soil, and a liberal supply of moisture working through it. It will thrive on low ground well under-drained. On some of our deep, moist valley soil certain varieties do wonderfully well, but you need the drainage, you do not want soaked ground.

Mr. ALLEN. Mr. Fitz in Washington county told me that they wrote him from Boston and offered him twenty-two cents a basket net for his berries, and quite a number of the growers in that section availed themselves of that offer and sent their berries to Boston and got this price for them. One man received \$1,500 net. The berry was this Quoddy Belle, said to have originated on Quoddy Head, a large berry with a nice color and fine flavor. I have been taking some interest in this berry, and have got the names of some of the growers, but have not had time as yet to get at any facts relative to it. I think it must be a variety that came from some other place and sort of drifted into that name, although it may have originated there. I think it must be a very fine berry because the Boston market catered to it in enormous quantities this year. If you can grow that berry here in Aroostook county and ship it to Boston, as you have a through line, there is almost no end to the money that you can get out of your berries. There are possibilities to you here in Aroostook county that we haven't in any other section of the State, except possibly the eastern section; and if you can get hold of the right end of the string and take hold of it in a business way I believe that those who are situated so that they can grow strawberries will find it greatly to their benefit to do so, and that it will bring pleasure to their homes. It is a grand crop to handle. You will find the growing of late varieties of strawberries for the Portland or Boston markets one of the best things you can engage in.

HON. LEWELLYN POWERS. I came in here to listen and not to speak, and I confess that I have been very much edified. I think that the gentleman has given instruction that must be beneficial and valuable, and I could only wish that a larger number of our people from the southern and central part of Aroostook county had been present to listen to him.

We all know this—that if we would continue the prosperity that we

have had during the past ten or twenty years we must diversify our crops. There is something wrong here in Aroostook county when you are selling a barrel of potatoes at forty or fifty cents, and paying the same amount for a peck of apples. We want to change that, and we want, so far as we can in this county, to diversify our crops. There are some things about this small fruit culture that perhaps you and I understand better than those who have not been here and spent years with us. In regard to having an abundance for our own use, I think we have quite an abundance of it now throughout the county. We do not raise very many of what we call cultivated strawberries, but throughout all of our fields in the southern part of the county we can go any day and get the most delicious of field strawberries, in their season, and they can be bought for ten cents a quart in abundance. I like them better than any cultivated ones that I have been able to get. But we never have been able to do anything sending those away. We have no market this side of Boston, and I have never known of anything being done in shipping them. So far as the raspberry is concerned, there is no part of the world in which it grows wild so large and bountifully, and with so good a flavor, as in this county. For several weeks in the summer you cannot ride out on our roads but you can get out and pick all you want almost anywhere, and as has been said we ship them by the carloads. But we have to ship them so long a distance that we can only sell them for making raspberry wine. I have seen the cultivated raspberry in Massachusetts, and I think that I have never seen the red raspberry growing any better or larger than on a great many bushes here in this county.

As to the blackberry, there are not many of them in our county, but I can think of places near Houlton where I can find quite a number of wild bushes bearing blackberries. I have never seen better cultivated blackberries than on the farm of Senator Nutter.

I am confident that we can cultivate these small fruits here, but the difficulty that stands in the way of most of our people, for we have not accumulated capital, is that we must have ready returns, and be sure of returns. The market for strawberries is far off, and if we get them into the market they go in late. While strawberries from the south which are poor, green things will sell, coming so early, yet if you put that same kind into the market and have it last I do not think it will sell at all. The gentleman says truly that the strawberry is something that is wanted all the year around, but I would rather have my crop go into the market first than last.

These remarks apply simply to Aroostook county; the climatic conditions are somewhat different in the center of the State. I have only known one or two years in which tomatoes would ripen here, but they will ripen in Somerset county. One reason may be that we are much higher, and cold depends, especially in the night time, quite as much upon height as it does upon latitude. We have cool nights always, that is why we grow such large crops of potatoes and grain. The rust does not trouble them.

I have no doubt that we might be able to raise some varieties of strawberries and ship them and make much more money than we are making to-day, and I hope that some one will try it. My opinion is that certain other fruits, like these apples here, would not grow as well here as in other parts of the State. I think that while we have a very excellent soil for the growing of strawberries, it is a different soil from that in the valley of the Connecticut. My recollection of that soil is that it is of a sandy character, a granite formation the same as in the central part of our State, while our soil here is a limestone shale formation, from the geological standpoint.

Expressing a wish and hope that all here will profit by this meeting, and expressing my gratitude to the gentleman from Connecticut, I will simply say that I am very glad to be here. I came to listen and I have felt fully repaid for coming.

RAISING FRUIT FOR PROFIT.

By CHARLES E. WHEELER, Chesterville.

I do not believe it is possible for a man to start in on orcharding and make a success of it unless he has some faith in the business and a good deal of faith in himself. You must have some stick-to-itiveness to succeed in growing apples. It is different from planting a crop of potatoes. With potatoes you plant to-day and in a few weeks harvest your crop. With apples you plant perhaps for others to reap. Still men who are much older than myself have planted orchards and are to-day receiving good returns for their labors. One gentleman in my county, perhaps as old as any one there is here, who has the largest orchard in the State of Maine, is still setting out trees. He commenced years ago, and people thought that he was foolish, for those trees would never pay him; but they are paying him to-day and it may be that he will live, even, to pick the apples from trees that have been set within a very few years. Here in this county you have a soil, it seems to me, upon these hardwood ridges, that is peculiarly adapted to the growing of fruit trees. We say that good, strong corn soil is good orchard land. Those high elevations or swells of land in the western part of the State are adapted to the growing of an orchard. Are not these hardwood swells of Aroostook county just as well adapted to this purpose as those of other portions of the State? As far as the soil is concerned they are, I think. But when you come to the consideration of what kind of trees you will plant, the varieties selected will have to be different.

A few weeks ago in looking over some of the old reports of the Maine Board of Agriculture I saw in one of the reports a remark which I think was made by Goodale in talking on the subject of fruit growing, that Maine was too far north for profitable fruit growing. That was years ago; and I have heard old people in my section say that it was considered rather doubtful years ago if fruit could be raised in Maine. But to-

day the hillsides of Franklin county are well covered with orchards, and they are paying. Years ago the Baldwin was considered rather a doubtful variety, but it is not considered so to-day. The best paying orchards that we have are of Baldwins. In the earlier times seedlings were used, but to-day it is grafted fruits for the markets; and it may be that in years to come some of the varieties which are being perfected here will pay you well. Why not be setting out those seedling trees, caring for them and growing them as the climatic changes take place with the felling of the trees and the clearing of the forest? Why will you not then be ready to have those trees retopped to some useful varieties which you have found to be a paying kind here in Aroostook? I think it may be well to start your orchard in that way. I would not advise any one to set out an orchard from kinds that you would purchase of a tree agent. You must have something that is peculiarly and particularly adapted to this Aroostook climate. Dudley's Winter is well adapted to it, and with some of the other kinds mixed in for cross fertilization, as was spoken of in the talk on small fruits last evening, may give you good returns. I know there are men in this county who are trying many varieties. One gentleman told me he had eighty-three varieties. If you will take the pains to go and see those who are experimenting upon this line of work you can soon find out which kinds are adapted to your farm or your location, and that will save you many dollars, perhaps many years, in growing your orchard.

I think the majority of the people who are setting trees in the western part of the State are setting them in the turf. You will find a few orchards that are cultivated, but a very few; and it is in some old fields or pastures that the most of the trees are set. I believe when a man is going to raise apples for commercial purposes, the best way is to take a good field and give it good care and cultivation, and set your trees there. And I will tell you from my personal experience how we have set out our orchard. We measured off our fields and set the trees in rows two rods apart each way. We dug a large, deep ditch (do not be afraid of getting it too large, you will not do that) throwing the dirt and turf on the upper side. Two men can work at the business better than one. In throwing the dirt on to the upper side you will find that it will work down a great deal easier if you are putting it in with a hoe or with your hands than it would if thrown on the lower side. If the hole is too deep dump your sods in the bottom. They will in time decompose and form a natural plant food for the young roots. Trees that are well set out have a good start. In the manuring of these young trees we never have used barn manures. We prefer some kind of commercial fertilizer. I have used muriate of potash and fine ground bone at different times with very good results. The trees seem to grow and thrive finely upon that kind of feed. The only great setback with me in the growing of a young orchard has been the amount of care that has been required to keep the borers out of those young trees. I do not know as you are troubled with borers here, but we are in our section; and from all those old trees that

are in the pastures of some neighbor's lot that you cannot attend to, in which the borers seem to thrive well, they will come out and infest these young trees. We go over the trees twice a year, the latter part of May or the first of June and the last of October, and take them out. They are easily found and with a pen knife you can destroy them before they get inside of the bark to do much damage. That is the only pest that has ever troubled us, excepting that a very few trees that came out of one nursery were troubled with bark lice. For them we have used ashes in a misty morning before the foliage starts, just throwing the ashes into the tree. The bark being moist, the lice are destroyed. There may be something better in the way of spraying, but this has always worked well with us.

I think one of the best things for the protection or growth of a young tree the first year is to have it well mulched, using some coarse manure if you have it. Horse manure and straw seem to be well adapted to keeping the soil moist and keeping down the weeds. If you haven't this to spare use some coarse swale hay, or something that you can find in the pasture, brakes or the like. About the middle of August there is always spare time and plenty of such material can be cut and put into the barn to be used the first thing in the spring. I have practiced that and like it well, perhaps running it under the cows or horses. If you do not want to do that you can simply take it from the barn and put it around the trees. Some leave it in large heaps in the field, but we have generally put it into the barn; and running it under the cows or horses makes a better mulch than just the bare grass or weeds. I do not believe that just the bare wild grasses or the brakes that you get in the pasture are worth much as a plant food, but they serve to keep the soil moist, and the trees seem to thrive in a cool, moist soil; and they also keep the weeds down.

In our fields where the trees are set we have spread it on in the fall and plowed it under, putting it down where the young roots can feed upon it, and the trees show marked growth. They look as though they enjoyed feeding upon that kind of food. In some of the sections where trees have come up, (volunteer trees as we call them) we fence off an acre or two and put some hogs in. They will turn over the sod and break up the soil, and as far as you can see that piece of orchard you will see the rank green foliage, showing that something has been going on there. I do not believe it is particularly the voidings of those animals that does this, but the breaking up of the moss bound grass roots, the breaking up of the different parts of the plant food in the soil so that the trees can take hold of it. That has done the work rather than the manures that any creatures leave there. Good tillage is as good a thing in growing an orchard as it is in growing a corn crop. I have found that where I worked around the trees, even if I did not put on any fertilizer of any kind, those trees did far better than those which were just left alone with the bare mulch of manure and wild grasses. So I believe that cultivation is as good in the orchard as it is among your potatoes or your corn

crops. You sometimes hear that it is unwise to plow an orchard, but how old must an orchard be when it is unwise to plow it? I have trees that have been set five or six years and we are plowing that orchard, turning all one way, and turning every foot of that land up snug to the trees. We think we can do this better with a pair of cattle than with horses, and with a good side-hill plow or swivel plow we turn every foot of the ground. Those trees showed marked growth last year and with a very light manuring. We planted it with corn, and I think that a crop like corn is far better adapted to an orchard than some of the grain crops. It leaves the soil in rather a better condition than simply sowing on some grain.

