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TRANSACTIONS
MAINE STATE POMOLOGICAL SOCIETY

1902.

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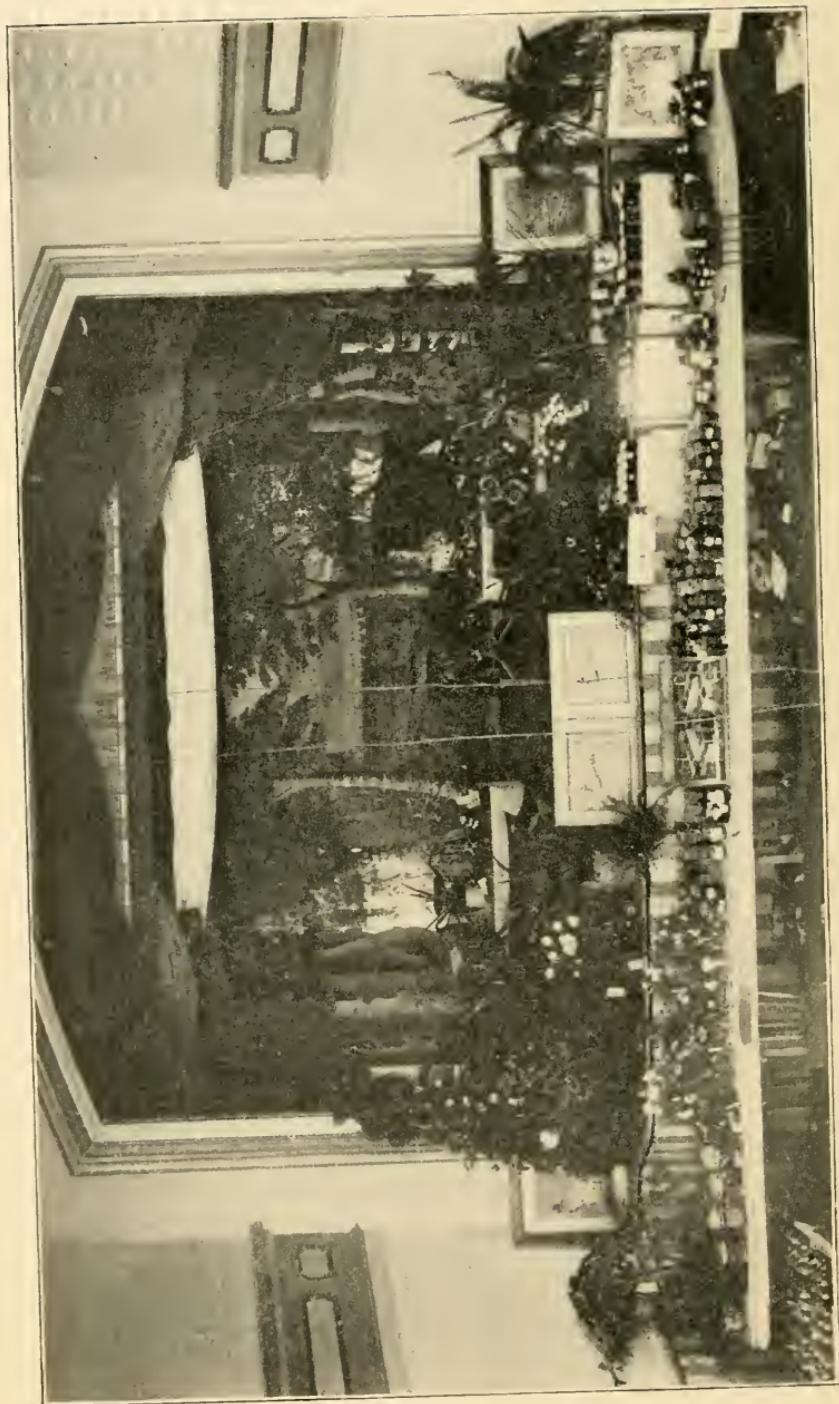


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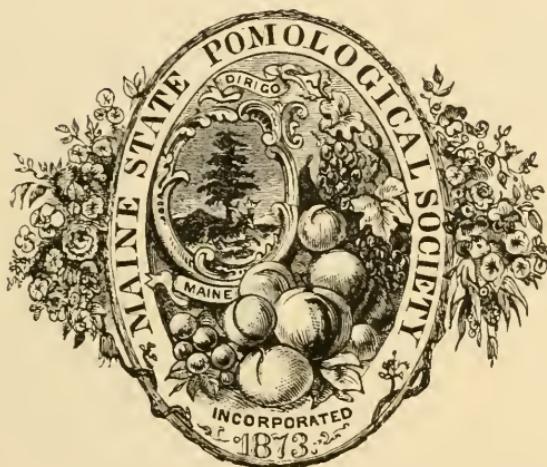
Annual Exhibition at Farmington, November, 1902. Showing stage with plant decorations.

TRANSACTIONS

OF THE

Maine State Pomological Society

FOR THE YEAR 1902.



EDITED BY THE SECRETARY,

D. H. KNOWLTON.

AUGUSTA
PRESS OF THE KENNEBEC JOURNAL
1903

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CHARGE

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SECRETARY'S ANNUAL REPORT.

There are many things in fruit growing that none of us can explain. One of these was the phenomenal crop of 1901—phenomenal in this respect: that there were few orchards where all the trees bore fruit, while parts of orchards and localities bore very little fruit. Some one describing the crop said it was "patchy." This year some of the same conditions prevail, and while there are no localities in Maine with a full crop, there are not many where there are above 50 per cent. This year like last the spring was cold, wet and late. The bloom was not a very full one, and the bee men say it was too cold for the bees to work among the flowers, while others think the rain may have prevented polination.

Fortunately, perhaps, the blossoms and foliage came late, so that nowhere in the State does it appear that the apple trees were injured by the freeze on the nights of May 9 and 10. The cool weather of the season appears to have been favorable for the growth of the trees and size of fruit: at the same time it made the maturity of the fruit quite a couple of weeks later than in ordinary years. As illustrative of this the Ben Davis was small and "unwilling" to be plucked from the tree, and it would seem in consequence that this variety would compare more unfavorably than usual with those grown further south.

There have not been so many insects to prey upon the foliage as usual, and the frequent rains in some cases interfered with spraying. It is further noticeable that the orchards that have been best cultivated in years past have been the most fruitful this year; a fact that confirms what our society has taught for the thirty years of its existence.

Our people are indebted to the agricultural papers as well as the Pomological Society for the prices at which apples sold early

in the season. The reports sent out by the buyers seemed misleading as to the quantity of fruit in the country, but later it developed that the crop in other states was even larger than the earlier reports indicated. The earlier prices received were from \$1.25 to \$2.00, but the shippers claim that they all lost money, which your secretary thinks must have been more than made up to them later in the season. Many apples that were held in cellars came out badly from the effects of scab. We are not aware that this applies to sprayed fruit.

BETTER CULTURE AND MORE TREES.

The high price last year did much to encourage better culture, and all over the State reports indicate that many neglected orchards are being cared for. The trees are being pruned; hogs and sheep have been pastured to advantage among the trees; trees have been mulched; and other dressing applied, and in many cases the orchards have been plowed and some effort made in growing clover and other cover crops. The trees responding to this treatment, have made a rapid growth during this season, and at the present time make a most promising appearance.

Many trees were set last spring and many more would have been set had it been possible to obtain them. The immense demand upon the nurseries for western and southwestern planting completely exhausted many of the most desirable varieties. Perhaps this may have been some advantage in Maine, for many gave special attention to working over the natural fruit trees and those varieties that had proved to be unprofitable.

THE SMALL FRUITS.

The winter of 1901-2 was very unfavorable for strawberries, and the plants were seriously injured and many killed outright. The crop was in consequence a small one and of inferior quality, but the price was rather more than usual. Of the bush fruits the crop was better and the cool damp weather made the season much longer than usual, the blackberries lasting as late as the middle of September. It is a pleasure to note that the growing of these delicacies has largely increased in the home gardens of the State. Many such have enjoyed the satisfaction of having all the small fruits the family could eat, and for the surplus have found a cash demand.



On the way to the Horticultural School at New Gloucester. Team driven by T. M. Merrill, laden with the school from his part of the town. The building in the background is the old Shaker Meeting House, more than 100 years old, at Sabbathday Lake. Photograph by Mr. D. C. Wilson.

MEETINGS OF THE EXECUTIVE COMMITTEE.

The executive committee have held meetings as follows: at Augusta, January 23, when the work for the year was outlined and discussed; at Buckfield, March 27th, in connection with the meeting held there; at Bangor, August 20, at which our annual meeting was located and arranged for. There has been a most cordial feeling among the members and a hearty co-operation in all matters affecting the welfare of the society and the interests of Maine fruit growers. The members have cheerfully given their time, hoping thus to share largely in the developing of the industry in Maine. The fruit growers owe them a debt which I am sure will some time be paid a hundredfold.

MEETINGS HELD BY THE SOCIETY.

The spring meeting was held in Nezinscott Hall, Buckfield, March 28th, by invitation of Mr. V. P. DeCoster, who had in charge the immediate local arrangements of the meeting. Prof. F. A. Waugh of the Vermont Experiment Station was the only speaker outside of the State, and the people were delighted to meet him and hear him speak. The programme was well carried out. The exhibition of fruit was very good, and the plants contributed by the ladies of Buckfield added much to the attraction of the exhibition. Altogether the meeting was one of the best local meetings held by the society.

THE HORTICULTURAL SCHOOL.

For several years the secretary has urged the importance of teaching the children the art of fruit and flower culture. The medium through which this can best be done is the public school. Mr. John W. True of New Gloucester who has so long served the society in an official capacity invited us to hold such a school in New Gloucester, assuring us that all would be done locally to make such a meeting successful. Mr. T. M. Merrill, one of our members, is also a member of the school board, and to him and his associates we are indebted for the loan of the school children for a couple of days. The first day, May 1st, the school was held in the town hall. The children were brought in hayracks and double hitches from all parts of the town. The Shakers came

from Sabbathday Lake, their quiet and beautiful home. They brought lunch baskets and dinner pails along with them, and the jolly good time they had together will be long remembered. The second day the school was held in Centennial Hall, Upper Gloucester, and was well attended by the children. The topics presented to the children were as follows:

1. Plant life.
2. How plants are propagated.
3. Leaves, flowers, fruits.
4. Setting out plants, sowing seed, etc.
5. The study of plants on the farm.
6. Insects—friends and foes.
7. The care of the fruit for home and market.
8. How to make plants grow to produce flowers and fruit.

The children brought note books and pencils, and their little fingers were busy taking down the outlines presented by the speakers. In the instruction we were ably assisted by Fred W. Card, Professor of Horticulture in Rhode Island College of Agriculture and Mechanic Arts; Prof. W. M. Munson of the University of Maine and Mrs. V. P. DeCoster of Buckfield.

The instruction of Prof. Card who has done so much to promote nature study among children was particularly acceptable to the children and others present.

May 1st being Arbor Day President Gilbert planted a tree upon the lawn as an appropriate memorial of the first horticultural school for children; the closing exercise of which was the singing of the following Arbor Day song:

Strike deep thy rootlets down,
Spread forth thy leafy crown,
 Make fair this place,
Richly by Nature blest,
Shelter the song-bird's nest,
Shadow the traveler's rest,
 With airy grace.

Upright as truth, oh tree,
Widespread as charity,
 Rooted in love,
Though skies be blue or gray,
Reach farther day by day,
Bare boughs or leaves of May,
 Ever above.

When hands that turn the soil
Rest from life's care and toil
 Let thy leaves fall,
Russet or red and gold,
Covering the barren mold
With beauty fold on fold,
 Heaven over all.

—MARTHA J. HAWKINS.

A few days later a letter came from Sister Ada Cummings, the teacher of the Shaker school, in which she wrote of the great pleasure they had enjoyed in attending the horticultural school, and that as a fitting memorial of the event the Shakers planted three trees, and as a mark of their appreciation had named them for Prof. Card, Prof. Munson and the secretary of the Pomological Society. This expression of good will will be cherished as perhaps the most delicate compliment received during the service of your secretary.

In some form I hope that there may be each year, somewhere in the State, a horticultural school for the instruction of our boys and girls. The children enjoy this work and nothing suits them better than to learn to plant and care for fruits and flowers. The old, alas, as some of us know, cling to old ways and are slow to learn new ways. Soon the boys and girls will be men and women, and it is our sacred duty to train them in the art of horticulture and the full enjoyment of all that nature may afford.

ANNUAL MEETING.

Several invitations were received for the annual meeting, and after due consideration the executive committee accepted the invitation from the Franklin County Agricultural Society to hold the meeting in Farmington. The meeting was accordingly held in Music Hall, November 5 and 6. The officers of the society and the citizens were most cordial in their reception to the society and visitors. The programme was a popular one and the meeting was largely attended. The exhibition of fruit was one of the best ever shown in the State representing no less than 100 exhibitors. The ladies of Farmington sent in many choice plants which were very tastefully arranged about the stage, and added much to the appearance of the hall. Good opportunity was given for the examination of the fruit, and when all was over the

visitors left for their homes after a most delightful meeting. The spirit of sociability was everywhere, and when results are summed up this last annual meeting and exhibition were well nigh the best in the history of the society.

CHERRYFIELD MEETING.

A one day local meeting of the society was arranged for by Mr. D. W. Campbell of Cherryfield, and it was held November 13th. It was attended by Pres. Gilbert, Messrs. Libbey and Arnold and the secretary. The fruit growers of Washington county were glad to have us meet with them. Of this meeting the Maine Farmer said :

The meeting was well attended through the day by the growers of fruit, and by those who want to grow it, from all parts of the county, the railroad courteously granting half rates to all attending over its line, while in the evening the spacious town hall was well filled with a mixed audience interested to take part in the meeting.

A surprisingly large and creditable collection of apples and pears was drawn together, giving a better idea of what is being done in that locality in the production of fruit than could have been gained by the use of words alone. Of a considerable number of standard varieties specimens were shown that would do credit to any section of the State.

The exercises of the day were intentionally somewhat informal, being a familiar interchange of views in most part on varieties adapted to the locality and their characteristic merits. President Gilbert in opening the exercises stated that one object in view in arranging the meeting was to give the officers an opportunity to learn more of the fruit industry in that locality. He expressed himself as gratified at the progress being made and the evidence found of the success reached. In the afternoon C. A. Arnold of the executive committee read a carefully prepared paper on care and cultivation of orchards. In the evening, Secretary Knowlton filled the first half hour with an interesting illustrated lecture with the title "Here and there among the Fruit Growers." The remainder of the evening was given to an off hand talk on the important matter of "Small Fruits for the Home and the Market," by R. H. Libbey, Newport.