Protection with us means something—protection of the trees in the winter from mice. There are various ways in which we protect them. One that is practiced a great deal is heeling down the snow around the tree. As the snows come on we tread that snow down compactly and the mice hardly ever trouble the trees. Others put laths around the tree, cutting them four feet long, and making a box right around the tree, tying it with small wire, the thirty-two steel wire that comes with small bobbins. That protects the tree from the mice and we have never lost any trees with that method. Some use tarred paper, but it is more of a job to get it on and it is more difficult to keep it over for the second year. Putting it on the second time is quite a job. The laths can be easily taken off and put away and put on the second or third time. In fact I do not know why they will not last a lifetime, almost, if you keep them properly housed. I do not know as there is any particular need of tying those laths on with more than one strand of wire. The first year we used wire at the bottom and a string at the top, but later on we have put the laths on earlier in the season and pounded the bottom of the laths down into the soil and simply tied the top. We used the wire because someone had used wool twine, or lighter twine, and the mice had gnawed it off so that it had broken and the sticks tumbled down. And as this farm that we were cultivating was a back farm where we do not go very often in the winter or late fall, we used this small steel wire. It is cheap and we feel as if it were surer than a string.

DISCUSSION.

Mr. HALE. I think this whole subject of apple culture is one of very great importance. These questions as to the plowing and methods of culture of course might be local questions very largely, but on general principles where culture can take place I certainly agree that level culture is the best. If our friend here has a field which needs dead furrows between the trees at certain distances each way, that land is too wet to plant an apple orchard on anyway. In regard to backing the furrows up to the tree to give the tree nutrition. I would just as soon think of standing in a plate of soup and hoping to absorb food that way, as to think of getting nutrition into an apple tree right at the base of the tree. I put my plant food out in the middle of the row, where this dead furrow

would be, and the roots go out there and feed upon it. I do not think they absorb food just at the base of the tree very much.

All these questions of cultivating the orchard, of plowing or not plowing or plowing with a side-hill plow are local questions. It depends upon the character and condition of your soil. A thorough culture of some kind is needed; shallow culture and level culture will bring the best results. If you have a rocky hillside you must adapt yourself to the situation, and feed the tree from the top; let food and mulch take the place of cultivation. But where it is possible to cultivate there is nothing that will equal cultivation. It stimulates a vigorous, healthy growth. Where the very best of culture is given you have a vigorous growth, a tree or plant that is less susceptible to disease than it would otherwise be. I believe the apple question is one of great importance. The apple tree planting of New England is not beginning to keep pace with the consumption of apples, and there is no better opportunity for a sure, safe income for the New England farmer where the soil and climatic conditions are suitable, than to plant a large, permanent apple orchard of winter apples. I believe it is the largest industry that is open to us to-day. You have no idea of how the apple consumption is increasing, to say nothing of the export trade. There are a few large orchards in New England but there are more old trees than young ones. There are but few well cared for orchards. I have a friend away down in New Mexico who is urging me to come down and help him plant apple trees, and he hopes to sell half of his apples in New England; and he cannot begin to grow as fine colored or flavored apples as you can in many sections in Maine. I believe you can get rich in Maine by growing apples at \$1 a barrel, but you must do it on a business basis. Plant large orchards, feed liberally, cultivate thoroughly, spray and thin your fruit every year.

They talk about off years in apple culture. There never ought to be an off year with an apple tree unless it is in the hands of an off man. Once in a while climatic conditions may kill the buds, but there is no reason why a tree should bear one year and not the next. Judicious bearing every year is the natural condition of the tree; but if you let it over bear one year, and do not let it have nutrition enough to develop that fruit and the germ life of the new fruit it does not make any new buds for the next year. But the next year it has time to make the buds for the following year, and so it goes, steady by jerks. It is just as essential to thin the apple as it is to thin the peach. You find the finest peaches, pears or plums on the market are from trees where the fruit has been thinned. And if you want a fine crop of apples every year you must thin the fruit from the time the tree begins to bear. If a tree when it begins to bear wants to produce twenty-five apples do not let it produce more than five; the next year if it would produce fifty, let it produce but twenty; and the next year if it would produce 200, let it produce only fifty. Then you have left vitality in the tree for future years.

RAISING APPLES FOR PROFIT.

By CHARLES S. POPE, Manchester.

In former years the raising of apples was considered of secondary importance, or more properly speaking, what was obtained for apples was considered clear gain, as very little was expended in the orchard, it being left to care for itself. When the land was first cleared and the soil was rich in humus and potash, before we were troubled with the myriads of insects and diseases, the orchardists received a good crop without any extra effort, but under present conditions, if the trees are treated as in former years, or I should say, neglected as they generally were, a good crop is obtained only when all conditions are favorable. In such a season the country is flooded with apples, the price is low, and the profit correspondingly small.

There is a general complaint throughout the country that the apple is not as productive as in former years, and it behooves us to make a special study of the conditions which obtain at the present time, if we expect to raise apples with profit.

No farmer would expect to raise a crop of corn or potatoes on the same land, year after year, without the addition of some fertilizer. Have we done the same in the orchard?

Fifty years ago A. J. Downing claimed that it would amply repay the farmer if he wished the trees to continue in a healthy bearing condition, to manure them as regularly as any other crop.

The farmer has succeeded so well in raising apples without care or expense that he cannot see the necessity for tillage in the orchard, and yet it is plain that under proper conditions the best results can be obtained by this method. I would not advise putting the plow into an old neglected orchard where the roots are near the surface, but where cultivation is commenced as soon as the trees are set and continued every year, the roots are forced so low that they are not reached by the plow and therefore are not injured.

Much of our land which is adapted to apple growing is too rough and rocky for tillage, but we must remember that here we should make the conditions as near as possible like those in the tilled land.

The apple tree makes most of its growth in the early part of the season and if the orchard is in sod, the heavy growth of grass in June carries off a large portion of moisture and the roots which nearly all run near the surface, suffer for water; this means also suffering for food which can be obtained only through this medium. Suppose you visit your neighbor's barn and find his cows suffering with disease, covered with lice, furnished with a small quantity of hay and half of this stolen by the sheep and colts, running loose in the tie-up. Although at times the water supply is short these trespassers will take the lion's share. The owner appears and says he is getting very little income from his cows

and declares in vigorous language, that there is no money in dairying. Would you not laugh in his face or to spare his feelings, change the subject? Look at home. In the treatment of your orchard are you not making the same mistake? Probably not one orchard in ten has half the food it really needs and the grass is taking a large share of this, together with the moisture which the tree can ill afford to spare during our summer drouths. It is a parallel case and we would do well to study it. In most soils we do not believe it possible to obtain good returns from the orchard and at the same time carry off a heavy crop of grass each year. Much better would it be to keep the grass very short with sheep, or still better by allowing the pigs to destroy the entire turf and work in a little fertilizer each year. A heavy mulch, sufficient to kill the grass might be preferred, if enough could be obtained. Few people are aware how far the roots extend and are apt to be satisfied with covering a small surface beneath the tree. It is frequently said that the roots of trees extend as far as the top, when in fact in good soil they extend twice as far, and in poor soil they run much longer distances in search of food. As the roots run so much deeper in the well cultivated soil it is at once apparent that in cases of severe drouth such trees will suffer less than those which are mulched in the manner which is commonly practiced.

Where the land is plowed and the surface frequently stirred, the roots are far below the surface, and with the mulch of loose, dry soil to prevent the waste of moisture we have the most perfect condition attainable. It is not necessary that the trees should occupy the whole ground while small, but it will be better for the land to be covered with some crop like beans or peas if the ground is stirred often between the rows and sufficient fertilizer is used for the support of both plants and trees.

Few people are aware of the amount of fertilizing material needed in the bearing orchard. It has been shown by careful experimenting that much more is required than for a crop of wheat. An acre of orcharding in full bearing will take annually from \$15 to \$25 worth of fertilizer from the soil.

If the trees fail to give good returns after being well fed, let us look further. First, to destroy the insect enemies. The bark louse, the bud moth, the leaf roller, the borers, and some others cannot be kept in check simply by the asking. While the fungus diseases which are doing so much damage in a moist season will still continue to ruin the fruit of those who will not take the pains to apply some remedy.

The advent of the spraying pump will, no doubt, prove to be a great boon to the progressive orchardist, and while insects and diseases will ruin the fruit of the negligent, they will serve to clear the market, and those who have choice apples will be well repaid for the extra trouble required to keep them free from their enemies. It is impossible to tell in the early part of the season whether the fruit is likely to be injured by the apple scab, but we should spray as a matter of insurance for the scab, and it will not all be lost time, as we can add the arsenites at the proper time for the insects which like the poor "we always have with us."

We think one of the greatest obstacles to any immediate improvement, lies in the fact that too many of our orchardists cannot see the need of any radical change in their orchard management. They do not have faith enough in the methods which are now recommended to expend the time and money required and are satisfied with too small returns. If they decide to try a little experimenting it is in a half-hearted way, and this particularly in the matter of spraying for the apple scab. Squirting a little Bordeaux mixture once or twice during the season, without reference to time or manner will be of no perceptible benefit and many an orchardist has condemned the whole thing as a humbug after a little experience of this kind.

Much in the same line is the fertilizing where the manure is piled around the trunk of the tree and mulching which is kept in close quarters for fear of killing too much grass and thus shortening the hay crop.

Now I would not have the orchardist think that spraying, even in a thorough manner, is the only requisite for perfect fruit. The tree must first be furnished with plenty of food and the ground kept in good condition. Supplement this with spraying, using the proper mixtures at the right time, in a thorough manner and he can be as sure of good returns as from any crop that is raised on the farm. Greater care should be taken in the selection of varieties. Not only to take varieties suited to soil and location but to discard nearly all the new varieties which are not known in the market. Buyers pay the best prices for the old standards.

It is now believed by those who have made investigations that the blossoms of certain varieties of apple need to be fertilized with pollen from some other variety to give a full crop, and when the Bellflower, Spy, King, Talman Sweet and some other varieties which are more or less self sterile, are planted, some other varieties should be planted in the immediate neighborhood, to furnish pollen.

Do I hear some one ask, Can we, with all the labor which is now necessary to grow good fruit, compete successfully with other sections where the soil is rich and the trees grow rapidly and come into bearing early? Let us look at both sides of the question. Do we not possess some advantages? On the rich prairie soil whole orchards are frequently killed by the sudden changes of temperature in winter, and even as far north as New York, the chief difficulty in raising fruit is the late spring frosts, which destroy the crop, added to this, a price so low in seasons of plenty that they are allowed to rot on the trees, in some sections.

The risk from spring frosts in Maine is so slight that few people ever consider it a possible factor when planting fruit trees, and for the past thirty years, good apples have never lacked for a market at double the price it costs for picking and marketing. Take notice. I said good fruit and this is what I am urging upon our orchardists, that in the better care of the orchard, fertilizing, pruning and spraying together with more care in picking, sorting and marketing, lies the secret of money making in

the orchard. The solution of the problem is not to see how much can be gathered from our trees without giving anything in return, but rather how great expenditure of time, money, and generous intelligent care can be made profitable.