OTHER MATTERS.

The following pages contain much that was presented at the meetings held during the year. The papers are of unusual merit and bear directly on the interests of Maine fruit growing.

It has been a pleasure to have with us during the year the representatives of four different experiment stations: Prof. F. A. Waugh, Vermont; Prof. Fred W. Card, New Jersey; Prof. W. M. Munson, Orono, and Prof. John Craig, Ithaca, N. Y. The names are so familiar in horticultural literature it seemed like meeting old friends. It was a great disappointment to many that Prof. Corbett of the Department of Agriculture at Washington was detained by a severe cold. It has been the effort of the management of the society to bring Maine fruit growers into touch with the best horticultural teachings of the country. The papers published will give the reader some idea of what these teachings are.

D. H. KNOWLTON.

FARMINGTON, December, 1902.

OFFICERS FOR 1902.

President.

Z. A. GILBERT, North Greene.

Vice-Presidents.

D. P. TRUE, Leeds Center,
H. L. LELAND, East Sangerville.

Secretary.

D. H. KNOWLTON, Farmington.

Treasurer.

CHARLES S. POPE, Manchester.

Executive Committee.

President and secretary, *c.x-officio*, R. H. Libbey, Newport;
V. P. DeCoster, Buckfield; C. A. Arnold, Arnold.

Trustees.

Androscoggin county, A. C. Day, South Turner.
Aroostook county, John W. Dudley, Mapleton.
Franklin county, E. F. Purington, Farmington.
Cumberland county, John W. True, New Gloucester.
Hancock county, E. W. Wooster, Hancock.
Kennebec county, E. A. Lapham, Pittston.
Knox county, Alonzo Butler, Union.
Lincoln county, H. J. A. Simmons, Waldoboro.
Oxford county, Lemuel Gurney, Hebron.
Penobscot county, A. A. Eastman, Dexter.
Piscataquis county, W. E. Leland, Sangerville.
Sagadahoc county, A. P. Ring, Richmond Corner.
Somerset county, F. E. Emery, Skowhegan.
Waldo county, Fred Atwood, Winterport.
Washington county, D. W. Campbell, Cherryfield.
York county, C. A. Hooper, Eliot.

Member of Experiment Station Council.

CHARLES S. POPE, Manchester.

MEMBERS OF THE SOCIETY.

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

LIFE MEMBERS.

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

LIFE MEMBERS—CONCLUDED.

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

ANNUAL MEMBERS, 1900.

Bradbury, J. W.	Norway	Noble, Mrs. Frank G.	Norway
Bryant, Mrs. E. F.	Buckfield	Richards, Mrs. A. L.	New Gloucester
Carsley, Mrs. A. S.	New Gloucester	Ricker, J. W.	East Auburn
Chadbourne, Mrs. J. A.	North Bridgton	Roberts, J. A.	Norway
Chandler, Mrs. A. C.	New Gloucester	Rollins, F. H.	Farmington Falls
Cox, O. N.	North Norway	Sweetser, S. F.	New Gloucester
Day, A. C.	South Turner	Tarr, Edward.	Mapleton
DeCoster, Mrs. V. P.	Buckfield	Toothaker, L. P.	Simpson's Corner
Dudley, John W.	Mapleton	Tucker, Benj.	Norway
Edwards, S. D.	Oxford	Tucker, Herbert M.	South Paris
Marsb, Mrs. W. S.	Intervale	Upton, Mrs. O. B.	Norway
McAllister, Z.	Lovell	Wooster, E. W.	Hancock
Merchant, S. L.	Winthrop		

ANNUAL MEMBERS, 1901.

Austin, Alfred.	Parkman	Leland, H. L.	East Sangerville
Austin, Chas.	South Berwick	Leland, Will E.	Sangerville
Beal, Mrs. Altana.	North Fairfield	Libbey, R. H.	Newport
Clark, Chas. H.	Wells Branch	Libbey, Mrs. R. H.	Newport
Copeland, Llewellyn.	Dexter	Litchfield, L. K.	Winthrop
Davis, Fred.	Newport	Mathers, Mrs. A. C.	Rockland
Day, A. C.	South Turner	Merchant, S. L.	Winthrop
DeCoster, V. P.	Buckfield	Munson, W. M.	Orono
DeCoster, Mrs. V. P.	Buckfield	Nowell, F. E.	Fairfield
Dudley, John W.	Mapleton	Phillips, W. H.	Hancock Point
Dunn, A. L.	Buckfield	Plummer, Stanley.	Dexter
Eastman, A. A.	Dexter	Roberts, M. W.	Brooks
Edwards, R. G.	Brooks	Robinson, O. M.	Dexter
Emery, Frank E.	Laramie, Wyoming	Rowe, W. C.	Brooks
Fogg, Alvan H.	Rockland	Spear, Mrs. Carus T.	Rockland
Greenleaf, A. C.	Farmington	Stoddard, Mrs. Alma S.	Farmington
Haines, J. W.	Dexter	Titecomb, B. M.	Farmington
Hall, Chas. G.	Cedar Grove	Waterman, L. C.	Buckfield
Hayden, Chas. H.	Dexter	Whittier, Phineas.	Farmington Falls
Johnson, C. F.	Dexter	Wooster, E. W.	Hancock
Jose, S. O.	Dexter		

* Deceased.

ANNUAL MEMBERS, 1902.

Adams, J. W.....	East Wilton	Lincoln, E. L	Wayne
Alden, R.....	Winthrop	Mayo, E. R.	Manchester
Allen, E. F....	Columbia Falls	McAllister, Zachens	Lovell
Anstin, Mrs. A. F.....	Farmington	McCleery, Robert.....	Farmington
Bradley, Mrs. Myrtle E	Vienna	Merchant, S. L.....	Winthrop
Brown, Mrs. C. O.....	East Wilton	Niles, S. H	North Jay
Campbell, David.....	Cherryfield	Odell, Mrs. A. J.....	Farmington
Campbell, D. W	Cherryfield	Pnmmier, H. A.....	Addison
Clark, Chas. H.....	West Branch	Pnrington, Mrs. E. F.....	Farmington
Conant, S. E	Buckfield	Ricker, H. C.....	Buckfield
Day, A. C.....	Sonth Turner	Robinson, O. M.....	Dexter
DeCoster, V. P.....	Buckfield	Rodbird, W. W.....	Dryden
DeCoster, Mrs. V. P	Buckfield	Sampson, R. S.....	Farmington
Dndley, John W.....	Mapleton	Simmons, Mrs. J. V.....	Farmington
Dummer, Chas. G.....	Weld	Small, E. C.....	Cherryfield
Eastman, A. A.....	Dexter	Stetson, C. S. ....	..Abbot
Field, George W.....	North Vienna	Stewart, Mrs. A. M.	Farmington
Furbush, Mrs. E. F.....	East Wilton	Stewart, John	Cherryfield
Gould, E. W.....	Bean's Corner	Tarr, Edward.....	Mapleton
Greenleaf, A. C.....	Farmington	Titcomb, B. M.....	Farmington
Greenwood, Emilie.....	Farmington	Toothaker, L. P.....	Simpson's Corner
Hall, Chas. G.....	Cedar Grove	Tucker, Benj.....	North Norway
Hiscock, Mrs. W. L.....	Farmington	Tufts, Laforest	Farmington
Holley, W. B.....	Farmington	Von Herff, B ...93 Nassau St., New York	
Jenkins, Mrs. Elmira	Temple	White, Edward L	Bowdoinham
Jennings, Mrs. R. B.	Farmington	Whittier, Phineas.	Farmington Falls
Jewell, H. D.....	Farmington	Wilbur, Georgine	Phillips
Jordan Ira.....	Milbridge	Willey, A. B.....	Cherryfield
Leland, Will E.....	East Sangerville	Wiswell, M. H.....	East Machias
Libbey, R. H.....	Newport	Withington, Mrs. Chas.....	Buckfield
Libbey, Mrs. R. II.....	Newport		

TREASURER'S REPORT.

	DR.
Received from Treasurer of 1901.....	\$121 24
Jan. 2. To interest on stock, Farmington National Bank.....	16 00
15. sale of stock, Farmington Water Company	150 00
received of Chas. Clark, Wells Branch, membership fee.....	1 00
Apr. 1. balance on sale of stock, Farmington Water Company	23 33
interest on stock, Merchants' National Bank, Gardiner.....	3 00
6. F. A. Waugh, Burlington, Vt., membership fee	10 00
V. P. DeCoster, membership fee.....	1 00
E. L. Lincoln, Wayne, membership fee.	1 00
H. C. Ricker, Buckfield, membership fee	1 00
S. E. Conant, Buckfield, membership fee	1 00
Mrs. Chas. Withington, Buckfield, membership fee	1 00
15. E. L. Lincoln, Wayne, membership fee.....	10 00
July 2. Interest on stock, Farmington National Bank	10 00
State stipend	1,000 00
Oct. 1. interest on stock, Merchants' National Bank, Gardiner	3 00
Nov. 4. Benj. Tucker, North Norway	1 00
H. W. Jewell, Farmington.....	1 00
Phineas Whittier, Farmington Falls	1 00
R. S. Sampson, Farmington.....	1 00
C. S. Stetson, Alton.....	1 00
C. G. Dummer, Weld.....	1 00
R. Alden, Winthrop.....	1 00
Edward L. White, Bowdoinham.....	1 00
F. H. Rollins, Farmington Falls	1 00
A. A. Eastman, Dexter	1 00
W. B. Holley, Farmington.	1 00
Mrs. Myrtle E. Bradley, Vienna.	1 00
R. H. Libbey, Newport	1 00
Mrs. R. H. Libbey, Newport.....	1 00
sale of fruit at Farmington meeting	7 75
G. M. Twlchell, Augusta, membership fee.....	10 00
29. E. C. Small, Cherryfield, membership fee	1 00
David Campbell, 2d, Cherryfield, membership fee.....	1 00
D. W. Campbell, Cherryfield, membership fee.	1 00
A. B. Willey, Cherryfield, membership fee.....	1 00
John Stewart, Columbia, membership fee.....	1 00
H. A. Plummer, Addison, membership fee.....	1 00
M. H. Wiswell, East Machias, membership fee	1 00
E. F. Allen, Columbia Falls, membership fee	1 00
J. W. Adams, Wilton, membership fee.....	1 00
Mrs. A. F. Austin, Farmington, membership fee	1 00
Mrs. C. O. Brown, East Wilton, membership fee	1 00
A. C. Day, South Turner, membership fee.....	1 00
J. W. Dudley, Presque Isle, membership fee.....	1 00
Geo. W. Field, North Vienna, membership fee.	1 00
Mrs. E. F. Furbush, East Wilton, membership fee.	1 00

Nov. 29. To E. W. Gould, Bean, membership fee ..	.....	.....	\$1 00
A. C. Greenleaf, Farmington, membership fee. ....	.....	.....	1 00
Emelle Greenwood, Farmington, membership fee.....	.....	.....	1 00
Chas. G. Hall, Cedar Grove, membership fee.....	.....	.....	1 00
Mrs. W. L. Hiscock, Farmington, membership fee .....	.....	.....	1 00
Mrs. Elmira Jenkins, Temple, membership fee .....	.....	.....	1 00
Mrs. R. B. Jennings, Farmington, membership fee.....	.....	.....	1 00
Will E. Leland, Sangerville, membership fee. ....	.....	.....	1 00
E. R. Mayo, Manchester, membership fee .....	.....	.....	1 00
Z. McAllister, Lovell, membership fee.....	.....	.....	1 00
Robert McCleery, Farmington, membership fee .....	.....	.....	1 00
S. L. Merchant, Winthrop, membership fee.....	.....	.....	1 00
S. H. Niles, North Jay, membership fee.....	.....	.....	1 00
Mrs. A. J. Odell, Farmington, membership fee.....	.....	.....	1 00
Mrs. E. F. Purington, membership fee....	.....	.....	1 00
O. M. Robinson, Dexter, membership fee.....	.....	.....	1 00
W. W. Rodbird, Dryden, membership fee .....	.....	.....	1 00
Mrs. J. V. Simmons, Farmington, membership fee.....	.....	.....	1 00
Mrs. A. M. Stewart, Farmington, membership fee.....	.....	.....	1 00
Edward Tarr, Mapleton, membership fee.....	.....	.....	1 00
B. M. Titecomb, Farmington, membership fee.....	.....	.....	1 00
L. P. Toothaker, Simpson's Corner, membership fee.....	.....	.....	1 00
Laforest Tufts, Farmington, membership fee.....	.....	.....	1 00
Georgine V. Wilbur, membership fee.....	.....	.....	1 00
			\$1,417 32

		CR.
Jan. 23. By paid G. A. Ames, Augusta, board of Ex. Committee .....	.....	\$6 00
V. P. DeCoster, expenses as Ex. Committee .....	.....	4 20
D. H. Knowlton, expenses as Secretary .....	.....	6 55
C. A. Arnold, expenses as Ex. Committee .....	.....	3 00
Mar. 23. By paid F. A. Waugh, expenses at Buckfield meeting.....	.....	34 55
F. A. Robinson, board of speakers at Buckfield meeting	.....	14 27
Knowlton & McLeary Co., printing and stationery ...	.....	29 60
D. H. Knowlton, expenses to Buckfield, postage and expenses.....	.....	18 19
Premiums awarded at Buckfield.....	.....	38 00
R. H. Libbey, traveling expenses to Buckfield.....	.....	4 67
V. P. DeCoster, expenses to Buckfield.....	.....	4 35
C. A. Arnold, expenses at Buckfield meeting .....	.....	6 25
D. H. Knowlton, salary for the year 1902.....	.....	75 00
May 4. By paid W. M. Munson, expenses at New Gloucester Horticultural School.....	.....	8 85
Mrs. V. P. DeCoster, services and expenses at Horticultural School.....	.....	7 70
Fred A. Card, services and travel at New Gloucester..	.....	38 73
John W. True, expenses at Horticultural School .....	.....	7 00
Gorham Manufacturing Co., medals awarded at Pan-American Exposition .....	.....	6 00
Smith & Reid, binding 300 Pom. Transactions 1901 .....	.....	8 75
D. H. Knowlton, services and expenses at Chesterville	.....	12 09
Z. A. Gilbert, expenses at New Gloucester .....	.....	3 25
Knowlton & McLeary Co., printing and postage .....	.....	11 69
Aug. 20. By paid R. H. Libbey, expenses as member Ex. Committee....	.....	11 62
D. H. Knowlton, expenses and postage.....	.....	17 91
C. A. Arnold, expenses as member Ex. Committee .....	.....	1 00
V. P. DeCoster, expenses as member Ex. Committee .....	.....	10 05
Aug. 21. By paid Z. A. Gilbert, expenses at Bangor .....	.....	4 80