DISCUSSION.

Mr. HALE. The subject of this paper by the ex-president of the society is of great importance. We farmers and land owners generally put too much stress, however, upon the mere matter of production. It is one thing to produce a crop, it is another thing to sell it. We farmers and land owners perforce of circumstances are capitalists, laborers and business men all combined. Nine-tenths of us forget that we are anything else but laborers. We work too hard and think and plan too little. We have capital invested in our business, and we put labor on top of the capital; and if we have put brains to work with it we get good results. When we get good apples we are only half-way along the road to success. The business man's end of selling them is a big end. We should study first what the markets want, not what some tree agents tells us we want; and as a rule it is big, red apples. And you will find out, as Mr. Pope has found out, that the highest prices are paid for the fruit that reaches the market in the finest order. They pay for style, weight and honest packing all the way through. Then find a commission man who appreciates that kind of goods. Well grown and well packed fruit is half the battle; then put in the hands of the right man in the right market at the right time and it brings the dollars. Apples may be produced for fifty cents a barrel. The question whether you sell them at fifty cents or three dollars a barrel lies very largely with yourself. If you produce fifty cent apples you will find somebody that will take them. If you produce three dollar apples you will find somebody that wants them. When the market breaks it is the low grade goods that hang fire and sell slowly. The high grade ones always command a good price.

I do certainly believe that commercial orchards of good, red winter apples, varieties that suit your locality and your soil would be a source of great profit to you. You cannot raise the Baldwin or Southern Beauty, but there are some varieties that you can raise. I have said since I came into the hall that I would have a hundred acre orchard of the Dudley's Winter or my name would be something else besides Hale. I believe if some of you farmers here who have 100 or 200 acres of good land would have the gimp to plant 100 acres to apples they would call you bloated bondholders, your profits would be so great from that orchard. But do not do it unless you like apples and like trees. If you love potatoes and would rather pick up potatoes than apples, keep on with the potatoes, and you will probably make something out of them. But if you enjoy seeing a tree grow and enjoy handling fine fruit, you will not only get great fun but ten times as much money out of it. The greater quantity you grow the easier you can sell them. When you have

a quantity you can afford to advertise and buyers will come to you, markets are opened to you, and things will go all right. You would have to test varieties, and find those that will stand your winters here and that will bear well, and then I believe they will bring you great returns. I would rather have a dollar invested in an apple orchard in the State of Maine planted on the principles laid down in this last paper than \$3 in any commercial enterprise that you have in your State, and I suppose you have some that are paying 15 to 20 per cent dividends. If a good apple orchard handled on the right lines cannot be made to pay more than a 20 per cent dividend there is something wrong with the man,—not with the orchard.

Ques. Will Mr. Pope tell us how he fertilizes his orchard? He did not allude to that.

Ans. I am ashamed to say that we have not fertilized as we ought. We have not fertilized anywhere near up to the standard. In the first place we have not realized, until within a few years, just where we were and just what was needed, and we have kept on setting trees. We have put our money into enlarging the orchard instead of taking care of trees already set, until now we are orchard poor. I suppose we have the largest orchard in one block that there is in the State, but that is nothing to brag of. If we had the best orchard, the one bearing the most apples and raising the apples the cheapest, it would be something to boast of. Our best orchard land, unfortunately, is in a rough pasture. The fields are clear loam, so we were obliged to go into the rough, rocky pastures to get land suitable for an orchard. Here we cannot till as I would advise every one who has suitable land on well cleared ground to do. We are bringing the conditions as nearly as possible to this tilled soil. If you have a soil that can be tilled and can mulch the whole surface, of course using a proper amount of fertilizer, you have the best possible conditions. What shall we use for mulching? Very few of us can get enough of any material in the shape of straw, meadow hay, ferns or anything of that kind to mulch a large orchard. Let us take what is fully as good and perhaps a little better, a light, new soil. Therefore keep the soil stirred all the time, and you have your orchard in the best condition. And that reminds me of what a gentleman said who had a blackberry bush, and it came very dry, and he had grand fruit; while the blackberry bushes of his neighbors all about him were all dried up. Some one asked him how he kept his bush that way, if he had been turning on water. "No," he said, "I water it with a hoe." If you will keep your orchard watered with a hoe or a cultivator, keeping that loose, light surface free from weeds, you have a perfect condition so that the moisture is not passing off.

But to go back to the fertilizing, where the most of us fail is in lack of fertilizer. We skimmed the farm and carried it to the orchard until we hadn't much more to take off, and then the question was, what to put on. The superphosphates, commercial fertilizers, as we buy them in the market, have too much nitrogen for a bearing tree. Nitrogen, which is

one of the most costly ingredients that we purchase, worth about seven-teen cents a pound, is not needed in an orchard, or but very little of it is needed after the trees come into a bearing condition. Therefore it is foolish for us to pay out so much money for nitrogen when we want it for phosphoric acid and potash. We have bought mostly pure ground bone and muriate of potash, using what mulching we can get to kill the grass and keep the soil moist, and also keeping sheep in the orchard to keep the grass down. But we have obtained the best results in that part of the orchard which we have parted off and pastured with hogs. We spread on a fertilizer and turned the hogs in and let them do the plowing, as the ground was so rough that we could not plow it with horses. The hogs did it just as nearly perfect as we could ask for, turning over about three inches deep the whole surface. On one little section that we picked last fall, in which the hogs had run for two years, were young trees just coming into bearing, Tallman Sweet and Hubbardston Nonsuch trees that had not suffered from the scab the year before; and those little trees of Tallman Sweet were loaded with four and five barrels of as handsome fruit as you need look for. The Hubbardston Nonsuch trees were so loaded that we had to pick off half the fruit in August, and then were obliged to prop the trees. And the apples were magnificent apples, and brought us a handsome price in Boston.

If you commence this plowing when you ought, as soon as the trees are set, you can plow close up to the trunk. All you have to look out for is to keep from barking your trees. Plow shallow, four or five inches is all that is necessary, and keep plowing. Do not allow those larger roots to form up in the surface soil. In poor soil the roots run close to the top and extend long distances, and in a few years they will catch together. In five years the roots will lock together, in poor soil particularly. Keep your ground rich and the roots will not need to search so far for food. In experiments at the Experiment Station the soil was dug away and the roots watched, and it was found that with a tree that would extend about four feet, the roots would be off about eight feet, in rich soil. The roots of the same sized tree in poor soil would run about seven times as far as the top extends.

Ques. At what time do you prune?

Ans. I do not know but it is a little dangerous for me to say anything about that where there are so many opinions. Let us look right at the theory of the thing, commence right at the foundation of the growth of the tree. You plant the little seed, and the little rootlet runs down into the soil, and the little sprout comes up above the ground. The whole of the force has been supplied from the apple seed, but now the conditions are different. The rootlet begins to suck from the soil crude material, which is carried up to the top where it is decomposed, and assimilated by the leaf, and the sap supports the growth of the whole tree, root and all. The root does not grow of itself but must have its sap carried up to the top and decomposed and formed into food, for the root as well as the top. We must bear in mind the reciprocal action between the top and

the root, and in pruning we must be careful not to destroy it. You want to prune just as little from the top as you can; form your top while the tree is young. It is impossible to always tell just how your top is growing, and you will not know when is the best time to cut it. If you cut in the growing season, when the tree is full in life, you are throwing away just so much of your machinery, which is needed for the growth of your root and top, and you have checked the growth of the tree. Therefore prune in the dormant state. After the tree stops its growth in the fall remove the limbs that it is absolutely necessary to remove, and then you are doing less damage than at any other time. Then in the spring the sap flows up into the remaining limbs, and you get a larger growth than you would before you cut those away. But if you prune in full life you have checked the growth of the tree, and caused it to form more fruit buds. Therefore to check the growth and get more fruit buds prune in full life; for growth, prune in the dormant state, in the fall or before the buds begin to swell in the spring.

Remark. There is one thought that Mr. Pope usually brings out that he did not give you to-day, and that is in relation to thinning the fruit. It seemed to me to be very important to know that he got about the same quantity of fruit and very much larger fruit than he would have without thinning, and also spared his tree fully one-half, we might say, because the large amount of nourishment that it takes to develop the seed takes the strength out of the tree. So you see if the tree has to develop only one-half as much seed you gain that strength in your tree. Mr. Hale brought up the point that the tree should bear every year. It will do this if you do not let your tree get so weak that it cannot set fruit buds. I have had trees that were in the habit of bearing fruit every other year, and by giving them thorough cultivation and thinning the fruit judiciously they commenced to bear every year; and I believe we can accomplish that to a greater or less extent by carefully thinning the fruit and not allowing the tree to over-bear and get in a weakened condition. We may not get large crops every year, but the prospect is that we will get a crop of apples every year. I think we ought to consider that point.

Mr. POPE. I wanted to stir these people up a little, and let them study up the subject. We cannot remember to bring up all the little points, but we want to get them to study for themselves, to read for themselves, using judgment on what they read and discarding what is worthless.

The apple is about all water except the seed. The seed is what draws on the soil for potash and phosphoric acid; therefore as the gentleman says, when you pick off one-half the crop you have relieved the tree to that extent, and the vitality is not injured as it is when the tree is overloaded. If you have picked off half of the fruit the other half will be so much larger that you are getting about as many barrels of choice fruit as you would have had barrels of No. 2, and at the same time you have relieved the tree so that it is able to set the buds and bear fruit the next year. All of the Massachusetts plum and peach growers never think of

such a thing as allowing a tree to overbear. Neither should we with our apple trees. It does not take much longer to pick the apples in August than it would in October. If your trees are in the soil that they should be they will overbear nearly every year; then keep them judiciously thinned and you will get the best results.

Ques. In planting seeds will you get the same kind of apples? If you plant a seed from a Russet apple will you get a tree that will bear a Russet apple or something different?

Ans. It is very seldom that you will get anything like the seed that is planted. There are certain varieties that seem to come up nearer true, and will show some of the characteristics of the apple from which the seed was taken, but these are very few. You would be about as likely to get a sweet red apple from a Russet as you would be to get one resembling the Russet. There is no dependence at all to be put on the seed. The old catalogued High Top Sweet raised largely through Kennebec county is an exception. I have seen whole orchards raised from the seed, and every tree was the old High Top Sweet, almost exactly like it. But there are very few kinds like this.

Ques. At what age of the apple would you thin it?

Ans. I would thin it as early as I could. When the tree is covered with these little apples you do not realize how large they are going to be and you do not see the necessity of thinning until they get nearly half grown. Any time before the seed gets thoroughly formed will do, and it is just as well to put it off until the apples are quite large because you can then pick off your wormy ones and small ones. We have thinned generally about the last of July or the first of August.

Ques. Would thinning on a young tree have any tendency to make the fruit drop in years to come?

Ans. I cannot see any reason why it should have that effect.

Ques. Wouldn't they pick rather hard at the time you thin them?

Ans. They pick a little harder than in the fall.

Ques. Wouldn't you be more liable to break the whole end of the limb?

Ans. You would be more liable to do this, but with most varieties there are fruit spurs enough left. There are kinds that are shy bearers, and they do not need thinning. But with varieties like the Baldwin or Hubbardston Nonsuch if you break a few spurs there will be enough left.

THE CODLIN MOTH, BORERS AND CURCULIO.

A DISCUSSION.

Prof. HARVEY. Mr. Pope has had a good deal of experience in spraying for this codlin moth. Will you tell us, Mr. Pope, at what time you spray?

Mr. POPE. Just as soon as the petals drop, when the calyx is open.

Prof. HARVEY. These codlin moths of course show themselves very much more prominently in a sparse bearing year. Mr. Whittier, the largest Baldwin grower in the State, said he thought sometimes they were beneficial as they helped him thin the fruit in a year when the trees were too full. But I do not think that is the way to look at it. If you allow them to make their inroads when the fruit is plentiful you increase their numbers, so that the next season if it is an off year you have a great many more of them and almost all of the apples will be infested. It is generally in the off year that the apples bring a better price, and that year these moths will do the most damage. If you spray every year and keep them back and thin your orchards by hand you will keep these insects in check, and have, from year to year, better results.

Mr. POPE. It is the eating of the canker worm, leaving the skeleton of the leaves, which makes the tree look brown.

Prof. HARVEY. It is not the winged stage of the codlin moth but the caterpillar stage that damages apples. In the caterpillar stage it has a mouth adapted for gnawing, and a stomach that nearly fills the body and runs the whole length of it. The moth, so far as I know, would suck nothing from the fruits, but, like butterflies, live on the sweets from flowers; in fact, a good many moths have no mouth at all. They are born for the simple purpose of laying eggs and nature has not given them even the privilege of a good meal. They live only long enough to lay eggs. In the case of the canker worm the female is not provided with wings, while the male is. That very fact,—that the female insect which lays the eggs is not provided with wings, is a weak point that is taken advantage of in coping with it.

There are two species of borers that infest the apple trees of Maine,—two ordinary species and occasionally some others. The first one of those species is known as the round-headed apple-tree borer. You may know it readily by the two white stripes that run down the length of the body. This is an insect that comes around in the night. It loves darkness because its deeds are evil. As it does its work by night it is rarely seen. I have been in the State ten years, and I have not seen during that time (and I am looking out for insects) more than half a dozen specimens. And yet there is not an orchard, I presume, in Maine, but what is more or less infested with them. They hide in the day time and do their work by night. Mr. Pope, do you see many of [the beetles?

Mr. POPE. I have never found more than two. And let me say that in some sections of this State the borers are never found.

Prof. HARVEY. It is an insect that infests the round wood in our swamps and the sugar pear; and these belong to the rose family, the same family to which the apple tree belongs. It also affects plum and pear trees; it seems to affect the woody tissue of plants belonging to the rose family.

In regard to the other stages in the life history of this insect, it lays its eggs usually near the base of the tree, down close to the ground, and lays them one, or sometimes two, in a place. Mr. Pope, by his study of these insects the last year or two in his orchard, is of the opinion that the insect bores a little into the bark and lays its eggs. The eggs very soon hatch, and the first year the worms work just beneath the bark in the sap wood. The next year they work more extensively into the sap wood, doing more damage. Then the third year they bore deep into the wood and upward and outward to the bark. In the fall they go back into the burrow, and then in the spring change into this resting stage and remain in that a short time, a few weeks, and then the beetle comes out. They bore out the bark so that just a thin layer of the bark is all that is left, and this beetle gnaws that out a little bit and escapes. Then the females lay their eggs again.

Now, then, let us see in what way we can cope with these insects. By examining the trees at the season when the eggs are laid, by learning where these eggs can be found about the base of trees, very soon a man will become so experienced that he can destroy them with a penknife without doing any harm to the tree. If they escape you the first season, then you will find that they throw out sawdust-like chippings from the mouth of the burrow and you can locate them by that. If you get them the second year you will not have to dig very deep, but if you wait until the close of the second year and then attempt to take them out you will have to tear the wood of the tree quite a good deal to pieces. The time to cope with this insect would be in the egg form. The eggs are near the surface and the insect has done no damage; and if you can get them at that time, by a close, careful watchfulness, you will be saved much trouble. I will ask Mr. Pope to tell you just how he manages them.

Mr. POPE. The egg is laid, generally, through the month of July, or the last of June. Prof. Harvey tells you that the best time to cope with the insect is in the egg stage, but a person has got to be considerably experienced to be able to find that little egg, especially if the bark is roughened a little. All the mark you will find on the tree is just a little slit in the bark, as if you should run the point of a penknife in a quarter of an inch. I think we must depend more on taking this just after it has hatched, in the worm stage, before it has actually done any damage, but just as it begins to throw out a thread of brown chippings. In some cases it will be only a little moisture at first, a little thread forced out through a tiny hole. They may have got just through the bark to the

wood, and you will be more likely to find them than in the egg stage, until you get pretty expert. This is the time to take them; too many wait until they throw out the large chippings and have done a large amount of damage. I think it is the second season in which they do the most damage, working between the bark and the sap wood and cutting off the sap wood.

Prof. HARVEY. I meant that they did the most boring the third year. You know that the life of the tree, the circulation of the sap, is on the outside. The heart of the tree is practically useless. Trees grow by an annual layer of wood and the growth of each year is between the bark and the wood of the previous year. Of course any injury to that would do the most injury to the tree. The greatest damage would be done where the insect is working in the sap wood of the tree just beneath the bark.

Ques. Have you received Bulletin No. 11 from N. J., which speaks of some kind of a paste being spread on the trunk of the tree?

Ans. I have not received the Bulletin, but I know the point to which you refer, and that is this;—you can sometimes put a wash upon the outside of the tree, generally some alkaline wash, which is distasteful to those insects, and they will come around to your orchard and find the trees all covered over, and perhaps go over to your neighbor's trees and lay their eggs instead of laying them in yours.

Then, again, I have heard people in the State declare that they could prevent their trees from having the borers by putting some rough mittens on their hands and rubbing the trunk at certain seasons of the year, around the base of it. Now if Mr. Pope's observations are correct, that this insect lays its eggs in little holes or openings, you can see that those eggs would be entirely beyond the reach of any external rubbing. I have had persons declare to me that they could keep their orchards free from borers in that way, but I have fancied they were located in sections where there were no borers. Just how the eggs are laid, just how many, etc., are points that are not entirely cleared up yet. There are some points regarding this matter that need investigation. It is the general belief that the eggs are laid upon the outside of the trunk or in little crevices, and that the insects do not make a hole. We cannot take anything for granted in the study of these insects. What we want to do is to see one of those borers lay its egg and see exactly how it is done, just as I watched the fly as he punctured the skin of the apple. We must be very careful about these little points, because a great deal may depend upon them. To see one thing, and to see another thing, and put the two together, may not be sufficient, as there may be a step between those that will give an entirely different view of the subject.

There is another borer which I would like to call your attention to, which is called a flat-headed borer. This beetle, you see, has a copper color, with two or three brighter copper colored spots upon the surface. This borer is a day-flying insect. It loves the sunshine and you will find it about trees in the day time. It is a very wary insect and very hard to

catch, taking to wing very quickly, and perhaps for that reason would not be noticed unless one was up to catching them. We generally catch them with a net or something of that kind. These borers prefer to lay their eggs in the trunk or in the branches of the tree instead of down at the base, and they seem to prefer to lay them in an injured spot in the tree or in trees that are a little off in health. Their method of work is much like that of the other borer. They get underneath the bark, and if there is any difference, they work more between the bark and the wood than the other one. Sometimes they will work way around the tree under the bark and cut the growing part entirely off, and destroy the tree. These only remain in the tree one season, and then gnaw upward and out to the bark. Their growth is much more rapid than that of the other insect. In some parts of Maine they are perhaps as abundant as the other borer, if not more so. I have had letters from parties stating that they had taken as many as fifteen out of a single tree. They are a little more difficult to cope with than the other kind because you don't know exactly where they are going to lay their eggs. The others lay their eggs at the bottom of the tree; these, higher up in the branches in weakened spots in the tree. This insect is a native of Maine also, and not only affects plants belonging to the rose family, but the box alder, and sometimes the maple and other forest trees, besides the pear, plum, cherry, etc. You can always tell the worm of this kind from that of the other. The round-headed apple-tree borer or worm is about the same size the whole length, while the flat-headed borer has a thick head and narrows very rapidly; the rest of the body is very much narrower.

The fourth insect that I was to call your attention to this afternoon is the curculio. It is more properly a plum insect, or in other words, it does more damage to the plum than to any of our other fruits. In the absence of plums it does more or less damage to apples. I am not able to find many apples in the exhibit here that are affected by this insect. I think I have one here, though I may be mistaken. It stings the apple and then somehow seems to poison it. The curculio makes a little half-moon shaped cut in the apple and then in this little flap lays its eggs. I have not been able to raise more than one or two of the curculio from eggs that were laid in apples. They do not seem to flourish well in apples. They will get about half their growth and then die. I tried to breed quite a number of them and out of the whole I only got one perfect beetle. I wanted to satisfy myself thoroughly as to whether it was the same species as the plum curculio.

Ques. Will they cause the apple to fall?

Ans. They will, yes, sir.

Ques. Do they go to the core?

Ans. They do not, it is simply a surface effect. I do not regard this curculio as a very bad apple insect, but it is a very bad plum insect. These insects have long snouts and their common name would be snout beetles. The head is prolonged into a sort of a snout and the antennæ of

the insect are located upon the side of this snout. It is a small insect, but capable of doing quite a good deal of damage, especially to plums. I will say in regard to a remedy for these as an apple insect, that if when you are spraying for the codlin moth or apple scab, you should put some poisonous matter into the mixture at the proper time you would destroy them. In spraying for the apple scab one might, at the proper season when these insects are upon the wing, put some arsenical compound with the Bordeaux mixture and make a double spray, spraying for the fungus and these insects also.

Ques. Is it necessary to spray three times for the codlin moth?

Ans. I do not think it is customary to spray more than once or twice for the codlin moth. For the apple scab they spray several times with Bordeaux mixture. I know some have sprayed once, and then again in two or three weeks, covering the first and the last appearance of the insect, as they are on the wing for about two weeks. I think this would be a good idea.

Ques. How early do you spray first?

Ans. Just as the blossoms are dropping. And then if you should spray a little later, before the apple turns down, when it is about the size of a pea, you probably would get the most of them, although after the closing of the calyx you cannot get at the eggs. After the apples turn down it would do no good at all to spray. If you should spray to-day and there should immediately follow a heavy shower of rain, it would be a good idea to spray again. But the best way, if you can manage it, is to spray when there is no prospect of rain. But it would be better to spray at just the right time and take the chances of spraying again if a hard rain came immediately after.

PLUM CULTURE IN MAINE.

DISCUSSION.

Mr. VINTON. At a meeting of this Pomological Society held in Bangor which I attended, a Mr. Lowe of Bangor gave us a talk upon plums. He was then the most noted plum raiser in the State. I have tried to raise plums in all possible ways, and have failed and had to give it up. I was so interested in his talk that as soon as I could get at him privately I asked him why I could not raise plums. He said, "What kind of soil have you?" I described my soil as well as I could, and he said, "I see your difficulty; you cannot raise plums on that kind of soil; it is impossible. I have a soil that is peculiarly adapted to plum culture and that is really the secret of my success. There is but little such soil in Maine." What do you think about this?