Nov. 10. By paid Solon Chase, expenses at Winter Meeting.....	\$3 75
W. D. Baker, judging at Annual meeting	10 97
Prof. John Craig, services and expenses at Farmington	64 70
V. P. DeCoster, services and expenscs at Farmington	6 80
C. A. Arnold, expenses at Annual Meeting.....	5 00
Will E. Leland, expenses at Annual Meeting.....	4 40
L. H. Blossom, expenses at annual meeting	2 53
Nov. 21. By paid Z. A. Gilbert, expenses at Farmington, Cherryfield and Fruit Journal.....	15 10
R. H. Libbey, expenses at Annual Meeting.....	4 93
D. H. Knowlton, salary as Secretary for 1902	75 00
D. H. Knowlton, expenses to Cherryfield, board, etc..	29 09
N. R. Knowlton, lantern slides and views	12 95
Gorham Manufacturing Co., for bronze medal	1 50
Nov. 11. By paid W. M. Munson, expenses at Annnal Meeting	5 45
R. S. Howard, services at Annual Meeting	5 75
Emelie Greenwood, services as clerk at Annual Meet- ing.....	5 00
Edith Goodwin, services as clerk at Annual Meeting	3 50
Herbert Morton, trucking, Annual Meeting.....	2 63
Knowlton & McLeary Co., printing to date	29 55
American Express Co., express on fruit packages and boxes.....	19 43
W. H. McDonald, board of officers at Annual Meeting	35 00
Mrs. V. P. DeCoster, services at Annual Meeting	5 00
W. H. McDonald, board of speakers at Annual Meeting	28 00
Chas. S. Pope, board of judges, reporters and stenog- rapher..	15 50
D. H. Knowlton, postage, expenses at Annual Meeting	12 82
C. A. Arnold, services and expenses at Cherryfield....	16 98
R. H. Libbey, services and expenses at Cherryfield ...	21 53
A. C. Day, expenses and services as judge at Farm- ington	3 70
W. H. Keith, expenses as speaker at Farmington	1 85
By paid H. Leona Searles, drawing design for certificate of membership	10 00
C. J. Peters & Son, drawing and engraving certificate of mem- bership.....	38 00
Smith & Reid, binding reports in cloth	12 50
Charles S. Pope, services as Treasurer.....	25 00
Miss L. B. Raynes, services as stenographer at Farmington	39 45
Charles S. Pope, expenses for postage, etc., as Treasurer	9 87
Knowlton & McLeary Co., printing certificates of life member- ship	6 50
Charles S. Pope, Treasurer, money carried to permanent fund account...	100 00
Charles S. Pope, Treasurer, life members' fees deposited	30 00
Charles S. Pope, Treasurer, premiums awarded at Cherryfield ..	26 50
Charles S. Pope, Treasurer, deposited permanent fund 1901	20 00
Augusta Trust Company, rent of box	5 00
Cash in hands of Treasurer	251 93
	\$1,417 32

PERMANENT FUND ACCOUNT, 1902.

To stock First National Bank, Farmington.....	\$400 00
stock Merchants' National Bank, Gardiner.....	100 00
deposited Augusta Trust Company, Augusta	940 00
	<hr/>
	\$1,440 00

CR.

By 141 life members fees	\$1,410 00
Received G. M. Twitchell, Augsta, membership fee	10 00
F. A. Waugh, Burlington, Vt., membership fee.....	10 00
E. L. Lincoln, Wayne, membership fee	10 00
	<hr/>
	\$1,440 00

AUGUSTA, May 7, 1903.

This is to certify that I have examined the accounts of Charles S. Pope, Treasurer, and find vouchers for every item correct, with balance cash in his hands January 1, 1903, of two hundred and fifty-one dollars and 93-100.

GEO. M. TWITCHELL, Auditor.

BUSINESS TRANSACTIONS.

MEETINGS OF THE EXECUTIVE COMMITTEE.

AUGUSTA, January 23, 1902.

Voted, That the membership to the New York Fruit Growers Association, for the member of our society, who has in charge of the collection of facts bearing on the fruit crop of the country and reporting the same to Maine fruit growers, be paid by our society.

The secretary presented to the committee the Wilder Medal awarded our society by the American Pomological Society, for the display of apples made at the last biennial meeting in Buffalo in September, 1901.

The secretary presented an invitation for the trustees of the Franklin County Agricultural Society to hold the next annual meeting in Farmington, and it was laid on the table for future consideration.

Voted, That the members present favor the binding of a volume of about 500 pages of recent transactions consisting of transactions 1897, 1898, 1899, 1900, etc., provided the cost of same does not exceed \$50.

Voted, To hold during the year a winter or spring meeting, a Horticultural school, a summer meeting and the annual meeting.

Voted, That the president and secretary be instructed to determine dates and locations and arrange programs for the first three meetings.

Voted, That a schedule of premiums be prepared and printed with announcements for the above meetings.

BUCKFIELD, March 27, 1903.

Voted, To have 150 copies of the society's transactions bound, the volume to consist of enough years' transactions to make a good sized volume. The unbound sheets to which this vote refers being now in the possession of Mr. Chas. S. Pope, he is hereby instructed to carry this vote into effect. That said volumes are to be placed in the hands of the secretary to be distributed as the executive committee may direct.

Voted, That the holding, locating and date of a summer meeting be referred to the president and secretary, as well as the program for said meeting.

The secretary presented medal received from the Paris Exposition.

Invitations have also been received from E. W. Wooster of Hancock to hold the annual meeting in that county.

BANGOR, August 20, 1902.

Mr. Arnold presented an invitation from John W. Dudley to hold the annual meeting in Aroostook county.

Voted, To hold the next meeting (annual) at Farmington in the month of November, sometime previous to the 10th.

Voted, To refer the preparation of program for annual meeting and exact date to the president and secretary.

Voted, That the secretary be instructed to procure a certificate of membership from original design and that 200 copies of same be printed.

FARMINGTON, November 4, 1902.

Voted, That the following parties be employed as judges of fruit: A. C. Day, South Turner; L. H. Blossom, Turner Center. As judges of flowers: Prof. W. M. Munson, Orono. As judges of canned fruits, jellies, etc.: W. D. Baker, Quincy, N. H.; Mrs. J. A. Tilton, Farmington.

PUBLIC MEETINGS.

The spring meeting of the society was held in Nezinscot Hall, Buckfield, March 28. The meeting was excellent. There was a small exhibition of fruit, and a good collection of local grown plants. The attendance was good in the afternoon and evening. The program was as follows:

Prayer by Rev. H. C. Munson; address of welcome by Senator Prince, and response by the secretary; Fruits of Southern Penobscot and Waldo Counties, by C. A. Arnold, Arnold; The Ben Davis and What It Stands For, by Prof. F. A. Waugh, Burlington, Vt. Illustrated lecture in the evening by Prof. Waugh.

HORTICULTURAL SCHOOL.

This school—the first of the sort so far as your secretary knows—was held in New Gloucester, May 1st and 2d. For full mention of this school reference is made to the secretary's report. (See p. 7.)

ANNUAL MEETING.

The annual meeting was held in Farmington, November 5 and 6. The program was as follows:

OPENING SESSION—Prayer by Rev. E. R. Smith, Farmington; address of welcome, Major S. Clifford Belcher, Farmington; response, R. H. Libbey, Newport; president's annual address, Z. A. Gilbert, North Greene.

WEDNESDAY AFTERNOON—Fruit Growing in Piscataquis County, Will E. Leland, East Sangerville; discussion of popular varieties; Evaporating Apples, W. H. Keith, East Monmouth; discussion on this topic and canning apples, opened by E. H. Dingley, West Farmington; Plum Culture, E. R. Mayo, Manchester; discussion on the paper and desirability of the newer varieties.

WEDNESDAY EVENING—Among Fruit Growers Here and There, illustrated with lantern slides, first part, D. H. Knowlton, Farmington; second part, Prof. John Craig, Ithaca, N. Y.; Home Decorations, Prof. L. C. Corbett, Washington, D. C.

THURSDAY MORNING—Business meeting; report of treasurer, Chas. S. Pope, Manchester; report of secretary, D. H. Knowlton; election of officers; miscellaneous business.

THURSDAY AFTERNOON—A Woman Among Small Fruits, Lilla M. Scales, Temple; discussion of paper; Culture and Marketing of Fruits, Prof. W. M. Munson; discussion of paper and topics related to it; Insecticides and Manner of Treating, Dr.

George M. Twitchell, Augusta; discussion of practical work in use of insecticides.

THURSDAY EVENING—A Practical Nature Talk, Mrs. V. P. DeCoster, Buckfield; Fruit and Flower Study in its Relation to the Primary Schools, illustrated, Prof. John Craig, Ithaca, N. Y.

The following officers were elected for 1903:

President—Z. A. Gilbert, North Greene.

Vice Presidents—D. P. True, Leeds Center; H. L. Leland, East Sangerville.

Secretary—D. H. Knowlton, Farmington.

Treasurer—Chas. S. Pope, Manchester.

Executive Committee—The president and secretary, *ex-officio*; R. H. Libbey, Newport; V. P. DeCoster, Buckfield; C. A. Arnold, Arnold.

Trustees—Androscoggin county, A. C. Day, South Turner; Aroostook, John W. Dudley, Mapleton; Cumberland, John W. True, New Gloucester; Franklin, E. F. Purinton, Farmington; Hancock, E. W. Wooster, Hancock; Kennebec, E. A. Lapham, Pittston; Knox, Alonzo Butler, Union; Lincoln, H. J. A. Simmons, Waldoboro; Oxford, Lemuel Gurney, Hebron; Penobscot, A. A. Eastman, Dexter; Piscataquis, W. E. Leland, East Sangerville; Sagadahoc, Edward L. White, Bowdoinham; Somerset, F. E. Nowell, Fairfield; Waldo, F. A. Putnam, Jackson; Washington, D. W. Campbell, Cherryfield; York, C. A. Hooper, Eliot.

Auditor for 1901 and 1902—Dr. George M. Twitchell, Augusta.

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

Mr. C. A. Arnold submitted the following amendment to Sect. I, Art. II of the by-laws of the society: That the elective members of the executive committee upon the adoption of this amendment be elected one for one year, one for two years, and one for three years, and thereafter one member shall be elected annually for three years.

Voted, To lay the same on the table for consideration at the next annual meeting.

Voted, That a committee of three be appointed to take into consideration the advisability of awarding some appropriate

testimonial for a sweepstakes prize; and the Chair appointed Dr. Geo. M. Twitchell, Mrs. V. P. DeCoster and Mrs. Lucy A. Chandler.

Voted, That the executive committee be instructed to investigate the subject of legislation to secure an inspector of fruit, as outlined by Prof. Munson. Also, to prepare and present to the Legislature, and if possible, secure the passage of an act to provide for the protection of our State against the bringing in of nursery stock which may be infected with the San Jose scale or other injurious insects.

Voted, That the matter of making an exhibit at the Exposition (St. Louis) in 1904, and the securing of funds for the same, be referred to the executive committee with discretionary power to act.

Resolved, That the Maine State Pomological Society desires to express its hearty appreciation of the earnest efforts of Commissioner Gilman of the State Department of Agriculture to advance the standard of farm work and scientific investigation.

Resolved, That we testify our appreciation of the continued favors granted exhibitors and visitors at our exhibitions by the Maine Central Railroad.

Resolved, That in the size and quality of this exhibition we find additional cause for congratulation over the development of the fruit industry in Maine and realize as never before the necessity for more active efforts in the future.

Resolved, That we express our obligations to the citizens of Farmington for their hearty co-operation in arranging Music Hall, and especially to the Sunshine Club and students of the State Normal School for their most valued assistance and choice music furnished our sessions.

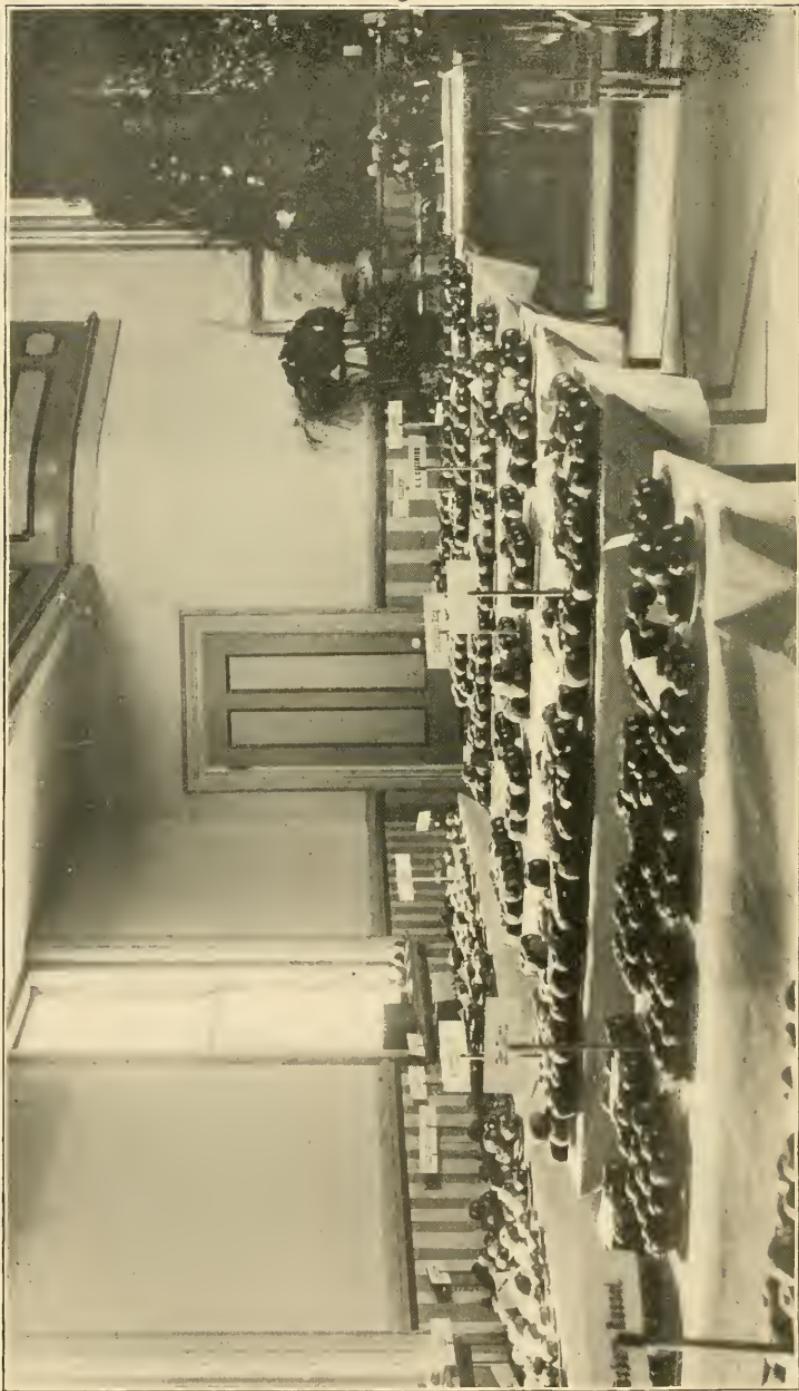
Resolved, That the thanks of this society be tendered to Franklin County Agricultural Society for its generosity in furnishing Music Hall for these sessions and the assistance of its members in the preparation and oversight of the same.

G. M. TWITCHELL,

E. L. LINCOLN,

S. H. DAWES,

Committee on Resolutions.



Annual Exhibition at Farmington, November, 1902. Showing some of the "special plates."

PAPERS, ADDRESSES AND DISCUSSIONS OFFERED
AT VARIOUS MEETINGS OF THE SOCIETY.

ANNUAL INVOCATION AT ANNUAL MEETING.

By REV. E. R. SMITH, of Farmington.

O Lord, our God, thou art very great. Thou art clothed with honor and majesty. Thou coverest thyself with light, as with a garment. Thou stretchest out the heavens as a curtain. Thou makest the winds thy messengers and the flaming fire thy minister. Thou hast laid the foundations of the earth. Thou coverest it with the deep as with a garment. Thou sendest springs into the valleys to run among the mountains. They give drink to every beast of the field. By them the fowl of the heaven have their habitation. The earth is satisfied with the fruit of thy works. Thou causeth the grass to grow for the cattle and herb for the service of man. Seedtime and harvest fail not. Thou givest to all their meat in due season. O Lord, how manifold are thy works. In wisdom hast thou made them all. The earth is full of thy riches. Therefore we praise thee, as did one of old, for the precious things of the heavens, and the dew and for the deep which coucheth beneath. For the precious things of the fruits of the sun and for the precious things of the growth of the moons. And for the chief things of the ancient mountains and for the precious things of the everlasting hills. And for the precious things of the earth and the fulness thereof. And for the good will of him that dwelt in the bush.

We praise thee because we may think of thee as over all and in all, and our Father. We invoke thy blessing upon all honorable industry. We thank thee for the privilege of labor and for the certainty of our being able to work with thee for the

enrichment and the beautifying of thy world. We invoke thy blessing upon this society with its noble motives and important object. We pray that while its members tarry with us they may find it good to be here. We remember our country and all in authority. May our country become increasingly one whose people are mindful of God. Grant that we may not forget thee. With all our gettings may we find understanding and the fear which is the beginning of wisdom. May human societies and associations of men become one in spirit with thee. May that ancient vision of society be fulfilled, that vision of the New Jerusalem wherein was the river of the water of life; on either side of which grew the tree of life, yielding its fruit every month and having its leaves for the healing of the nations.

Thus may thy kingdom come and thy will be done, for thy Name's sake, Amen.

ADDRESS OF WELCOME.

By MAJOR S. CLIFFORD BELCHER, Farmington.

The pleasant service has been assigned to me by the Franklin County Agricultural Society, whose guest you are, of welcoming you to our county.

Our agricultural society has recently held its sixty-third annual exhibition and rejoices in continued prosperity. It is believed that no similar society in the State excels us in our annual displays of agricultural products, while our fine herds of blooded cattle, sheep, swine, poultry and fleet and docile horses are a source of pride to all our citizens.

The county of Franklin, bounded on the north by the Dominion of Canada, is practically bounded on the east by the Kennebec river and on the south and west by the Androscoggin. Its northern half is still a wilderness,—the forest primeval,—containing a wealth of lumber that is constantly finding its way to the great centers of population, while its solitudes, filled with numerous lakes and streams, abounding in game and fish, are the paradise of sportsmen, and may well be termed the Adirondacks of Maine.

But it is the valley of our Sandy river, all of which is within our county, which constitutes our agricultural wealth. The broad intervals, extending its entire length, as level and as free

from stone as western prairies, and nearly as fertile, produce abundant crops of hay for our herds, while the hillsides, extending back from the intervals, furnish sweet and succulent pasture; while few farms are without suitable sites for trees producing fruit adapted to our climate. In particular, we are successful in the culture of the apple, the prince of fruits of northern climes.

The hills, back from the river, are covered with noble forests of rock-maple from which our industrious husbandmen extract great quantities of maple syrup, which finds a ready market in the cities of the country, while Titcomb's maple candy is known in Boston and New York as the criterion by which other makes are judged.

Sweet corn is one of our most profitable products and some eight or ten establishments are devoted to canning it, and I think I may say, without fear of contradiction, that Franklin county canned corn is the best in the world.

In recent years more attention has been paid to the products of the dairy, and the herds of beautiful Jerseys and Guernseys, which meet the eye on every hand, as we drive through the country, attest the intelligent interest shown by our farmers in this industry.

The raising of oxen for labor and for the beef market has always commended itself to our farmers. The huge forms of the white-faced Herefords, the black-and-white Holsteins and the clean red Durhams always compete for the blue ribbons at our annual exhibitions.

We have made some progress in the cultivation of apples, and while we may not excel in this particular branch of agriculture, yet I see that your secretary estimates that we sold over \$200,000 worth of apples last year; and the names of Whittier, Purington, Knowlton and others, members of your society, show that we have intelligent and practical pomologists among us.

We are accustomed to speak of our Sandy River Valley as the garden of Maine and we believe we are justified in our estimate of our beautiful valley.

We welcome you to Farmington, the shire town of our county, its commercial and geographical center and its most populous town. We show you here a town without factories, without shipping or foreign commerce; simply a town supported by agri-

culture and the labors of the husbandman. You will find no indication of great wealth, for we do not have it; nor will you find great poverty, for we are happily exempt from it. We show you a typical agricultural town, with its schools, its libraries and its churches; its neat homes and convenient business establishments; and believe we illustrate that if farming does not "pay," to use the usual formula, yet a community, whose chief industry is tilling the soil, may be intelligent, prosperous and happy.

Today, when the measure of success is gauged by dollars, when the captains of industry are regarded as those who forge iron, weave textiles or dig coal, it may be well to consider whether the man who obeys the divine injunction given to our first father, when put upon the earth, to dress it and keep it, is not worthy of honor, and whether, after all, the old idea of comfort and happiness may not be true—namely, "to sit under one's own vine and fig tree."

Again, gentlemen, I welcome you, and trust that this visit of Pomona to Ceres may be agreeable and profitable.

RESPONSE TO ADDRESS OF WELCOME.

By R. H. LIBBEY, of Newport.

From the very fact of our invitation to meet in Farmington to exhibit, we knew that we should be welcome; and we knew it later, when we arrived, by the warm shake of the hand and the individual interest that the people of Farmington took in us in escorting us to the best houses in town. These were further evidences of our welcome to the town of Farmington, as was also our reception at our secretary's, in his spacious rooms in which the best citizens of Farmington were collected. And then, when we came to meet the good citizens of Farmington in the hall, we had still further evidences of welcome. It is unnecessary to take up time in saying that we appreciate it, and in behalf of the Maine State Pomological Society, I thank the citizens for their cordial welcome and for the kindly efforts they have made to receive us.

ANNUAL ADDRESS.

By Z. A. GILBERT, President, North Greene.

In accordance with a custom adhered to from the first organization of this society it devolves upon me to call your attention at this time to some of the conditions bearing upon and affecting the success of the fruit industry as carried on within our State at the present time, and suggest, if may be, such changes and improvements as seem to offer still further success to those who are engaged in prosecuting the fruit industry among us. While in the past there have been seasons of disappointment and of discouragement, years of special invasion of insect and crypto-gamic enemies that have in greater or less degree defeated the well-directed efforts of intelligent growers, yet through it all the industry stands triumphant. Up to the present time there has always been a silver lining to the cloud that for a time has turned its darker shadows over our vision and obscured the pathway of progress. But intelligent study and persevering effort has at all times sooner or later lightened the way to continued success. After all the obstacles encountered in the way the fruit industry never held out a more inviting prospect to intelligent effort than at the present time. Whatever may be encountered in the future it is perfectly safe to claim that the industry will come through all obstacles triumphant. The people need fruit. It is ordained that they shall have it, and they are going to have it--more and more, and better and better as the years go on and wealth increases.

The apple crop of the present year has not been served in like bounty throughout the fruit growing sections of the State. Through this northern belt of the State where the crop was so bountiful a year ago, namely, Northern Oxford and Northern Androscoggin, Franklin, Somerset, a section of Kennebec and all of Penobscot, Piscataquis and Waldo counties, the crop this year has proved comparatively a light one. But in all that part of the State south of the territory named the crop has proved, not one of the largest, but close to a full one. At the same time the fruit was of large size and unusually free from imperfections. While the "scab" threatened for a time serious damage, yet finally

its effects proved to be general only in a limited territory along our eastern coast.

While the crop of apples throughout the country at large was more general and therefore largely in excess of last year, yet the market has been in a healthy, active condition and prices have ruled fairly good in home market, and specially good for the early season across the water. At this time there is no reason apparent why the entire crop of Maine apples will not be cleaned up in good season at prices that will return the growers a reasonable profit. In the market abroad, while there have been forwarded larger shipments of American apples than ever before known in the same time in the history of the trade, yet good fruit has continued to command high prices, while the latest cable dispatches are to the effect that prices on that class of fruit are well sustained and the demand likely to increase to the end of the season.

Growers of fruit this season have been kept well posted on the range of the markets and comparatively few have disposed of their fruit at prices under its real market value at the time when sold. Access to reliable information of the extent of the fruit crop in the country at large and the promise of the market is now so easy, that there seems to be no reason for any grower to become uneasy and sell at under rates before a price is established. There will always be an outlet for Maine apples and there is no call for any grower to rush his fruit on the market in an effort to get there first.

The public work of our society in recent years has been largely directed toward the encouragement and promotion of increased production. The abundant evidence abroad all through the State of the effect of such effort is a gratifying feature. Fruit production is on the increase in all its branches.

At this thirtieth milestone of our organized effort I wish to raise the question whether we may not well break away from the beaten path we have been so intently and successfully pursuing for a decade and strike out on a new and yet equally important tangent.

MARKETING FRUIT

Is at least as important as producing it. From the standpoint of the grower as a source of revenue it is of far more importance. At the recent annual exhibition and convention of the New Hampshire Horticultural Society, which I had the privilege of attending, every speaker from the ranks of the growers dwelt at length on the market end of his subject. One I recall declared emphatically that "marketing was more than half the problem of success in fruit growing." A careful weighing of the matter in all its bearings will confirm the soundness of the claim set forth by this New Hampshire fruit grower. This being the case the apple growers especially of our State, and this society, may well for a time direct our efforts to the market side of our fruit industry. We have been dwelling on every feature of this industry save this one, the most important of all. The Dominion government, in an effort to increase certain lines of products on the farms of its subjects, first of all went to work to provide suitable market facilities for the same. To make it desirable to produce these products they must be well disposed of, was the sensible and reasonable argument. The California deciduous fruit growers were driven to the wall till they organized facilities for connecting the products of their orchards with the markets of the East. Growers in the Erie grape belt were driven to the necessity of systematizing the marketing of their grapes. Delaware peach growers found their profits all in the coffers of the commission men till they rose to the necessity of organizing a different system of selling. Where were the fruit growers of Maine in '96 with one of the finest and most beautiful crops of apples ever picked from trees, and with no protection to the market side of the situation? Where are we today but in the hands of the commission men, save only that here and there a man dares risk his crop shipped at a hazard on his own private account? Certainly it is quite time that attention was given to the market side of Maine fruit-growing.

As now conducted, it is one great hustle of the shippers to get growing, all the fruit possible afloat ahead of "the other feller," without regard to conditions of the market, and just as though the devil was sure to take the hindmost.

COLD STORAGE.

One of the great needs of the fruit industry of our State, and the first calling for attention at this stage of our progress, is cold storage. There are millions of barrels of choice fruit seeking a market and not a cold storage warehouse in the State, and scarcely a suitable place for the temporary storage of a single barrel! This is the situation in Maine today. If we propose to continue in the business of fruit growing, and especially if we intend to increase it and make it a special feature of our efforts, as this society has been and now is urging, there should be facilities provided for suitable storage.

Not only in the shipping trade abroad is this cold storage necessary, but it is even more important in catering to the home markets. Cold storage is now controlling in large measure the markets for all perishable products, and none of them more than fruit. Maine is a fruit growing State. Its fruit products are now of sufficient value to be taken care of. This fruit production, through the influence of this society and the general advance of a knowledge of the profits of the business is sure to largely increase in the future. The sooner provision is made to care for it in a manner to insure largest returns to the grower the better. If money is needed to provide such facilities as are needed we have it in plenty seeking investment. Money from the farms going into our savings banks, thence to distant states for investment would better far be used to extend, improve, perfect and render still more profitable the business that made it.

Just what facilities for storage may be needed under existing conditions is a question that this society may well, for the benefit of the industry, investigate. First of all, I do not hesitate to suggest, better storage at the farm where the fruit is grown is called for. Fruit as soon as taken from the trees should go directly into cold storage, or if not into technically "cold storage," then into a storage that though only moderately cold would store from changes of atmosphere to which nearly all our home storage is now subject. This provision alone would be an important step in advance. Fruit houses on the farm, or in the orchard, constructed with absolutely air tight surroundings, would prove of great value and are not costly. Several neighbors could unite in their erection and each share in their advantages. In some

fruit growing sections of the country store houses of a similar kind are provided for neighborhood privileges. These advantages are all within the reach of any individual fruit grower, or a neighborhood of growers, and would be found of great advantage to the industry.

But further than home storage and local storage there should be cold storage warehouses provided at shipping points. To such extent has this matter of making temperature, if I may be allowed such an expression, been perfected that the cost of such storage is not now heavy and is entirely within the advantages gained by it. The sooner Maine fruit growers get on to the advantages of cold storage in some form the more will they be in control of their business and the greater the profits they will realize out of it.

The Washington Department of Agriculture is engaged in experimental cold storage of fruits, and while up to the present time reports of its work are nothing more than reports of progress, yet without doubt we shall soon be furnished with information of great value on this important matter. The department is also engaged in conducting experimental shipment storage abroad, which it is hoped may lead to improved storage of fruit in our export trade. Certainly it is gratifying to know that the general government is looking after the interests of the fruit growers.

Attention is called to these matters that our fruit growers may be gradually growing up to the idea that the caring for and marketing of fruit after it is grown is a part of the business quite as important to the grower as the production itself.