Mr. LUCE. I think he was entirely mistaken. I think there is any quantity of soil in Maine on which plums can be grown.

Ques. Is there a kind of soil that is better adapted to growing plums than any other?

Ans. A clayey loam—not a heavy clay—is best for European varieties, but experience has proved that the Japanese plums, in particular, will grow on light soils. While I have all respect for Mr. Lowe, I think he was mistaken on this point. The soil of his plum orchard was clayey loam. I do not know how your soil is here, but we have thousands and thousands of acres of clayey loam in our section, and I do not see any trouble in raising plums. What is your soil, Mr. Vinton?

Mr. VINTON. My soil where I undertook to raise plums is a light soil, not exactly a sandy soil but a light loam soil. There is no clay anywhere near it that I ever knew of. Does the plum require clay?

Ans. The European varieties do best in clayey loam, and the European varieties were the ones you tried, I presume. I think if you should try some of the Japanese plums you would have no trouble in raising them. But do not be fooled with the *Prunus Simoni*. You can grow the tree but you cannot run the buds through; and if it did fruit I should not want it. We tested it and very soon decided that it was no good for us. It is one of the most beautiful fruits that you ever looked at, a very clear, handsome red with a purple bloom, a most delightful combination of colors.

Ques. Do you have any varieties that you lay down in the winter?

Ans. No, sir. I do not have to lay down any of the trees. My trees have grown very rank. I have one Bradshaw that was set in 1887, the largest tree I have that was set at that time, which I measured this year and it measured twenty-three inches in circumference and about seven inches in diameter.

Ques. What has been your experience with the Botan?

Ans. The Botan, as I understand it, is a class. The Abundance is the Sweet Botan; at least, it is claimed they are the same thing.

Mr. POPE. Pardon me if I just say that the plum that is sold mostly through our section as the Botan is the Botan No. 26. The Botan is a class, and this No. 26, which is now called the Willard, has been sold as the Botan.

Mr. LUCE. Different nurserymen have different ways of expressing the same thing. Each one likes to express it in his own way.

If I were going to set plum trees on a large scale I should send directly to Mr. Willard of Geneva, N. Y., and get the trees from him. He will not charge you more than \$15 a hundred for yearling trees. We had Mr. Willard in our pomological meeting a few years ago, and I got acquainted with him. He is a great plum grower, he had 40,000 baskets of plums this year. He is one of the most enthusiastic fruit growers I ever saw; in fact, most of the fruit growers are enthusiastic, and those that are specialists are even more enthusiastic than those growing in a general way.

Ques. Is there any section of the State where laying the trees down is practiced except here in Aroostook county?

Ans. I know of no other section. It is not at all practiced with us.

Ques. Have you made any inquiry as to the necessity of laying them down here,—whether they will live without it?

Ans. I have. I was talking with Mr. Dudley this fall and he was speaking of a friend of his who had quite a large number of plum trees set out, and one fall he did not lay them down and they all died. In fact, a gentleman here spoke to me about setting some trees and not laying them down and the next year they were all dead. It seems a little singular to me that they will not thrive here standing.

The first Ogon that I ever saw of any size was down in Houlton in Mr. Merritt's nursery. It was in a very exposed location, and he had not protected it a particle. The leaf buds had never killed back at all, but the fruit buds had, because he told me this fall it was a very shy bearer and that is not a characteristic of the plum. It was sent him for experimental purposes, and this is his experience with it.

THE IMPORTANCE OF BIRDS.

By LEW. M. FELCH, Ricker Classical Institute.

Birds are of more importance than people are inclined to think. In our struggle to live, we are apt to treat lightly anything which we do not find producing wealth. But there are some things that cannot be measured by dollars and cents. Among these things, the birds that contribute so much to the beauty of field and wood and make sweet music, are among our most valued treasures. What is more beautiful than a living bird? We Americans need to have our appreciation of the beautiful quickened and trained, for where we enjoy a little we may by culture enjoy much. But the birds are useful as well as beautiful, and it is of this I purpose to speak.

It is said by a good authority that more than four-fifths of the animal kingdom are insects. Over four hundred thousand species have been studied to some extent and there are at least one hundred thousand more to be catalogued. It would take a large volume to contain the full titles of the books that have been written on entomology.

The beetles and grasshoppers alone cost the United States \$100,000,000 yearly. Every tree has its insect enemies. Seventy-five species attack the apple tree. Twenty-five infest the elm. One hundred prey upon the pine. Over fifty species live upon the grains and grasses. Thirty attack the vegetable garden. More than five hundred species cut down the profits of the farmers and lumbermen every year. And there are new species constantly coming into notice. As our forests are cleared away, the natural food of some insects is taken away, and it is forced to adapt itself to new conditions. Often it thrives under the new conditions better than under the old.

While we are thus attacked by such an army we are also ignorant of the means of successfully repelling the invader. A few years ago the canker worm attacked the elms around our school, and stripped them of

every leaf. The next spring we were to quite an expense to put tarred paper around the tree to keep the worm down. But there were enough eggs above the paper to again strip the trees. Had we known that the female is without wings and taken steps to keep her down in the fall, we could have successfully combatted the few worms that wanted to go up in the spring.

We are often asked, and sometimes ask ourselves, "Why did God make the insects?" They have their uses and we could ill afford to lose them. They carry the pollen from plant to plant. Without them many plants could not produce their seed. They are our scavengers. They furnish us with honey, silk, dyes, ink, medicine, etc. But did the Creator intend that they should destroy our crops and make life miserable? No, there was to be a balance of power, and things were to be kept equal by the birds.

There is not a bird warbles his songs in our fields or woods, but is the personal friend of the farmer. These song birds are social in their habits and are found in greatest numbers near human habitations. The so-called robin is one of our best friends. It is said that if a man could consume an animal diet equivalent to that of a good healthy robin, it would take a Bologna sausage nine inches in diameter and fifteen feet long to last him one day. The robin is surely one of the most industrious of our friends. The swallows, too, are ever on the wing with open bill to take in anything which comes in their way. Yet instead of welcoming the swallow as a friend, many farmers destroy their nests and eggs.

The woodpecker, or, as some call him, sap sucker, is looked upon with disfavor by many farmers. My father gave me a gun and directed me to watch the apple trees and shoot the woodpeckers. But instead of being an injury the best orchardists tell me he is a decided benefit, hunting out the harmful insects and in many ways benefiting the tree.

I wish to speak a word in favor of the blackbird. When the canker-worms were stripping the leaves from the elms, and spinning down upon the heads of the passerby, the blackbirds came to the rescue, and valiant service did they do. We looked, but looked in vain, for the English sparrow to come to the feast. The English sparrow in its own home may be a very useful bird, but in America he is nothing but a nuisance.

The birds are decreasing in numbers, and it is high time we looked for the cause. The bobolink, once so numerous in all our fields, is seldom seen. The Baltimore oriole is a very rare visitor in the State, and the dear little bluebird is not often seen. Why is this? Bird-nesting is one cause of the decrease in the number of birds. This should be frowned upon, as there is no need of the so-called "collections," as every bird and its egg has been studied and photographed.

There are some men and boys who go tramping around the country with more powder than brains, who shoot anything that has life to see how true their guns carry. There is a practice in some parts of the State of organizing a shooting match, when a lot of men start out and shoot everything that has life. The farmer should put his foot down, hard, on

this pernicious practice, and stringent laws should be passed to punish offenders.

The ladies, too, are in a great measure responsible for the killing off of the birds. Millions of birdskins have been taken annually from some small sections of the country for ornamenting ladies' hats and bonnets. I am sure no woman who stops to think of the cruelty of this slaughter of parent birds would ever wear a birdskin upon her hat.

How shall we preserve the few that remain? By wise laws and by teaching the young the importance of birds, and the beauty of birds.

THE FOOD VALUE OF NUTS AND FRUITS.

By ANNA BARROWS, Boston.

Within a few years there has been a great deal written and said about the use of nuts as food and there is every reason to suppose that this interest will increase rather than diminish. The United States Department of Agriculture has issued a bulletin recently upon the cultivation and use of peanuts; and before long will send out another about nuts proper, for although similar in composition to the walnut, almond, etc., the peanut, or ground nut, belongs to a wholly different class of plants, the legumes.

Nuts are clean, wholesome food and afford little opportunity for adulteration. The only objection to their use for food is that, like cheese, they are over rich in nutriment, and hence indigestible unless eaten carefully. Fruits and nuts may therefore be combined to advantage, the one to dilute the other.

The early races of men undoubtedly made use of the fruits and nuts furnished by nature, even the bitter acorn served as a food. The degeneracy of the teeth of mankind in the present era has been ascribed to lack of exercise in cracking nuts.

The cocoanut palm furnishes the South Sea Islander with much food material, beside being useful to him in other ways. The fresh cocoanuts are brought to our markets at certain seasons of the year and the dried or dessicated preparations are much used in our sweetmeats. Now a preparation of the cocoanut oil is coming into competition with the animal fats.

All nuts are rich in fats and oils, which are expressed for many purposes beside use as food. Because of this richness nuts spoil easily unless carefully kept. Many varieties of nuts contain nearly fifty per cent of oil, hence are valuable as force-producing foods.

Too often, nuts are eaten after a substantial meal when they will do harm rather than good and their sustaining qualities have not been recognized. A traveler will do better often to feed upon nuts and fruit rather than the usual dishes furnished at the average railway station.

In northern New England we have not a great variety of nuts and little has yet been done to show how those we have will repay cultivation. Someone has said that as yet we have only those which grow in spite of the people. The hazel nut is sweet and well flavored and so is the beech nut; though it may seem as if either of these were too small to yield great rewards.

The oil nut or butter nut yields plentifully under adverse conditions. Combined with maple sugar it produces a confection unsurpassed by any higher priced sweetmeats and might thus be made profitable.

The walnut and pecan are abundant in some parts of our country and may be purchased at reasonable rates all shelled if desired.

The chestnut is not rich in fat like some of the other nuts and for that reason takes the place of starchy foods in the lands of southern Europe where it grows abundantly. It may be boiled and mashed like potatoes and made into croquettes or soup, or combined with eggs, cream and sugar for desserts.

The increased use of nuts and fruits as food would doubtless make the average family richer in health and the expense of such living is much less than when more meat is used.

We have not yet begun to learn the possibilities in the preservation of fruits, nor are we ready to admit that they have any real food value. We consider them as luxuries, rather than essentials on our tables. Nor have we fully grasped the important points in ordinary jelly-making and canning. Too often the housekeeper makes hard work of these processes and is not sure that the results of her labor will be successful.

Perhaps one reason that we have made so little progress in this direction is because fruits are such delicate articles and our implements have not been well adapted to dealing with them. Another difficulty lies in the variation in the substance of fruits at different stages of growth, and that this variable quality has been so little studied.

We have found in practical housekeeping that when any starchy compound is cooked for a long time it grows thinner and develops a sweet taste not present in the beginning. The pectin in fruits undergoes a similar change through the action of the sun's rays, and fruits which have not yet fully ripened may be similarly transformed by cooking.