In closing, I wish in behalf of this society to acknowledge the efforts being put forth by our state agricultural department in behalf of our fruit producing interests. The commissioner at its head is bringing into the state in his institute work authorities trained by experience in fruit growing, thereby adding much to the work our society has in hand. We welcome all aid to the fruit growing interests of the State.

EVAPORATING APPLES.

By W. H. KEITH of North Monmouth.

My subject is "Evaporating Apples" and my paper is very brief as you will see when I get through. It needs more attention than it has at present in the State of Maine, first, for the sake of economy, second for utility, and third it being the means of manufacturing less drunkards.

Some twenty-three years ago, or soon after I located on a farm in Winthrop, I found that very much fruit was going to waste, and I inquired if there was not some way whereby it could be utilized for the use of the household. The process of evaporating came to my attention, and I invested in a \$75 American evaporator. By so doing my otherwise waste product of apples was used to my satisfaction. The process, however, was slow as only three or four bushels of apples per day could be used. Later I bought a larger one which handled from fifteen to thirty bushels a day. This enabled me to handle my own waste product,—I use the term "waste product," for the cider mill was the only outlet for us then—as well as some for my neighbors.

The question is often asked, "Does it pay?" I here submit a statement that will allow each and every one to make his own figures and condense his own conclusions. I have already named the cost of the small evaporator. To run this requires the work of one girl at a cost of from \$3.50 to \$4 per week; repairing machine, 75 cents; fuel and sulphur per week, \$1.00; fruit per bushel, 20 cents; evaporated per week, 18 bushels; total expense besides the wear of machinery of \$8.30 to \$8.80 per week.

Contra.

Eighteen bushels, 5 lbs. per bushel, 90 lbs., at 10 cents, \$9.00. Giving a close margin of 20 to 70 cents.

But you have sold your apples at 20 cents per bushel which would otherwise have gone to waste or to the cider mill ultimately for making vinegar or drunkards.

Now comes in the utilitarian part of it, if you have a family of boys and girls to bring them into service.

Now to come to the subject as mapped out for discussion, viz: the popular varieties for evaporation: First, Red Astrachan; second, the Duchess; third, Baldwins, and Greenings and Roxbury Russets, and finally any variety which proves itself a desirable cooking apple. In preparing the product it is much better to pack each variety by itself to make the product more uniform.

With increased capacity you are enabled to utilize a larger quantity of the waste product and this brings us face to face with the factory system of evaporating apples. New York heretofore has led in this respect. When however, this is adopted, the quality of the product is impaired and the price reduced. Middlemen will handle the product that gives them the best showing for profit. I am inclined to the opinion that a more satisfactory return for second quality apples can be obtained by some individual running the business to use the neighborhood waste instead of the enlarged factory system. The sale of evaporated apple is much like the sale of vinegar. Middlemen will handle vinegar made of anything but apple juice if the margin of profit meets their ideas. So it is with the product of evaporated apple. But when the product of either is A 1 and the salesman is up with the times in pleasing customers, you have the best end of the trade. Canned fruit takes the lead and the apple and pear can be more easily used under the factory system, but there is still a vacancy for a good product of evaporated apple, if properly put upon the market.

The most satisfactory way of placing the product of evaporated apple on the market for the retail trade that I could adopt was to use strong paper bags containing two pounds each, with such printing on them as would make them attractive, and pack them in sugar barrels and ship where wanted. It was then easily and conveniently handled both for the retailer and consumer.

Q. I don't remember that the item of fuel came in at all for evaporating apples.

Mr. KEITH: Fuel and sulphur \$1 per week. That is on the small evaporator, on the larger one of course it would require more. The whole expense is reported in my statement here as near as I can get at it.

I will just say here, gentlemen, that it would be much better in my opinion, and I prefer to do it myself, to feed my second quality apples to my cows rather than to have them put up and

shipped for sale either by myself or by buyers. I think it is one of the set-backs to us in obtaining a good price for our apples, to allow our second quality apples to go in for sale. Many of the buyers pack pretty mean apples.

Q. About how much would you dare to feed your cows in quantity?

A. I would commence small and feed a peck or more a day without any hesitation at all. I have fed hundreds of bushels of apples to my cows by beginning in a small way of course, and when I had fed out the last apples I noticed a perceptible falling off in the quantity of my milk. I don't claim any great nutriment in apples, but you all know who keep cows or any stock where they can get at them, that they will walk a good ways for an apple. I am feeding apples to my cows now, or the eleven that I am milking; I am feeding them a bushel at the present time.

Q. Do you cut them?

A. No, sir. Feed them to them right in the stall where you feed your hay and there is not much danger of their getting choked. Where they can throw their heads up there is some danger.

Q. Why don't you ship the second quality?

A. It is a mean product to put upon the market. Some handlers of apples claim that they can get just as much as for the good ones and you can imagine what the effect would be upon the good ones. I have conceptions of my own about this matter, of course others have the same right. I wish there never could be a second quality apple put upon the market at all.

Mr. COOK: It seems as if this was quite an important matter, and as my opinion differs from the gentleman's it will do no harm to express it. We want the cheap apples on the market. What are all the poor people going to do for apples if there isn't some second quality on the market that they can buy that is within their reach? What are these cheap boarding-houses going to do for mince pies if you don't ship the No. 2 apples? Now this is important. We have got to have cheap boarding-houses in our large cities and they have got to get their apples down low so they can afford to board these working people at a low price, and it is important that they have access to these poorer apples; and they don't come in competition with the first-class

apple. The same people don't buy them. It seems to me that it is a great mistake to leave at home your second quality apples.

Mr. KEITH: I am glad the brother has brought up that point. I think there can be plenty of cheap apples supplied for those who cannot afford to buy the better ones. Now what I mean by second quality apple is to put in an apple that has from one to half a dozen worm holes in it. Now we have a class of apples, a size of apples when we are packing that is not suitable to go in with a No. 1 apple, with which we can supply the market for a cheap apple,—put in an apple that is a little inferior for a No. 1, what we call a No. 1, and somewhat smaller if they are smooth, perfect apples, and you have a good No. 2 apple. I wouldn't object to buying a barrel of them myself if they were free from worm holes at a reduced price. Now I think that that vacancy that the brother speaks about could be easily filled without putting in so many wormy, bruised, wind-fall apples. I hope if any one has a point to bring out on this they will for I feel this is quite an important question and one that ought to be talked up among the farmers. I know the evaporated apple has received a set-back. I could always receive for my evaporated apple, without bragging about it, from two to four and five cents more on a pound than others did who put them up in 50 lb. boxes and put up cores, worm-holes and skins on the apples. Our ladies no doubt who have used evaporated apples know this to be a fact, that they always have to look the apples over and trim them before they can be cooked—you don't want a mess of apples with cores in them, they don't relish very well with me.

Q. Wouldn't that class of apples that you speak of come under third rate rather than second—the wormy, bruised, windfalls?

A. Well, it might be classed, sir, anywhere they saw fit, but in shipping there are only two qualities named.

Q. Well, we don't generally ship that quality of apples, the bruised windfalls.

A. I don't know about that.

Mr. GILBERT: A bushel or barrel of apples is our unit of measure. I would like to ask Mr. Keith how many pounds of evaporated apple he can secure from a bushel, or barrel measure, as he sees fit.

A. In my statement I have mentioned that apples vary in the number of pounds. The Roxbury Russet will evaporate the largest number of pounds of any apple that I have evaporated.

Mr. GILBERT: What would you state as the smaller and the larger prices ordinarily from year to year in the market—what you sell yourself—talking about your own manufacture?

A. I can only answer that question in accordance with what I have done in the past. I have never sold them for less than ten cents and sometimes as high as fifteen or seventeen. Of course it depends upon the supply, but from ten to twelve cents is the price that I almost invariably obtain.

Mr. GILBERT: Or fifty to sixty cents a bushel after evaporated?

A. Yes, sir.

Mr. KNOWLTON: I would like to ask Mr. Keith a question and it is this: whether any effort, so far as he knows, has been made towards packing apples in pound packages in practically air-tight cartons? I have in mind what the ladies here are all familiar with and that is the packages in which the seeded raisins come to the market from California. They are pressed first into some kind of a mold with sufficient pressure to make them solid, and then wrapped with a wax paper and then the package inclosed in a paper box or paper carton,—you know what I mean. I have seen evaporated apples packed in pound cartons, I don't know but what two, but they were loosely packed and no protection whatever except what the loosely made carton affords. I have in mind this, that packed in that way the product could be kept indefinitely.

A. It would probably discolor somewhat. When apples are kept over more than one year they get discolored.

Q. Let me ask a question there, isn't that due to the fact that the package containing it is not air-tight?

A. Well, it may be so, I never have practiced that. It would of course add to the expense of getting them into the market. The cheapest way that I know of is the way that I mentioned, to put them into strong paper bags. These paper bags are filled up so that they are comparatively tight. I think very likely the package that Bro. Knowlton speaks about may be preferable, but it would add to the expense of getting them into the market

which of course is an item that always has to be taken into consideration.

Q. I would like to ask if natural fruit apples would be just as good as grafted fruit?

A. Any variety of apples, as far as I have observed, that proves itself to be a good cooking apple is all right for evaporating.

Q. How small would it pay to use them?

A. Well, in paring apples we reckon an apple that is an inch and a half or two inches in size would be all right, and an apple that you don't want to put into a barrel of apples of course would be all right for that, but the larger the apples the better the product, the more to the bushel.

Mr. POPE: I have had a little experience in evaporating apples. I found first that the Maine fruit well evaporated and well handled would bring a bigger price than the Western fruit. There is more acid in the Maine apple than there is in the Western apple, and as you all know an apple in drying loses its acidity, and that is one of the difficulties. There is not acid enough in the Western apple for a nice cooking apple, therefore the Maine fruit being more acid is worth more in the Boston market than the Western fruit for this reason. Then again the Maine fruit put up by the farmer, if he is a mind to take the pains with it, will make a whiter, nicer product and will bring a larger profit. Therefore the chance for money in evaporating our Maine apples is in putting up a little nicer article than the general article in the market. And we found, and others in Maine have found, that two or three cents a pound extra can be procured on nice Maine evaporated apples in the Boston market. The only way that we have been able to make much money out of it was in evaporating in the years when apples were so plenty that the product was absolutely worthless, you might say, worth nothing except to feed to stock. Put it up in fine shape, bleach it before it goes into the evaporator, take out all the skins, cores and worm holes, and put up nice apples, well bleached. Then place it in cold storage and hold it till the next season, when you are almost sure to have a short crop when evaporated apples being up higher will pay for all this extra work. In that way you have secured some profit. But in a season like this when apples are high and scarce there

is hardly enough of it to be worth while to start an evaporator. And when I speak of starting an evaporator, I wouldn't advise putting in a little plant where you would run a little hand paring machine. A man who is going to do much in that line wants to put in an evaporator that will handle twenty bushels a day. One girl instead of paring a few bushels can just as easily pare twenty-five bushels a day. We all know that a party handling twenty-five bushels a day can do it much cheaper than where only three or four bushels a day are handled.

Mr. ROLLINS: I think it is just twenty years ago this fall when I first started evaporating apples, and I think that in almost any year it has been a profitable business to be carried on. Especially is it profitable, as the first speaker has said, to work up the second quality apples. I wouldn't advocate using a small apple or a poor apple for the purpose. Those that are only an inch and a half through, when you take the core out and the peeling off and dry the remainder, you don't have anything left practically. Nothing less than an apple two inches in diameter should be used for that purpose.

I think it will be an excellent plan, as some one has suggested, to pack them in cartons, putting them up in pound packages in some kind of way that will exclude the air and light, and that will preserve them from discoloring. It is a very hard matter to keep evaporated apple over to use the second year, however, unless it is kept in cold storage through the summer.

Mr. GILBERT: The chair would like to inquire of Mr. Rollins how the value received for that quality of apples compares with the sale of those apples in their natural form in the market?

Mr. ROLLINS: Well, perhaps the last one or two years would be an exception, but generally the class of apples we put through the evaporator would be worth but very little to put into the general market. For instance, in shipping to Boston, the expense will be as much as the apples will sell for generally on that class of apples. So that almost without exception that class of apples should be utilized in some other way than putting them on the general market,—either by evaporating or canning.

In some years it will pay to dry the cores and skins, if the facilities are large enough to dry the apple and also have room for this other purpose. Generally speaking, they will sell for \$40 a ton, two cents a pound, the cores and skins dried and packed

in barrels in Boston, while the expense is very little in simply putting them into the dryer and barrelling. Forty dollars a ton gives very good returns, but in some years they do not bring as much as that. This is used and known as jelly stock and it is the basis of nearly all the commercial jellies that we use, cranberry, strawberry, currant and all those jellies.

CANNING APPLES.

By E. HERBERT DINGLEY, West Farmington.

Although the apple canning industry is steadily and rapidly increasing in the "Pine Tree State," it will be some time before Maine will come up to the state of New York on quantity or quality of product. While the packers in this State can justly boast of the superiority of their canned corn, they still have to step back when the question of canning apples arises. This is due to the fact that, in the markets of London, Liverpool, Manchester, and Glasgow, the Maine goods come into competition with those packed in New York, Ontario, and Nova Scotia. Probably one-half or two-thirds of all canned apples go across the water same as the green fruit, and England rules the price.

New York uses a large amount of fall fruit such as Red Astrachans, Duchess, and others for early canning. These apples are nearly worthless in the orchards as the demand is so small compared with the supply. I am told that fall fruit is often given away in the apple section of New York on the agreement that it will be cleanly picked. This places New York in a better competitive position for trade than Maine.

Early or fall fruit will not make as saleable goods as the hard winter varieties for the early apples become darker when canned. It is an erroneous idea that *anything* will answer to can. The best apples for canning purposes are the Harveys, Greenings, and Baldwins. While all other winter fruit is good, the three which I have just mentioned are preferable and rank in the order named. We will readily see that the Maine apple growers cannot sell these varieties to the canners at prices sufficiently low for them to compete with York state and Canadian packed goods.

I have a friend who has been in the canned goods business for a great many years. While he has packed all kinds of fruit and

vegetables, he has made a specialty of apple canning. I received a letter from him recently, and he wrote the following in regard to one season's pack in Canada:

"The writer met with the most satisfactory results, one year when fall fruit was nearly useless, in buying eight thousand barrels, all one kind, 'Duchess of Oldenburg,' number ones, and hand picked, at fifty cents per barrel (without the barrel) and canning them all inside of four weeks, beginning August 22nd. Sold same in Liverpool and Glasgow at a fair profit. This was done in a section where help was plenty—over a hundred girls being employed."

With the foregoing facts in view, we readily see why the Maine packed apples are not up to the other packs in quality. In this State, the growers cannot afford to sell their number one grafted fruit at canning prices, nor can the canners afford to pay the prices which the growers must get for their grafts.

The question which now arises is, What kind of fruit must be canned in Maine? Certain kinds of natural fruit make very fair goods, indeed. They must be of good size, smooth, hard, and free from bruises.

The size of canning apples must be two inches or over in diameter. There is, also, as much danger of the apples being too large as too small. An apple which is over three inches in diameter will swing the knife-arm of the paring machine out so far that the knife will not touch the skin at all. Such apples have to be pared with a hand knife. The best size for paring is two and one-half inches.

The apples should, also, be smooth as the uneven and rough ones will not pare well. The parer knife will jump over all of the hollows and the apple has to be pared again with the hand knife. It is also impossible to centre these apples on the machine so that the corer will not take out good apple and leave the core and hulls. This causes the apples to cut to waste. If an apple is soft, it is of no use at all. When it is pressed upon the forks of the machine, it begins to break and when the knife takes hold, the whole goes to pieces and falls into the basket with the parings.

A sweet apple is worse than useless for canning purposes. One piece of sweet apple will turn a whole can of the best of apples almost black. Discolored apples are unsaleable.

Because the housewife can make nice apple sauce from almost anything in the shape of an apple, is no reason that the canner can use the same grade of fruit with any success. We must bear in mind that the canner is not making apple sauce. He must pack such apples—and only such—as the great markets of England and America demand. The standard for canned apple, is large fruit cleanly pared and cored; free from bruised or dark spots; cut in quarters; and cooked only enough to keep it from fermenting. The apple must look white, and be firm enough to take out of the can and cut in slices, if desired, or used in quarters, re-cooked for sauce, or served with cream for dessert.

We must keep in mind that York State, with her grafted fruit, will lead Maine, and we must use our natural fruit so that it will come up as nearly as possible to the New York goods. One great difficulty in canning natural fruit is in getting goods that are uniform in solidity. In using *many kinds* and *many* different degrees of hardness, it is impossible to process the can so that the apple will cut out uniformly. The packer cannot wholly overcome this. The best that he can do is to insist that all of the apples brought in shall be hard and firm.

One of the worst things with which the packers have to contend when buying natural fruit, is the manner in which they are handled. The apples should, whenever practicable, be handled and hauled in barrels; if barrels and large boxes are not obtainable, they should be hauled in bulk in a cart body; they should never be handled or hauled, no matter how short the distance, in sacks. In almost every instance, it is by handling them in sacks that we get the bruised and battered apples.

Any of you here, upon opening a can of apple and finding the brown spots, would know that they were caused by slight bruises. It is not so with the city buyers and consumers. They know no difference between these bruised spots and decayed spots. When they find the bruises, no argument will convince them that these discolorations were not caused by decay. It, therefore, stands every packer in hand to be careful, when buying, to see that he gets only such apples as are free from bruises.

It has been called to my notice many times how careless and negligent the farmers are of their roadside and natural fruit. Unless the apples are properly handled and cared for, they are not suitable for canning purposes. If they are not fit for can-

ning, they certainly are good for nothing except for cider; and it seems too bad to let them go to waste and sell for practically nothing, when, with proper care, they could be sold to canneries.

There are some varieties of grafted apples which bring very low prices when shipped into market green. These would be equally as profitable if sold for canning. When you ship them, you have to furnish the barrels, sort and pack them, be more particular in sorting, and pay the freight to market. Taking all this into consideration, one market will about balance the other.

I wish to impress these three things upon your mind, viz: you should take better care of your natural fruit, pick the apples early before they begin to soften, and use more care in handling them.

Mr. WHEELER: Mr. President, I don't want any fruit grower to go away and flatter himself that he can get a good price for four or five wormholes in an apple not an inch and a half through. When you come to work up an inferior grade or fruit for canning purposes, the help that you employ, in the first place the man that runs the machine to pare that apple, when he comes to a small apple or one-sided one, drops it into the waste basket. He isn't going to spend his time on it unless you stand right there by him, he is going to drop it, and I don't blame him. When you come to the girl who trims it, if there are quite a number of worm holes in it, why she doesn't want to spend her time and she throws it out. I am almost glad she does. I don't want her to spend her time on that apple and get but very little out of it. So don't think you are going to get something out of nothing. You can't do it. When you take a good fair grade of apple that will cost about seventy-five cents a barrel this year, of natural fruit, and have a good crew to work them along, there is some fun in seeing the stuff go through, if nothing more.

Mr. DINGLEY: In reply to the last speaker, I would say I heartily agree with everything he has said. I would not give the impression that we want this grade of apple, the No. 3 and like that; but as we said in regard to evaporating apples, the No. 2 grafted fruit was classed as the smaller, running a little below the shipping size, and the No. 3 took in the one-sided, bruised and wormy fruit. I would agree with him in saying that it is not profitable for the canner to try to use wormy or bruised and one-sided fruit. When this one-sided fruit comes to the paring knife, it

will skip over it, it won't take off all the paring and it has to be trimmed by hand. And then another thing, it is impossible to center this one-sided fruit on the fork of the parers so that when the core knife passes in it will take out mostly good apple and leave the greater part of the core. This causes considerable waste and considerable more time spent in trimming the apple.

Mr. GILBERT: Reference is being made by the speakers to natural fruit. Of course we are not posted as to how much of that natural fruit is available here in Franklin county, but in the principal sections outside of Franklin county the fruit is substantially all of the choice grafted varieties, and the question comes in connection with that, how this fruit that is not suitable to go into the barrel for market is to be disposed of. I have today a hundred bushels more or less—a good deal more than that—of good cooking apples, coming out from such representatives as we have upon the tables here, that up to the present time have not been worth picking up and they lay under the trees on the ground,—good sized fruit, bruised fruit, that which fell from the trees too early and is not suitable to put into market. Now what shall I do with that fruit, and how much can I get out of that fruit, and can I turn that fruit into a certain measure of money? It is an important question. It is a fact that in the great manufacturing industries all the money today substantially is represented as being secured from the saving and use of waste products, that formerly went to waste, and in all of these great industries the profits are represented by the savings. Now then, are we not wasting a good deal of material that ought to be worth something to us in some other form, to say nothing about the seedling apples, natural fruit, anything of that kind, in connection with our fruit industry?

Mr. TITCOMB: If I understand correctly, that you have many apples laying on the ground in your orchard, I think you are making a great mistake there. You are just leaving a breeding place for the worms.

Prof. MUNSON: I want to emphasize the point that Mr. Titcomb made a few moments ago. It was passed off as a kind of a joke that the wormy fruit which is left on the ground is a source of danger to future crops. We have heard a great deal in this State in the past few years about the trypetta and the codling moth and the canker worm and other insect pests. We have not

heard quite so much, although we might well have done so, about the apple scab and rot and so on. But do you know that these wormy fruits and these windfalls that are upon the ground are indeed a very serious menace to our future crops? and it will pay our orchardists to destroy that fruit even if they have to do it by hand instead of turning in the hogs and sheep, or turning those fruits into cider. As a safeguard to future crops then, destroy refuse fruit.

Mr. GILBERT: That is just the reason we have this subject upon the program. We want to find out the way to get something to pay us for picking up this fruit.

Prof. MUNSON: Do it whether you get pay for it or not. You and your children will get the pay in the future if you don't this year.

Mr. WHITTIER: The way we have disposed of that fruit, such as we leave on the ground—it is not fit for canning nor evaporating, it is not worth picking up for anything except to feed out, and the way we have done, we have left it on the ground and let in a lot of hogs and pigs to pick it up for us and it don't cost us much in that way.

Mr. COOK: In regard to these inferior apples and drops, as they are sometimes called, if you have the right variety of apples, if you have Baldwins and Ben Davis, the windfall apples that are large enough and are not too wormy will do to ship to your Boston markets, and what won't do to ship are not fit for the cannery or for anything else unless it is the cider mill or stock. The gentleman spoke about No. 2 apples and then went on to describe No. 7 apples. When he spoke of apples slightly ill-formed, gnarly, one worm-hole in them, a little under size, that was really the No. 2 apple, but the apple with a number of worm holes that he talked about, bruised, and but an inch and a half in diameter, those are not No. 2 apples, not second quality apples at all, but are only fit for waste, whatever use you make of your waste. I let the sheep and hogs and young cattle and colts in my orchard all the time from May till December. I think it is a good plan, that I get more apples from it, and get rid of these worms in that way. I remember once we had a wind that blew off a large percentage of the crop the last day of August. A good many of those apples in the vicinity where I am acquainted were packed and sent to Liverpool. The windfall apples in the

section where I am acquainted are very largely taken care of, picked up and put into the cellar in separate piles from the hand picked apples, and the buyer is supposed to run them through and get perhaps 50% out of them to put in barrels. And when you ask what you get for your No. 2 apples, you get a good price for them. I suppose you sell your apples the same price for ones and twos and that you think the twos hurt the market enough, make the price enough lower so that you don't really get much for them. But it seems to me that that is a mistake. I have had No. 2 apples bring more in Liverpool than No. 1's. They did in one shipment last winter. The No. 2 apple is usually smaller, they go a good deal by weight there and the heavier barrels will bring the most sometimes. They do in Liverpool, and that is what we want to cater to. Our apples here in Maine mostly go to Liverpool—if it wasn't for the Liverpool market our apples wouldn't be worth the gathering—and we want to cater to that market, and they use late keeping, shipping apples, and there will be very little waste, surprisingly little if you have those varieties for that market. They don't discriminate as they do in New York and Chicago and those large American markets. They pay a very good price for a No. 2 apple there in Liverpool, and don't stop shipping your No. 2 Baldwins and Ben Davis and other good apples. If you have this soft stuff, half of which is exhibited here, it don't matter what becomes of it—graft your trees. If you have good natural fruit, no matter if it is five hundred years old, and it is still good and healthy, do as the Bible said by the tree and you will have a young tree again, the tree will renew itself. All these trees should be grafted, and when you get these hard, late-keeping, winter varieties you won't be troubled with waste and the evaporator and the canner will have to change his business and go into something else. There will be no more future for him here in Maine. And as to canning apples, just by way of matter of interest they are paying in New York now twenty-five cents a bushel for good grafted fruit apples, Baldwins and Greenings, to go into the canning shop. Some of those factories can 1,500 bushels a day and that is only a little of their business, they are canning so much other stuff, and pay only fifty cents a hundred pounds or twenty-five cents a bushel and they get good large Baldwins and Greenings, as large as your fist, most of the trouble they have the smut or

fungus on them, and while we calculate to crate up our smutty, fungus apples, they haul them to the evaporator.

Mr. WHITTIER: I want to say one word more about getting rid of the trypeta by using up the poor apples. The first trypetas I ever saw anywhere round near my premises was the year after I bought apples to evaporate. I got quite a lot of apples with trypetas in them. I had more cores and skins than I could use up with my stock and I dumped them out into the orchard and other places around. Well, the apples that had trypetas in them and were not fit to use were dumped out into the orchard and the next year I had trypetas in my early fruit, and it is the first I ever had. You will have noticed that the first trypetas that ever appeared here in the county appeared near the villages. One year we had a scarcity of apples, they were imported from Massachusetts and they have had trypetas there I know more than fifty years, and we got apples here from Massachusetts that had trypetas in them; people around in the villages bought them,—but very few were bought in the country around, but in the villages they bought them and dumped the waste at their back doors and other places, and thus trypetas were brought around the villages, and that is where they appeared first. We never knew them before that in this county or in this State. Thus you see they can be carried in these poor apples, and thrown out as waste and dumped, the trypetas have a chance to live. Picking up these apples and using them for canning or evaporating, and dumping the waste out, will not get rid of the trypetas; but if you let the hogs and sheep eat them I think perhaps you might get rid of them.

Mr. DECOSTER: I believe that clean culture will destroy the trypetas. I have one orchard in a sheep pasture. I raise in that orchard from four to six hundred bushels every year and never have I found a trypeta apple in that orchard. In my orchard at home I am troubled very much with the trypeta, for the very reason that I don't do my duty, and I am trying to solve the problem. I think by practicing clean culture we will get rid of the trypeta.

FRUIT GROWING IN PISCATAQUIS COUNTY.

By WILL E. LELAND of East Sangerville.

I am aware that the fruit industry of Piscataquis county is not of sufficient importance in comparison with the rest of the State to occupy very much of your time.

Piscataquis county has an area of 3,780 square miles, more than three and one-half times as large as the state of Rhode Island. With all this great territory the population is the least of any county in the State.

The southern part only is at all thickly settled. The northern part, still covered with the forest primeval, with numerous streams and lakes, is a paradise for lumbermen and sportsmen.

It is owing to these conditions that the apple crop of the county is not especially considered in making an estimate of the crop of the State, and not that we are too far north for orchards to do well.

The first family came into the county nearly one hundred years ago. Many trees planted by the early settlers are still standing. Their fruit is of small value but their large size and evident vigor go to show that we are well within the limit of profitable fruit production. Nearly every farmer has his orchard, usually small. An orchard, that has reached the bearing age, of more than two or three acres is rarely seen. The Rhode Island Greening, Spy, Hubbardston, Milding, Nodhead, Fameuse, Rolfe, Talman's Sweet and Hurlbut are found in most of these orchards. The crop this year is hardly more than sufficient to supply the local market.

Within the past few years the attention of farmers has been turned more in this direction and many young orchards have been set, some of them quite large. I know of one of about eighteen hundred trees and occupying thirty acres. These younger orchards are usually Ben Davis or Stark, and of late the Arctic is being set to some extent. In some cases the Ben Davis and Stark will be topworked into Baldwin. We have been brought up to think the Baldwin could not be profitably grown with us. Proper care and cultivation have proved the error of this belief. I have seen Baldwin trees in Sangerville as well loaded and with fruit of as good quality as I ever saw in Read-

field, and there was a time when I was quite familiar with a few orchards in the neighborhood of Kent's Hill. The cultivation, however, cannot be neglected.

The Rhode Island Greening is another variety that gives good returns if well cared for, bearing annually a fair crop free from scab.

The Northern Spy, were it not for its shy habit of bearing, would be esteemed above the Stark or any of the newer varieties as it combines good keeping qualities and flavor.

The Fameuse at one time were largely set. The trees are being grafted over in most orchards, as the scab makes the fruit nearly worthless in an ordinary season.

The Milding, or Winter Gravenstein, gives promise of being a very desirable variety in the county. The tree proves hardy, a prolific bearer and vigorous grower. As the trees grow older there seems to be a tendency for the fruit to scab somewhat.

The Rolfe originated in the county and at one time there was a large call for scions. Both tree and fruit are subject to the fungus and of late the trypeta has greatly damaged the crop.

The Hurlbut is not a late keeper and is probably not being set to any extent at present. It is a good bearer and has been one of the most profitable apples in our orchard.