Hence we may see that fully ripe fruit will not be the most desirable for jelly-making, but will have a syrup-like consistency after cooking. Some fruits contain so small a quantity of this principle that it is impossible to make jelly of them without the aid of gelatine.

If we are so unfortunate as to attempt to make jelly from over-ripe fruit and it refuses to become jelly, the best thing to do is to can the syrup and use it later to flavor pudding sauces, ice-creams, etc.

Nothing must be suffered to impair the delicious flavors of fruits. An accumulation of dust, mould and decayed portions, even if each be slight, cannot but affect the result. Therefore the fruit for any purpose must be carefully picked over and washed and any imperfect portions removed. Very juicy fruits, like currants, may have the juice expressed without first cooking, while others, like the crab apple, require the effect of heat.

The utensils for cooking and straining should not be of metal if the best flavors of the fruit are to be retained. Agate or granite ware kettles are preferable to the heavy iron ones lined with porcelain. Wooden spoons and linen strainers are also desirable for this work. If necessary to use metal anywhere, do it as quickly as possible. Never leave a metal spoon in a kettle of cooked fruit.

JELLY MAKING.

The fruit juice should be allowed to drip through the strainer, since pressing will bring pulp through also, which would make the jelly cloudy. A square of linen cheesecloth is a satisfactory strainer; the opposite corners may be tied together and hung over a rod placed on two supports at convenient distance from the dish beneath, into which the juice drips. Fruits having little pulp may be pressed through the linen strainer and then allowed to drip through a flannel bag. Only enough water should be used in cooking the fruit to keep it from burning, otherwise long boiling will be required after the juice is strained to evaporate the water added. If this is necessary, do it before adding the sugar.

The usual rule in making jelly from any kind of fruit is to use a pound of sugar for every pint of juice, but with a sweet fruit, or with one which is sure to jelly readily, less will be required. Only the best granulated sugar should be used. Brown sugar may do for some marmalades, but not for clear jellies. Granulated sugar is usually considered the cheapest form of sweetening; brown sugars are moister and not always pure.

Even if but a small quantity of jelly is to be made, a large kettle should be chosen rather than a small one, because it offers a greater surface for evaporation, and the quicker the jelly is made the better. Hence it is sometimes easier to prepare several small lots instead of one large quantity. Twenty minutes is the average time for boiling after the juice and sugar are put together and begin to boil, but as this depends on the condition of the fruit, and the shape of the kettle, it is safe to watch closely after ten minutes have passed. A thick white froth or scum usually appears on the surface and should be carefully removed before it is mixed with the jelly by the force of the boiling syrup. Some directions omit this caution, preferring to pass the jelly through a flannel bag again before putting in glasses, but that is unnecessary and undesirable, as it might harden and refuse to be strained.

It is not easy for a beginner to decide when the jelly is sufficiently cooked; the best tests are dependent upon close observation. A few drops on a cold surface will harden quickly if the jelly is done, or the change in texture will show on the spoon in stirring, or around the edge of the kettle. Over-cooked jelly will be of a gluey consistency, but if underdone the glasses may stand for a day in the sunlight, which will usually accomplish the desired result.

For jelly all sorts and conditions of receptacles may be utilized; goblets which cannot stand upright can be set in tin cans for support or have the base put into a block of wood, old sugar bowls, odd cups, bowls, mugs

or pitchers, all may answer as well as the most approved jelly tumblers. This, of course, is for home use. For the market half the battle lies in the attractive shape in which it is put up.

Whatever the jelly is to be kept in, should stand in scalding water for some time before filling; this may be done before the boiling of the jelly begins, and the water be changed once meantime. There are several advantages in this treatment. The dishes are then not likely to crack when the hot jelly is put in them; as they are expanded by the heat and cool with the jelly, there will be little or no vacant space between them when both are cold. This thorough scalding will destroy, also, any germs which might have been on the dish, and would afterward develop in the jelly. A dense substance like jelly is always more easily preserved than fluid preparations of fruit, since bacteria cannot so easily work upon solid materials. But they may attack its outer surface, therefore we have devised various means of protecting our jelly tumblers from the air which might bring the germs or spores of moulds and ferments.

Some people cover the surface with a layer of fine sugar, a quarter of an inch deep, and then paste a paper over the edge of the glass. Others dip paper in alcohol, for the bacteria are sensible enough not to like that very well, and press this on top the jelly, with another paper over the glass. Sterilized cotton batting may take the place of one or both layers of paper. Yet another way is to wait until the jelly has hardened and is quite cold and then pour melted paraffine on top, let one layer cool, then pour on another, and cover with paper to keep dust out. When the jelly is to be used the paraffine is easily removed and may be used over and over again.

MARMALADES.

This old-fashioned sweetmeat is seldom seen, since air-tight jars have come into general use, with the exception of orange marmalade, which is more like a jelly. In these confections we have the whole substance of the fruit, pulp as well as juice; or a part of the juice may be used for jelly and the remainder made into marmalade. A potato ricer can be used to sift the pulp, but great care must be taken when removing cores or seeds and skins or they will drop into the pulp, and a second sifting be required. When cold the cooked fruit will not sift as easily as when hot. It is often convenient to make jelly one day and sift the pulp and leave until another day before finishing the marmalade. Less sugar is required for this than for jelly, from one-half to three-fourths of a pound according to the fruit. This is such a thick, heavy mixture there is great danger that it will stick to the bottom of the kettle and burn, hence it must be stirred frequently. Here again the shallow kettle is best, for this process is especially one of evaporation. The marmalade should not be placed over too hot a fire, and an asbestos mat underneath will be a safe-guard. It may cook in this way for several hours; when done it will be considerably reduced in bulk and of a rich, dark color. The Aladdin oven is excellent for this process.

Apples, grapes, quinces, and any fruits having considerable solid substance as well as juice are best suited for marmalades. Like jellies, these will keep indefinitely if carefully put up. They may be as stiff or stiffer than jelly, or soft enough to dip with a spoon, but the latter comes more properly under the class of jams, or fruit butters.

A combination of fruits makes a delicious marmalade. Apple is perhaps the best basis and to it may be added quince, plums, or whatever fruit is at hand. In winter time several scraps of canned fruit may be put with some fresh apples and all slowly simmered till well blended into a new compound.

Solid marmalade may be cut in strips or cubes, rolled in sugar and left to dry slightly, and then will be an agreeable addition to a box of home-made candy.

PRESERVES.

The pound-for-pound preserves of our grandmothers were much like jellies or marmalades, but made of whole fruits without straining. There were no air-tight jars in those days, but long, gentle cooking evaporated much water and, with the large proportion of sugar, gave a result too rich for the micro-organisms to invade. There is no serious objection to this kind of sweetmeat, provided it is properly used. Of course, so large quantities should not be eaten as may be safe with the modern canned fruits. A little of this rich preserve is very nice to serve with light puddings, ices, or similar desserts. Even boiled rice, so often despised, will become a favorite if thus accompanied.

CANNING.

The invention of air-tight glass jars opened a new era in the preservation of fruits, but the early ones were often imperfect, and housekeepers did not at first know how to use them to the best advantage.

The best jars are those having glass covers and fastening with a spring. The screw tops are easily rendered imperfect and are hard to close and open. The less lettering there is in the glass the surer we are of keeping it clean. The rubber rings spoil quickly and none that are stretched or brittle should be used. A few new ones are usually required every year. Pint jars are more satisfactory for the average family than the larger sizes.

A grocer's tunnel is desirable for filling the jars, and a half-pint dipper with a long handle is another help. All parts of the jar should be thoroughly sterilized by the aid of boiling water; so should the tunnel and dipper, and anything else that may come in contact with the fruit.

Recipes are sometimes sold for preserving fruits by the use of salicylic acid. Though not absolutely poisonous, this is not advisable for steady diet, and is quite unnecessary if sufficient care is taken during the process.

The essential points in canning fruits may be summed up in very few words. All that is necessary is to have the fruit and everything that

comes in contact with it sterilized, and then keep the air away from it. That is, the fruit and whatever it touches must be raised to a sufficient degree of heat to destroy any micro-organisms already there that would cause a change of form, or decay. This being done care must be taken that no others are allowed to enter through the air. There is no magic about it, only constant watchfulness.

Gentle cooking, long continued, rather than intense heat for a short period, seems to be most fatal to these tiny particles which might work so much ill. This method is also conducive to preserving the natural appearance of the fruit.

Some sugar is generally used in canning fruits, as then they are ready for table use. The quantity will, of course, vary with the amount of acid the different varieties contain. A half pound of sugar to a pound of fruit is a fair average, but some kinds do not need as much. The amount of water to be added will also vary, as some fruits are juicy enough to cook themselves. We gain nothing by canning water, it simply fills up our jars; better add a little to the fruit when the can is opened, as then the gases it contains will help to aerate and freshen the fruit. If, however, we have not quite enough to fill our jars we need not hesitate to add a spoonful or two more water.

Many housekeepers find it easier to can fruits in small lots than to devote whole days to the task. With a gas or kerosene stove a kettle of fruit is quickly heated and kept at the proper temperature, and a few jars may be attended to easily while other work is in progress without really taking much extra time. It is surprising to see how rapidly the shelves may be filled with jars by this method.

Few families have yet discovered what delicious compounds may be made by blending different fruits. Here is a field for future study.

RECIPES.

SAVORY CHESTNUTS—Scald one pint of shelled chestnuts and remove the brown skin. Boil for half an hour or until tender. Let the water evaporate or drain it off and chop or mash the nuts. Add one tablespoonful of butter, a few drops of onion juice and season with salt and pepper. Serve hot with meats in place of potatoes or rice.

CRANBERRY SAUCE—Use half as much sugar as cranberries and half as much water as sugar. Sprinkle the sugar over the berries in an earthen or granite kettle, pour in the water on one side. Cover until the sugar is dissolved and the syrup begins to boil. Then remove cover and press the berries into the syrup until all are broken. Then pour into moulds and it will be of a jelly-like consistency when cold.

CRANBERRIES WITH RAISINS—Use two parts cranberries to one part raisins, seedless or seeded. Cover the raisins with water and cook until

nearly tender. Then add the cranberries and cook till the latter burst, then add a small quantity of sugar according to the sweetness of the raisins.

FRUIT FARINA—Into one pint of salted boiling water, sprinkle three tablespoonfuls of farina and cook for thirty minutes. When partly done add a small glass of apple, currant or cranberry jelly and mix smoothly. Pour into moulds and serve when cold with sugar and cream. Juice of fresh fruit can be used in place of water or instead of using jelly.

APPLE SPONGE—Cook three medium sized apples with the skins on, by baking, steaming or stewing. Sift the pulp, which should be as dry as possible, removing the skins. There will be about one cupful of the sifted pulp. While the pulp is hot, dissolve in it a level teaspoonful of granulated gelatine previously soaked in one-fourth cupful of cold water. Then add from one-fourth to one-half cupful of sugar according to the sourness of the apples, and a speck of salt. Beat the whites of three eggs until stiff and gradually beat into the apple mixture after it begins to stiffen. Put in moulds and when firm serve with a soft custard made with the yolks of the eggs.