The large crop in our section last year and good prices gave new interest and an unusually large number of trees were set last spring, while old orchards received such a trimming and fixing up as they never had before.

I have had but few years of experience but am convinced of the necessity of thorough care of the orchard. We all know the value of manure. It is plant food. A little of it makes a big apple instead of a small one. Which is worth more? We need to practice more what we already know. It takes courage to raise nothing but apples in the orchard with the barn full of stock, and yet we know that one crop is enough to expect if we wish it to be the best possible.

There is a question in the minds of Piscataquis orchardists whether or not we are making a mistake in setting these newer varieties that are not considered of first quality in the home market. I hope to learn something on that point from the experienced fruit growers here today. Also how long a time the young trees should be left before topworking when that is the end in view?

Q. I would like to inquire of the gentleman if there are any canning and evaporating plants in the county?

A. Not of apples; we have a corn establishment but they don't handle anything but sweet corn.

Prof. MUNSON: I would like to ask the speaker how far north in the county of Piscataquis these more hardy varieties may be grown? They certainly do well at Sangerville, which is just adjacent to Penobscot county, but how far north in Piscataquis will they grow?

A. I am familiar with the lower part of the county only; in fact, the northern part, as I said, is hardly settled. I was at Greenville this fall and saw a few trees, but I think there are no orchards much above Parkman, although I am not certain. I see no reason why they could not be grown as far north as it is now settled.

Mr. GILBERT: Mr. Leland has raised the question of the Arctic apple. I would like to know if there has been any experience in connection with the growing of this variety that can be reported here at this meeting, of the fruitage of that variety and the growth and character of the trees?

Prof. MUNSON: I may say that in the orchard of the Experiment Station, we have trees at the present time which have been planted ten years. We have two trees. One tree bore about a barrel of fruit last year, the other bore nearly as much this year. It is not a strictly annual bearer, but both trees bear some fruit every year. In general I may say the tree is very vigorous, is very hardy, and is a fairly good producer. The fruit has somewhat the appearance of a Baldwin,—not as well colored, not of as good quality, but where the Baldwin cannot be grown, the Arctic I should suppose would perhaps be the nearest variety to take its place.

Mr. COOK: I would like to ask the speaker why he would topwork a Stark tree?

A. I didn't say I would wholly, but they were being set, I said, in some cases to topwork into Baldwins. We have been growing the Baldwin quite successfully within a few years and we are afraid that the Stark is not of sufficient merit. I think it is certainly behind the Baldwin in our orchard for quality. There is a variety, the Milding or Winter Gravenstein, that we think considerable of. The tree is very hardy and is a vigorous

grower and prolific bearer. The fruit as the trees grow older—this year in particular—has seemed to scab somewhat though; but as I said before we would like to get an apple of better quality, or an apple that suits the home market better. The Northern Spy, if it were not such a shy bearer, would suit, I think, the best of anything yet found, as it combines good keeping qualities and flavor.

Mr. GILBERT: Mr. Leland speaks of topworking the Ben Davis. The Chair has several times raised the question whether the Ben Davis stock was a satisfactory wood to graft upon. If any one has had any experience in changing the Ben Davis apple to some other variety by grafting, we would like to have it drawn out. I met a gentleman a few days ago who made the statement that it was not a good stock to graft on, that is, that many varieties would not do well and stand well grown on Ben Davis wood. You are aware that but few varieties of apples will grow on crab stock successfully, and he claims that the same difficulty to a certain extent is connected with the Ben Davis wood. These are facts of importance if we can establish them as facts.

Member: One Ben Davis I grafted with Gravensteins. I didn't have good success. They bore some but haven't done so well as other trees.

Q. I would like to ask Mr. Cook, who seems to have some knowledge of shipping apples, if he thinks it is going to be necessary to rework our Ben Davis apple trees?

Mr. COOK: I set 200 Ben Davis trees last spring. I have some thought that I may set 500 next spring. I do what I think is best for myself, and that I think is to set Ben Davis. In answer to the chairman's question, I have had no experience grafting anything else on to Ben Davis wood; I have had quite a little grafting Ben Davis on to other things. Ben Davis does very well grafted on to other varieties, but there is an objection to grafting some varieties at least into Ben Davis stock. Baldwin, for instance, I should not think would do well grafted in a Ben Davis tree, for the reason that the Ben Davis is not anywhere near as large a grower as the Baldwin. The Baldwin is a very vigorous grower when it has a good chance and will grow into a large tree. The Ben Davis is not comparatively so large a grower as the Baldwin, and I think you would get too heavy a top for the trunk in grafting the Baldwin into Ben Davis, but

that is something I never should want to do myself. As to the gentleman's question, if he is catering to the local market he is all right, he wants an apple of good quality, but if you are contemplating a commercial orchard you don't want any apples of good quality. You can't mention an apple of good quality that is a first class commercial apple. The one that comes nearest to it perhaps is the Northern Spy. There are so many objections to the Northern Spy that I will not mention but one or two. In the first place they are too long coming to bearing. You want to plant something that will come to bearing before a great while. If you are planting Northern Spies, you are planting for posterity, and posterity never did me any good and I don't owe posterity anything; they must look out for themselves,—I did. To be sure, when I pass away I shall leave my Ben Davis trees, and I shan't regret the apples very much if I do, and you won't find anybody that will. But this matter of the Ben Davis, this scare if you may call it so about the Ben Davis, it seems to me is all nonsense. We don't come into competition with the western Ben Davis. There has been so much talk about the western Ben Davis, they raise so many out there; and their heads are level in doing it, that is the way they make money, but the season of the western Ben Davis is fall and early winter unless it is in cold storage. In Kentucky the Ben Davis is a fall apple, while ours keep, as you know, till spring; and no matter how much of a glut there may be in the market,—and we are face to face with a condition very much like that of 1896 now this minute,—if you have your cellar full of Ben Davis you needn't worry about that condition.—you may forget you have them and let them stay there until this glut, this overstocked market has all gone by, and then sell your Ben Davis for a good price. In 1896 you remember we had such a condition, and worse perhaps than it is now, and apples were not practically worth anything; the first two carloads I shipped in 1896 didn't bring me anything, I lost work, apples, barrels and everything, the freight just about offset what they brought in Liverpool. But I had some Ben Davis, and they sold when it came time to ship Ben Davis for seventeen shillings, more than \$4, and netted back about \$3. That is a good deal better. Your Ben Davis will bring you good money if you keep, them, as you can. Your Baldwins won't quite keep past the glut. They do very well, it is a grand

apple, a great apple. And it is just so with other varieties of fruit. The best quality of pears are not the commercial pears, are not the ones you can make the most money out of raising. You can't make so much money out of raising them and they don't do it in the great pear growing sections, they don't raise the Bartlett and the Sheldon and those pears; they make their money out of the Kieffer and the Kieffer pear is of poorer quality than the Ben Davis apple; and in berries,—strawberries, blackberries, it is just the same. If you want quality, sentiment and poetry and all that, go into some big apple like the Alexander and Wolfe River and those things,—that is sentiment, I don't quarrel with that, but if you are after money, you want some late-keeping, hardy apples that bear young and are abundant bearers, and not too large, and as solid as bricks, and that will keep by the glut, and that haven't very good quality—of such is the kingdom of Ben Davis apple.

Mr. SOLON CHASE: The Northern Spy is good enough for me.

Mr. GILBERT: Is it a fact that the Northern Spy is generally troubled with trypeta?

Member: Very frequently ruined entirely on account of the trypeta.

Mr. CHASE: I have got 250 barrels of Northern Spies in my cellar and I will give one dollar apiece for every trypeta found in them.

Member: That is all right. It is true just the same that the trypeta very frequently gets into the Northern Spy, and almost as frequently as into some of the fall apples.

Mr. GILBERT: That doesn't accord with the experience of some of our members at all. I would like to inquire whether that statement generally holds true. We have got to be a little careful in regard to the instruction we throw out in regard to varieties. Is it true that the trypeta menaces seriously the Northern Spy apples?

Mr. BLOSSOM: I will say that up to this year ever since the trypeta appeared among us, I have lost my Northern Spies—utterly worthless up to this year. This year they are all right.

Member: In Cumberland county they are very chary about buying them. They are generally infested with trypeta.

Mr. BAKER: I overheard some remarks of the president in regard to an apple called the Arctic. I fail to see a sample of it here in the hall. I will say that we raised the apple or tried to, that is, and have been at work at it about fifteen years. We have discarded it. It is a handsome apple, the tree a vigorous grower, but it is an apple that goes off very quickly, appears one week to be solid as a rock, the next is gone by. The result is that we are discarding the Arctic apple. Perhaps they will do better here in Maine, but from my experience I would advise you to go slow. They are a very pretty apple, but an apple has to have something besides good looks on the outside to recommend it.

Mr. _____: I am interested in the Arctic apple. Last winter I had a bulletin sent me from the Orono State College. They called the Arctic apple one of the best, if not the best winter apples. This spring a man came along selling those apple trees and I bought fifty on what they said there. I would like to hear a little more about it so I can understand it a little better.

Prof. MUNSON: I am responsible for that bulletin. Whatever was said in that bulletin I will stand by. I don't think if the gentleman will read the bulletin over again he will find that it is called one of the *best* apples.

Mr. _____: That is the way I understood it.

Prof. MUNSON: But I do say that where you cannot grow the Baldwin that may take the place of the Baldwin as being somewhat of a similar type and a good selling apple. I do not regard it, and never did regard it as one of the best apples intrinsically.

Q. Is it a good keeper?

A. It is a good keeper. It kept with us last year until March or April, very well indeed.

Q. Is it larger than the Baldwin, redder and better flavored?

A. No, it will average fully as large as the Baldwin. It will not be a distinctively red apple, not as red as the best Baldwin. The color however, of course, as you understand, would depend very largely on the soil and location.

Q. Would you think it would be policy to set out more of these apple trees?

A. We have not grown it long enough to be sure what its characteristics are going to be. We have trees in the station orchard which have been planted twelve years—trees set in 1891, three-year-old trees at that time. That tree bore a barrel of fruit last year; it is a large, vigorous tree, and very healthy.

BEN DAVIS AND WHAT IT STANDS FOR.

By F. A. WAUGH, Burlington, Vt.

It is hardly necessary that I should introduce Ben Davis to this audience. He is already well known to most of you. I have no doubt but that many of you already regard him as a friend. Personally, he is to me more than a friend. He was, in fact, my school-fellow. Every day at noon-time when I opened the little tin dinner-pail I found Ben Davis smiling up at me. He nearly always came to dinner with me, and though he usually fared the worse for it, he was there on hand the next day, as bright and ruddy as ever. I ought to say that my school days were spent in Kansas,—that sunny southwest land which is known everywhere as the home and peculiar province of Ben Davis. It might not be surprising, therefore, if I were somewhat prejudiced in favor of my old school-fellow. At any rate I shall not accuse him needlessly. What I want to do is simply to tell you a few things about him which you already know, and then to enter on the greater and much more important question of what he stands for.

Ben Davis is regarded as a westerner, belonging especially to the central Mississippi states, Illinois, Missouri and Kansas, but we all know that Ben Davis is cosmopolitan. His range is almost as wide as the total range of apple culture. Within the last six months I have eaten specimens from the state of Washington, from Kansas, Oklahoma, New York, Canada and all the way to Nova Scotia and Prince Edward Island. Moreover Ben Davis is being somewhat largely planted on the other side of the world, in New Zealand and Australia; and in every large European nursery one can find it and the Baldwin growing side by side as representatives of the American apple industry.

In spite of Ben Davis's cosmopolitan character it has been repeatedly asserted that he was not especially at home outside

the neighborhood of its origin. I have often heard it said, and I think it likely I have said myself, that Ben Davis would not succeed so well in this northeastern country as he does in the southwest, and that it is, therefore, manifestly bad policy for us to encourage him here. If it is indeed true that Ben Davis does not do so well here, we would simply be putting ourselves at a disadvantage in competing with men who grow the supposedly better fruit on cheaper soil and at much less expense. This view of the case has appealed to me very strongly until within quite recent times. During the last few months I have met a good deal of evidence which has shaken this belief profoundly. At a fruit exhibit in Ontario, Canada, this winter, where I had the honor of acting as judge, I was called upon to pass upon some samples of Ben Davis just taken out of sixteen months storage. They were as fine and firm as any fruit I ever saw. When the boxes were opened less than two per cent of the fruit had to be discarded from the exhibition table. That is, ninety-eight per cent was not only saleable, but was up to exhibition standard. Moreover, the color of the fruit was equal to any I ever saw in Missouri. Still later in the winter I was again judge on a fruit exhibit at a meeting of the Nova Scotia Fruit Growers Association, where Ben Davis was again strongly in evidence. Once more I found the fruit remarkable for soundness, firmness, smoothness and color. The specimens which took first prize were grown in Prince Edward Island, which is about as far to the northeast as the apple business can be carried in this country. There were no exhibits from Labrador nor Greenland, but I have no doubt but that if word had been sent in time some specimens could have been secured, and they certainly would have been Ben Davis, too. The Prince Edward Island specimens were as large and well colored as those shown from Illinois and Missouri at the Pan-American Exposition. Here on the exhibition tables today you will find a number of samples of Ben Davis, all of them good, and many of them extra good from the standpoint of the commercial dealer. They are not extra large, but the dealer does not prefer large apples. He likes smooth, uniform, sound, late-keeping fruit, and these specimens here before me fill those requirements to the very letter.

You will notice that I have thus far said nothing about the matter of quality. I am often told that we cannot grow Ben

Davis of so good quality in the East as we can in the West. I think this notion is wrong also. Whether it is or not makes no difference, because quality cuts no figure in the sale of Ben Davis. When a buyer has no more discrimination than to buy Ben Davis, he knows nothing about quality. Ben Davis is sold on its looks, not on its flavor. Quality does not count.

The statement is often made that the present tendency toward planting Ben Davis is merely a temporary fad. They say that the popularity of Ben Davis will very soon wane. People will find out about its bad qualities and will refuse to buy it. With regard to this matter of Ben Davis's popularity I wish to submit a few figures that were secured in an extended statistical inquiry made throughout the New England states. The figures which are herewith given show the percentages of certain popular varieties both in the old bearing orchards and in the young orchards which have not yet borne. By noticing whether the young orchards show a greater or less proportion of the given varieties, one may judge whether they are increasing or decreasing in popularity.

The Baldwin apple, for example, has been a prime favorite in the New England states, and especially in Massachusetts, but its vogue seems to be giving way somewhat before the merits of other varieties. The following figures show the percentage of Baldwin trees in the orchards reported. The first column gives the percentage of bearing trees which are Baldwins, and the second column shows in percentages the proportion of Baldwins among trees too young to bear.