ALMOND CUSTARD—Scald one pint of milk and add to it one-fourth cupful almond paste. When that is softened add the beaten yolks of three eggs. Cook for two or three minutes till it thickens and add two table-spoonfuls of sugar. Cool quickly, add a bit of salt and a few drops of almond extract if desired.

SECRETARY'S PORTFOLIO.

Original and Selected Articles, having reference more or less to
Fruits and Fruit Growers in Maine.

SECRETARY'S PORTFOLIO.

EPHRAIM W. BULL.

On the face of the hillside in old Concord stands the home of one whose name in recent years has often been grouped with the work of fruit growing in this country. There is nothing special to attract one in the appearance of the house, but a few years since as the writer was riding past with a friend, "There," said he, "is the home of the man who originated the Concord grape, and made known its value to the world." So it was, for here he lived many years and quietly did the great work which seemed to be allotted to him. Just how it came about it does not matter now, but somehow others won the profits that flowed to the introducer of the Concord grape, and to Mr. E. W. Bull, who raised the variety from seeds of his planting was given the fame alone. Perhaps this would seem of slight account had not Mr. Bull lived to an age when he actually needed the income his labors deserved. But in the struggle for wealth merit is often slighted. Perhaps in the unknown future such wrongs may be righted, if it is ever possible to make a wrong right. It is not for us to pass judgment, for in the great scheme of the Creator there are many things that finite creatures are entirely unable to explain, and it may be well that it is so. Mr. Bull was born in Boston in 1806 in a house on Washington street. A large garden surrounded the house, and it was here he began to study those things for which he afterwards became famous. By trade he became a gold beater, but he had very little heart in such an occupation, and about sixty years ago he removed to Concord, where he passed the remainder of his life. As the infirmities of life began to weigh upon him, in appreciation of his great service to horticulture, many were pleased to send him aid to make him comfortable in his old age. It was a pleasure to aid him, and the gifts were received with profound gratitude. His poverty was so great that it seemed best for him to enter a charitable institution, and here his last days were spent in peace and happiness.

A gentleman who was well acquainted with him writes this beautiful tribute to his memory:

"A beautiful old man has left his home in Concord, exchanging it, as we must think, for a better. A short time ago he met our deputy and replying pleasantly to congratulations upon his health, said: 'I have my

work to do, and no one else can do it for me; I take good care of myself, so that I can stay and do it.'

'There is something very childlike, and at the same time beautifully Christian, about these words. Here was a man who had survived his generation by a great way, living a long while already upon borrowed time, and yet happy to think that the Lord might have more for him to do, and carefully husbanding his slender resources of vitality that he might have the pleasure of doing whatever more the Lord might have still remaining.

'One of the sweetest old people, we take it, in the town of Concord, for a long time was Mr. Bull. When it seemed as though he might be lonesome, and regretful, and anxious, none of these things moved him. His lot seemed to him beautiful, because he saw the beautiful that was in it. And so he moved among us a preacher of Christian faith, and revealing to us many of the sweetest things of life; a benefactor of the public; an invaluable citizen, an example to multitudes of us that are treading sometimes a weary way.

'Mr. Bull was the originator of the Concord grape. How much he has added in that capacity to the sum total of human welfare could not easily be told. Neither can we estimate how much he has added to the fair fame of the old town of which he was so proud.'

S. R. SWEETSER.

We were pained to learn in the winter following our 1894 exhibition, of the serious illness of Mr. S. R. Sweetser, at his home in Cumberland Center. Although he had been in poor health for many years, this sickness proved to be his last. For many months loving friends watched by his bedside, ministered to his wants and cheered him by the tenderest words of love as the journey of life drew near its close. On the 10th of December, 1895, he passed away.

Mr. Sweetser was born in Cumberland, April 19, 1817. In accordance with the custom of that time, when a boy he was apprenticed to learn the shoemaker's trade, and for several years after he followed the trade. He also engaged in brickmaking a number of years. In 1849 he married Mary J. Pettie, and settled on the homestead, where he lived during the remainder of his life. There were born to them three children, two sons and a daughter. His wife died in 1879 and the daughter in 1890.

Mr. Fred R. Sweetser, one of his sons, has kindly furnished the Secretary with these data, and in his letter he adds:

'From my earliest recollection he was very much interested in fruit growing. He and his brother were the first to introduce several of the standard varieties of apples in this section. They procured scions of the same and grafted them on seedlings of their own growing.

“He became a life member of the State Pomological Society in its infancy, and one of his greatest pleasures was to attend their meetings.

“I think that he was well posted on apples, both as regards fruit and trees. His opinion was regarded as good authority. He frequently spoke to me of his friends in the Pomological Society which I think he loved next his own family.

“Although a man in poor health, he was always happy when working among his trees, or talking on this, his favorite subject, and he never lost his interest in it.”

“The members of the Pomological Society held Mr. Sweetser in high esteem, and always found him a very genial companion, and just as eager to learn as to impart information to others. He was familiar with the best methods of culture and a careful student of the pests that affected his fruits. We think he was the first fruit grower in the State who made a study of the *trypeta pomonella*. He was most helpful to Professor Harvey in his study of this troublesome insect. He was a ready speaker and often joined in the discussions at our meetings. We shall always have the pleasantest recollection of Mr. Sweetser, and unite in tendering to the bereaved family our sympathy, and this expression of our regard for his memory.

AROOSTOOK SEEDLINGS.

At the Winter Meeting held in Presque Isle there were several interesting exhibits of Aroostook seedlings. The committee to whom these were referred for examination, found two which they considered deserving of special mention. Concerning them, through the courtesy of Mr. J. W. Dudley and others, we are able to give the information that follows:

STOWE'S WINTER.

The illustrations of this apple were made from specimens furnished by Mrs. Ella F. Miller of Perham. The fruit, we understand, grew upon the original tree. Several specimens were kept by the Secretary until the last of April when they proved to be well preserved, and the quality was good. It is described as follows from the fruit examined:

Fruit medium to large. Roundish conical, greenish yellow. Many small dots, nearly white. Stem rather short, slender, inserted in a medium cavity. Calyx partly open. Basin small and rather shallow. Flesh yellowish, tender, juicy, sub-acid. Core small. February to May in Aroostook. Good.

Mr. John W. Dudley of Castle Hill, writes concerning Stowe's Winter as follows:

“It seems that in 1861 Mr. Francis Stowe and wife came from Massachusetts and moved into the town of Perham. They heard there was no fruit raised here so they brought some apple seeds with them and planted them the next year, and among them when they came to bearing was this

apple. The tree has been bearing about fifteen years. It is a vigorous grower and a good bearer, not bearing as early as some but when it comes to bearing it seems to bear a uniform crop each year of very fine specimens, keeping until June without any special care. Mr. Rufus Stowe, son of Francis Stowe, owned the farm that the original tree is on until May, 1895. At that time he sold to Mrs. Ella F. Miller, who owns it at the present time. By what I can find out about the tree by people that know it, I think it is another boom for Aroostook in the line of iron-clads, as it seems to keep later than any kinds we have so far.

"Mr. Oliver Nutting of Perham, says they are a good strong grower for top grafting; he has some on seedling trees and thinks very much of them as a grower for top grafting."

Mrs. Ella F. Miller, upon whose farm the fruit originated, kindly sent some fine specimens and in regard to the apple writes:

"Have lived on the place only since April last (1895). The seed from which the tree grown was taken from an apple raised in Massachusetts. Do not know the variety. Think it perfectly hardy. The top was broken off some years ago (do not know when), a yoke of oxen, with cart attached, ran over it. The limbs have made a good growth, are good shaped and bark is bright. Do not know the largest amount of fruit raised any one year.

I am very glad the fruit made a favorable impression on your committee. It is called a very fine apple by all who eat it. A few scions have been taken from the tree by Mr. Oliver Nutting and set in seedlings, have just commenced to bear. He raised about two bushels of them the past season. I saw and talked with him quite lately about the apple and he expressed himself as well pleased with it and quite sure, he said, it grew well grafted on other stock."

Mr. Rufus F. Stowe, who formerly owned the farm on which this apple grows, writes from Presque Isle:

"The seed was brought from Massachusetts sometime in the sixties, cannot state the exact time; the tree was set out in 1875. My father, Francis Stowe, moved from Marlboro, Mass., in 1861, and took up a State lot in what is now Perham plantation. He died January 5, 1894. I wrote to O. Y. Nutting of Perham, asking him about the seedling he grafted from the tree several years ago. He has some of the scions in large crab stock, also a few small trees whole root grafted. He writes that when he first grafted he thought it was going to be tender, but it has proved very hardy, a good grower and holds the fruit well, but must have some age before it will bear heavy. Will keep longer than anything excepting the Ben Davis and near even with that. The apple has had quite a local reputation for a number of years past, and has always borne the name Stowe's Winter."

HUBBARD SEEDLING.

This is reported as a seedling of Duchess of Oldenburg, bearing seven or eight years from seed. The tree is very hardy, standing the Aroostook winters without killing a bud. The tree is a vigorous grower. The specimens were a little past maturity and had been roughly handled, so no description is offered.

THE JAPAN PLUMS.

Mr. S. D. Willard, who was present a few years since at one of our winter meetings, recently gave some important information which we condense from the "Proceedings of the New Jersey Horticultural Society."

He received the first assignment from San Francisco, which was called the Botan, a name designating a general family of Japan plums. One of this lot was quite different from the rest in its habits of growth, fruit, color, wood, and everything else. This plum was afterwards named the Willard. It is the earliest of the Japan plums that have fruited in this country thus far. You can pick it when it is green and put it in the house, and it will turn a very nice purple. It sells well in the market because it is an early plum. It is smaller than the Burbank or Abundance. The Early June ripens about the same period. The trouble with most all Japan plums is, they set too large a body of fruit and require thinning. The Abundance comes later and the True Sweet Botan, which Mr. Willard pronounces the best of the Japan plums. Says it is more reliable than the Abundance at Geneva, and ripens about the same time or a little later.

The True Sweet Botan is now generally known as the Breckmans. There is one trouble with the fruiting of these trees, they sometimes bloom so early as to be caught by spring frost. The Burbank blooms later, and for this reason is one of the most reliable and for all purposes up to the present time it seems to be the best. As to productiveness, it is wonderful. It originated in this country in Mr. Burbank's experimental grounds, where he has done a great work in originating new varieties of fruits. He deserves to be regarded as a public benefactor.

Mr. J. H. Hale at the same meeting said of the Japan plums that they will admit of picking when in fair maturity of growth and then not sent to market for about two weeks, and then come out in good salable condition. In other words they may be picked and held for a long time and then be of good quality. The Burbank is the best of these plums so far. The Red June and Red Nagate do not take in the market, as they are small and early.

Prof. Samuel B. Green, Horticulturist of the University of Minnesota Experiment Station, writes the Secretary: "We are experimenting with Japan plums but do not expect as much from them as from our improved native sorts."

Several growers have exhibited specimens of Japan plums, Abundance and Burbank, at our exhibitions. The fruit is so attractive in its appearance and so much has been said about them that more or less have set the trees. So far we have only favorable reports from growers. As yet, however, it is hardly safe to plant largely, unless one is willing to regard such action as experimental. They certainly deserve a thorough trial in Maine.

JOSSelyn BOTANICAL SOCIETY OF MAINE.

During the spring of 1895, a number of people actively identified with the study of Maine plants thought it would be highly advantageous, if they, and other persons of similar interests, could come together and, by an exchange of thoughts and methods of work, place upon a more definite footing this branch of scientific study in Maine. This suggestion was first made by Mrs. H. K. Morrell of Gardiner, and very soon the matter was taken actively in hand by the present Secretary, and a circular, signed by a number of representative persons, was issued calling a convention of Maine botanists at Portland, from July 12 to 16, 1895.

The meeting opened on the morning of July twelve at the rooms of the Portland Society of Natural History. In the absence of the distinguished President, Dr. William Wood, the Vice President, Mr. Joseph P. Thompson called the meeting to order and extended to the convention a cordial welcome to the rooms of the Natural History Society. Prof. A. L. Lane of the Coburn Classical Institute, Waterville, was made chairman of the convention, and Mrs. Mary E. Taylor of Portland, Secretary. A committee of arrangements was appointed, consisting of Merritt Lyndon Fernald, Joseph P. Thompson, Mrs. Helen Coffin Beedy, Miss Kate Furbish and Miss Ellen M. Cram.

The preliminary business being settled, Mr. Frank S. Collins of Malden, Mass., gave a very instructive and practical talk upon the study of marine algae or "sea mosses," illustrating his remarks with many carefully prepared specimens. Mr. Collins was followed by Miss Kate Furbish who had brought with her from Poland Springs a number of the rarer and more interesting plants of that vicinity. Her talk was informal and many of those present took active part in the discussion of the plants exhibited.

In the afternoon the party went to Fort Preble where they were very kindly received by the commanding officer, Lieut. E. E. Gayle. Under the direction of Mr. Collins, the sea shore about the fort was carefully examined and many algae detected, these specimens proving valuable material for still further practical remarks and directions.

The second day's session, Saturday, opened with a very suggestive paper by Mrs. Mary E. Taylor on the teaching of botany in the schools. The paper contained many valuable hints, and the discussion which followed showed a lively interest in the important question. The last of the forenoon was taken up by Mr. Fernald in a talk upon the geographical distri-

bution of Maine plants. Mr. Fernald, in his remarks, and by means of a specially prepared map, pointed out the limits of various groups of plants which creep up into the State from the South, or down from the North. He also emphasized the importance to agriculture of determining the exact geographical limits of the peculiar flora found in the Aroostook valley.

ORGANIZATION.

In the afternoon a permanent organization was formed, with the following officers:

Honorary President: William Wood, M. D., Portland.

President: Prof. A. L. Laue, Waterville.

Vice Presidents: Prof. Leslie A. Lee, Brunswick; Miss Kate Furbish, Brunswick; Mrs. Helen Coffin Beedy, 11 Mellen St., Portland; Miss Mary A. Clark, Ellsworth; Mr. Edward L. Rand, 53 State St., Boston, Mass.

Secretary: Merritt Lyndon Fernald, 41 Langdon St., Cambridge, Mass.

Assistant Secretary: Mrs. Mary E. Taylor, Portland.

Treasurer: Miss Ellen M. Cram, Portland.

Committee on Plant Distribution: M. L. Fernald, Cambridge, Mass.; Miss Kate Furbish, Brunswick; Miss Lillias Graves, Presque Isle; Mrs. C. W. Keyes, Farmington; Clarence H. Knowlton, Farmington.

Committee on Plant-Lore: Mrs. H. K. Morrell, Gardiner; Mrs. Helen Coffin Beedy, Portland; H. K. Morrell, Gardiner; J. P. Thompson, 145 Park St., Portland; Miss Isabell S. Allen, 1038 Congress St., Portland.

Committee on Bryophytes: J. Franklin Collins, Brown University, Providence, R. I.; Miss Mary A. Clark, Ellsworth; John Inglee Phinney, Machias; Edward L. Rand, Boston, Mass.; Prof. W. S. Bayley, Waterville.

Committee on Algae: Frank S. Collins, Malden, Mass.; Prof. F. L. Harvey, Orono; Miss E. A. Winslow, Westbrook.

Committee on Fungi and Lichens: Prof. F. L. Harvey, Orono; John K. Parks, Portland; Miss Clara E. Cummings, Wellesley, Mass.

The direction of the work of the society is in the hands of an executive committee, which consists of the officers and the chairmen of the various committees.

The name decided upon for the society was the Josselyn Botanical Society of Maine. Thus the society hopes to make better known to the people of the State the name of the first man who made any detailed study of the plants of Maine. John Josselyn spent a portion of the seventeenth century at Black Point, Scarborough, where, as he says, he made it his "business to discover, all along, the natural, physical, and chyrurgical rarities of this new found world." Most of his observations were published in London, in 1672, in his famous book, "New England's Rarities Discovered: in Birds, Beasts, Fishes, Serpents and Plants of that Country."

At this business meeting it was also decided that all persons, who should pay to the treasurer, before the next regular meeting, the sum of

twenty-five cents, should be considered charter members. Most of the members returned home Saturday evening, but a small and enthusiastic party waited until Monday and enjoyed a day's botanizing in the region of Blackstrap in Falmouth. Altogether the meetings at Portland were highly successful and encouraging, about one hundred people attending the different sessions.

PROVISIONAL CONSTITUTION.

The Executive Committee of the Society held a meeting at Bowdoin College, Brunswick, December 31, 1895, and drew up a constitution for consideration at the next meeting of the society. The time and place of meeting, as well as the final programme, was left with the President and Secretary. The following provisional constitution has been made as simple and direct as possible, and it will doubtless be adopted with only slight changes:

ARTICLE I.

Name and Object. The name of this Organization shall be the Josselyn Botanical Society of Maine; and its object shall be to promote the study of the Flora of the State.

ARTICLE II.

Officers. The officers shall be a President, five Vice-Presidents, a Secretary, an Assistant Secretary and a Treasurer; and their duties shall be those usually performed by such officers. They shall be elected annually, and shall hold office until others are elected in their place.

ARTICLE III.

Membership and Fees. Any person interested in botany shall become a member by vote of the Society, and by payment of the necessary fee. The initiation fee shall be one dollar. For the first year of membership there shall be no assessment, but after that there shall be an annual fee of fifty cents.

ARTICLE IV.

Committees. Such Committees shall be appointed as the work of the Society shall make necessary. The Executive Committee shall be composed of the officers of the Society and the Chairmen of the various committees; and those present at any regularly called meeting shall have power to transact the business of the committee.

ARTICLE V.

Meetings. The Society shall hold an annual meeting. Special meetings shall be called at the discretion of the Executive Committee.

ARTICLE VI.

Amendments. This Constitution may be amended at any meeting of the Society by vote of two-thirds of the members present.

Seventy-two charter members were reported at the time of the adoption of the constitution.

It was decided to hold the next meeting at Farmington, July 7-10, 1896, and an entertaining programme was arranged for the meeting. The Maine Central R. R. and the Stoddard House granted special rates to all members of the Society. By this recognition, as well as by the hearty reception promised by the people of Farmington, the Society feels that its efforts are already being appreciated in the State.

METHODS OF WORK.

The object of the society is primarily to stimulate an interest in the study of botany in Maine. The methods employed in doing this will be of two kinds. First, by holding annual public meetings where the members may become personally acquainted and may discuss the problems suggested by their work; and where they may hear and meet specialists upon various subjects of importance to the professional botanist, the teacher and the agriculturist. A number of specialists upon branches of pure and applied science, are natives of Maine, or spend their summers within her borders, and many of them have given assurance of their interest and willingness to co-operate in this work. Still others will be ready at small expense to the society to attend the meetings and give the members the advantage of their advice. The extent to which the society may receive the assistance of these specialists must depend entirely upon the encouragement and support of the people of the State, and very soon the society hopes to show that it deserves both the intellectual and material support of the progressive people of Maine.

The second method by which good will be accomplished is through working committees. The State of Maine has been peculiarly slow in recognizing the value of careful scientific exploration. While many other states have supported scientific institutions and surveys, the State of Maine has recently given only the slightest possible recognition to such work, and that only to the branches which have an immediate and material influence upon agricultural pursuits. The work undertaken by the committees of this society will be at least an effort to bring the State of Maine up from a position of absolute indifference to the value of scientific work to a level where others may see that there is at least a living interest in science within her borders.

The work of the Committee on Plant Distribution is of direct importance to the agricultural interests of the State. The aim is to bring together all authentic information and material which shall show the ranges within the State of the native and introduced plants. Aside from specimens of the plants of each region the committee is attempting to secure accurate records of the climate and soils of each locality. Already sufficient information has been collected to show that the limits of the rich belt, of which "the Aroostook" forms a part, can be readily described by a knowledge of the plants of the region. That such scien-

tific work as this is of the highest economic value should be readily apparent to all who desire agriculture and material progress in the State. The record of introduction and distribution of weeds and their progress through the State is another eminently practical feature of the work undertaken by this committee.

The Committee on Plant-Lore is bringing together all information about plants as known among unbotanical people. All popular ideas, superstitions, and traditions, current among Maine people, concerning the plants about them, and all popular names are collected and carefully preserved. Of a still more practical nature is the collection by this committee of information concerning the uses of our native plants, either as foods or medicines. Such information is highly interesting and much of it may be of considerable economic importance.

The Committees on Bryophytes (mosses), Algæ, Fungi and Lichens have undertaken the study in Maine of low groups of plants which have been almost entirely neglected in the past. The committees contain a number of recognized authorities on these groups and there is promise that much valuable work will be accomplished under their direction.

The committees will all gladly welcome any information or suggestions from persons interested in Maine plants. And as soon as the society becomes well established, and its work is well in hand, the people of the State may expect to see the results of these investigations put into permanent and intelligible form.

WORLD'S COLUMBIAN FAIR AWARD.

About the middle of May, 1896, the secretary received the awards for the World's Columbian Commission. They consisted of an engraved diploma and a bronze medal. The diploma reads as follows:

THE UNITED STATES OF AMERICA.

By act of their Congress have authorized the World's Columbian Commission at the International Exhibition held in the city of Chicago, state of Illinois, in the year 1893, to decree a medal for specific merit which is set forth below over the name of an individual judge acting as an examiner, upon the finding of a Board of International Judges, to State of Maine, Augusta. Exhibit, collection of apples.

AWARD—For a collection of highly meritorious apples, contributed by eighteen growers of the State. The fruit is of good size and color and is free from blemishes. The nomenclature is very correct.

B. Starratt, President Department Committee; B. Starratt, Individual Judge; Geo. R. Davis, Director General; John Boyd Hacker, Chairman Executive Committee of Awards; T. W. Palmer, President World's Columbian Commission; Jno. T. Dickinson, Secretary World's Columbian Commission.

The Bronze Medal is in relief and on one side shows the landing of Columbus. On the reverse the following words: "World's Columbian Exhibition, in commemoration of the four hundredth anniversary of the landing of Columbus, 1492-1893. To Maine Pomological Society." The medal is mounted in plush and contained in an aluminum case.

Shortly after Secretary McKeen of the State Board of Agriculture received another diploma and medal.

The Diplomas and Medals will be on exhibition at the Society's fairs, after which one will be hung in the rooms of Board of Agriculture in the State House, the other will be subject to the order of the Society.



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