BALDWIN.

	Bearing.	Young.
Vermont	5	10
New Hampshire	63	58
Maine	51	34
Massachusetts	65	48
Connecticut	61	79
Rhode Island	47	64

The percentage of Baldwins is notably reduced in Massachusetts which has been the principal New England producer of this variety. In Vermont the proportion of Baldwins is greater among newly planted trees than in old orchards; but this has

little significance, since Baldwin has never been a leading variety in Vermont.

Rhode Island Greening, another New England favorite, does not make the showing which might be expected. The figures are as follows:

GREENING.

	Bearing.	Young.
Vermont	18	4
New Hampshire	2	3
Maine	5	1
Massachusetts	4	1
Connecticut	4	1
Rhode Island	13	0

It will be seen that Rhode Island Greening has been practically ignored in the planting of young orchards, even in Rhode Island.

The figures for Northern Spy are as follows:

NORTHERN SPY.

	Bearing.	Young.
Vermont	7	9
New Hampshire	1	3
Maine	5	7
Massachusetts	1	0
Connecticut	3	0
Rhode Island	2	0

These figures show that Northern Spy is holding its own, or perhaps gaining a little, in Northern New England; but that it has been discarded in Massachusetts, Connecticut and Rhode Island.

When compared with these three standard New England varieties, the figures for Ben Davis are particularly instructive. They follow:

BEN DAVIS.

	Bearing.	Young.
Vermont	10	48
New Hampshire	1	1
Maine	5	23
Massachusetts	0	13
Connecticut	5	3
Rhode Island	6	15

In other words, Ben Davis outnumbers all the varieties previously named in the recent orchard plantings of nearly every state. In Maine and Vermont the drift toward Ben Davis is especially pronounced; while even in Massachusetts, it is rapidly gaining on Baldwin.

So much for Ben Davis. Now let us examine more closely what he stands for. It is perfectly plain, of course, that all the discussion which has been going on in the horticultural papers and the various spirited arguments which take place in the various horticultural meetings are not drawn out by the merits or the demerits of Ben Davis alone. There is something back of him. He is simply the fellow who stands up in front and takes all the knocks.

The fact is, Ben Davis stands for an entire class. He stands, first, for a certain group of apples such as Stark, Gano, and Beach, and others. All these apples are remarkable for many things, but none of them is prized for quality. There are many other fruits which are successful market sorts but which are at the same time of inferior flavor and not really satisfactory to the fastidious horticultural palate.

The question is thus a question of quality. In fact the whole argument in which Ben Davis figures so prominently is the plea of quality vs. looks, and the simple question is whether or not it is ever advisable to grow a vigorous, thrifty fruit which is short in this one point of quality. That is the plain, simple issue. It is, in fact, the sharpest and most critical issue ever discussed in the horticultural forum. It is a question of fundamental importance and of wide reaching application. We need not be surprised, therefore, that it comes up for warm discussion in every horticultural meeting, and we can well give our time today to the consideration of this broad, general, fundamental, serious and far reaching question for which the Ben Davis apple stands.

When we propose a solution for this question we shall find it best to lay aside for a short time the merits of Ben Davis itself, and to proceed to a consideration of certain other factors which greatly influence our conclusion. The first important matter to which I would direct your attention is this: that there are two fundamentally different markets in America or in Europe to which we send our fruits. The one is the general, open, whole-

sale or indirect market, in which the grower sells to a commission man or to a travelling buyer, and in which under no circumstances does he come into direct contact with the consumer. The other is the private retail, direct market, in which the grower turns over his fruit more or less immediately into the hands of the consumer. It is sometimes difficult to keep these two markets separate—sometimes a little hard for a man to see whether he is carrying on his business in the one or in the other. Yet the two are fundamentally and entirely distinct, and the differences between them, even when not easily observable, are of first importance. In the wholesale market fruit is handled somewhat roughly in large packages and in comparatively large quantities. It is stored for long periods in warehouses; it is opened on the docks; sold in the market places; hawked about on the push-carts by the Italians, and in general treated as a commodity of common commerce. In the direct market the grower carries his fruit fresh and clean from the tree or from his own storage house into the hands of the buyer and holds himself personally responsible for the quality and condition of the fruit until it is delivered. The differences between these conditions cannot be easily overestimated.

Now it is not difficult to see that in the direct or personal market Ben Davis is placed at a disadvantage. If a man has a private customer whom he is anxious to please and to whom he wants to sell apples again next year, he certainly will not be so unwise as to give that customer Ben Davis this year. The man who cares for quality is not going to buy Ben Davis but once. On the other hand, in the wholesale market Ben Davis takes the lead, as everybody already knows. It will stand any amount of storage and misuse and still come up smiling and sound at the end of the journey just as good as ever. These statements are matters of common knowledge.

The question then, of whether it is best to plant Ben Davis or not is seen to be very largely a question as to whether a man expects to sell his apples off the trees to some stray buyer or perhaps ship them to some commission man, or whether he expects to sell them in his own town or in Boston or in New York to his own private customers. It is a question of market and not of variety.

We must all remember, furthermore, that the question as to whether it is best to grow a certain variety or not is always influenced very much by the soil, climate and other circumstances in which it is to be grown. And also equally as much by the character of the man who is to grow it. In fact these three things which I have named are of greater importance—any one of them is of greater importance—than the merits of the variety itself. The market, the general circumstances, and the apple grower are three factors all of which are to be considered before we come at all to the question of what varieties are best to plant. It is no doubt a serious matter for a man to make up his mind when he is setting out a new orchard whether he shall plant Baldwin, Spy, Spitzenburg, Greening or Ben Davis, but that question cannot be taken up until these others have been settled. It is all very well to treat this variety question thoughtfully, but it is all wrong to emphasize it over these other matters all of which are of greater importance and all of which must precede it in order of consideration.

In conclusion I wish to say most emphatically that I hope none of you will go away from here and say that I recommended Ben Davis. On the other hand I should not want you to say that I have spoken against Ben Davis. I have tried not to do either one. They say it is a very difficult thing to straddle a question gracefully, and perhaps I have not done it in this case, yet I own that that is precisely what I tried to do. My real and original intention was to take both sides of the question. It has two sides, and both sides are right. It is all right to plant Ben Davis if that variety suits the planter and if he has the sort of conditions for it and if he sells in the general market; and it is all wrong to plant Ben Davis if the apple grower does not like that variety and has a market for Baldwin, Spy and Spitzenburg.

Secretary Knowlton said Prof. Waugh had treated the subject very fairly and he was pleased to have the matter considered. There is one objection to the Ben Davis; it blossoms late and the season is frequently so short that the fruit does not mature well. Whatever conclusions might be reached in this discussion he wished it understood that the Pomological Society has always stood for quality in fruit and he was not yet ready to have the standard lowered. This year more than ever before Maine Baldwins and Greenings have come in competition with the Ben

Davis in the foreign markets, and if the sales are followed it will be seen there has been a decided gain in favor of the Maine fruit. In not a few cases Baldwins and Greenings have led the Missouri Ben Davis. In the end he believed quality would lead, and then it would not pay to grow any others. He urged honest packing and called attention to the Canadian law bearing upon this subject. He did not know how the law was going to work, but if it would make people mark their fruit as it was packed it would be of great advantage.

PLUM CULTURE.

By E. R. MAYO, Manchester.

When this topic was first mentioned I thought that our secretary had made two mistakes, one in the person to whom the assignment was made, and the other in the choice of that particular topic, plum culture, for we have just seen the discouraging sight of bushels of plums being wasted for lack of a market; but after further thought I concluded the topic was a timely one, and that there were some lessons to be learned from our experience as plum growers this season. One conclusion arrived at by me is that there is a demand for more fruit than we are able to supply, but we must look more closely after the matter of the distribution of the crop. Some sections were unable to use all the plums put upon the market, while other sections were left with no fruit or a meager supply. Of course every one present today knows how to cultivate fruit trees of all varieties, and some doubtless put that knowledge into active use, but the successful methods in use in plum culture differ somewhat from those usually employed in growing other fruits. Plum trees will thrive in almost any soil, provided proper drainage is afforded, either naturally or artificially.

In selecting trees choose those which are not more than two years of age, and one-year trees are even better. Plums may be set from ten to fifteen feet apart, according to the habit of growth of the variety set. If an upright grower, the nearer they can be placed the better success, but if of a spreading habit of growth they must be allowed more room. Now I approach a

branch of my subject which has been much discussed in recent years, that of pruning. When shall we prune? how shall we prune? and for what purpose do we prune? I maintain that after the first few years in the life of an apple tree very little pruning is necessary, but it is very different with the plum and we have found some pruning was needed by them each year in order to control the tree in its growth. Most of the pruning is done while the tree is dormant, as it is for the purpose of controlling growth, but it sometimes becomes necessary to prune to bring a tree to fruiting. This is done by pinching off the growing shoots in June and July and if circumstances are favorable a crop of fruit may be expected the following year.

There is no work in the orchard which requires so much thought, judgment, and we may well say, common sense, as pruning. Some growers never prune a tree even when first received from the nursery. They claim that if left to itself Nature will do all the pruning needed. It is true that Nature is constantly at work shaping the growing tree, but the finished product of Nature is very different from the tree we expect to see in our fruit bearing orchards. If it is possible to avoid the removal of large branches, do so, as a tree is injured by cutting them out. Generally there are three reasons for pruning. First, to change the direction of the growth. This is accomplished by cutting to a bud which will grow in the required direction. Second, to cause the formation of more small branches of lateral growth for fruiting. Third, to remove undesirable branches, that is, those which from their position are an injury to the tree, and all suckers and water sprouts should be removed early, as soon as discovered.

Plums are very productive, and therefore must receive heavy applications of fertilizer to keep them in good condition. We are now topdressing heavily with barn dressing and also using all the ashes we can get, and the results are satisfactory. There are some very serious obstacles to plum growing and of these evils the black knot is the worst. There is no remedy as yet discovered. It makes a very unsightly appearance, and if allowed to run its course unchecked will in a short time destroy the tree or render it worthless. No effectual remedy or preventive has as yet been discovered. When trees are hopelessly affected they should be removed and destroyed. If the knot is

cut out when first seen and burned a tree so affected may be preserved many years. The black knot does not affect the fruit only as it affects the vigor and vitality of the tree. Some varieties are more subject to the attacks of the knot than others, the Japans least of any. There is another pest nearly as serious in its effects as the lack knot, that is the brown rot which affects the fruit and sometimes destroys a crop completely. It is a fungous disease which lives through the winter in the dried-up fruit left on the trees and also in the ground. The dead and diseased fruit should all be destroyed, and care taken to set those trees which are least subject to its ravages. Some growers claim that Bordeaux used early will keep it in check, but we have not been much benefited by its use. Severe thinning of the fruit is a great help.

One of the worst evils which plum raisers encounter is the curculio. We have never been much troubled by the insect. Some fruit is stung each year but enough is left for a crop. We have a small orchard in a large hen yard and there the fruit is smooth and fine. Some varieties are less subject to the attacks of the curculio than others owing to the toughness of the skin of the fruit as for instance the Lincoln, Spaulding and all of the Japans.

Now I wish to touch lightly on thinning the fruit. How many growers have ever tried to ascertain by practice what the effect of thinning the fruit on plum trees is and what influence it might exert in relieving a congested market? There is always a ready sale for fine fruit even when there is a large crop, while poor fruit will receive no attention.

A tree which overbears must produce small fruit, salable only at a low price and causing a loss to the grower, and also making a heavy draft upon the tree itself. For these reasons we advocate and practice thinning fruit especially of the plum as it is sure to overbear. We picked and dropped on the ground from a Burbank tree this season at a close estimate three bushels of fruit and then sold over five bushels from the same tree. In order to raise strictly fancy fruit plums should be left at a distance of two or three inches from each other, they will then grow too large for canning but sell quickly for table use, and we must cater more to the growing demand for fine plums for eating out of hand, and what more delicious fruit is grown than a well grown, well

ripened specimen of Lomard, Abundance, Lincoln or McLaughlin plum.

Perhaps a few words might be said with reference to a choice of varieties. Do not set too many varieties. Ten kinds are enough for a commercial orchard. In choosing have reference to season. Early, medium, and late and as far as possible select kinds which succeed in your own section. If you have room for only one tree let it be a Lombard. I suppose it is not necessary to extol the merits of this well known variety, but we so often see it left out in making a selection that I think people do not know what they want. An orchard of Lombards will give results pleasing to anyone. I do not advise setting all Lombards, that would be a mistake, but a large part of the trees should be of that variety. Now you may ask why give this advise, because it adapts itself to any soil or location, it is extremely hardy, it is a vigorous and strong growing tree and it is remarkably productive. My trees of this variety have yielded more fruit in a given number of years than any other except the Burbank, and the fruit is of good quality and when properly thinned makes a fine eating plum. I also would recommend Reine Claude and two of its seedlings, Lincoln and Spaulding. The Lincoln is one of the largest of plums, and fine for eating. It is in color a reddish purple with a delicate bloom; very bright and attractive and is very juicy, rich and sweet; season last of August. The Spaulding resembles its parent in color, a yellowish green; the flesh is sweet and delicious, parts readily from the stone and is not injured by the curculio; season September. The best plum for canning with which we are acquainted is the Satsuma. It is a Japan and one of the latest of them. For late plums, York State Prune and Grand Duke are desirable. There is one of the Japans recently introduced, the Wickson, which I am sure will prove very desirable for a fancy table fruit, and it is quite productive. But whatever the choice may be do not neglect the trees, but give them a chance and strive to do all things in season, and remember that fruit growing offers today not only a better chance for money getting than any other branch of farming but also a better opportunity for quickening the thoughts and strengthening the mind, for in order to succeed we must be alert, quick to see and grasp an idea and willing to devote some time to study. The successful fruit grower must make it the leading branch of his

work and all other lines subservient to it and must always be awake to the opportunities given him for learning the great results of nature and must note and make use of everything of value to him or his coworkers. Observation, study, and industry are the essentials to success.

Mr. POPE: I have had little experience as compared with some here in the hall but I don't quite agree with Mr. Mayo on varieties. While the Lombard is a great bearer, the quality of the fruit is not equal to quite a number of others, and with me the black knot has worked worse on the Lombard than any other variety I had. If you have any idea of shipping plums to Boston, the Lombard would be rather a poor plum to sell. They want the Green Gage, as we generally speak of it in Maine, but they would call it the Reine Claude. This and the Damson are the plums for the Boston market. The common blue damson is subject to the black knot so that it is almost impossible to raise it, but the little red damson is not affected so badly. I should raise for a table plum for my own eating, first the McLaughlin, secondly perhaps the Empire.

I agree with him in many points, particularly in the pruning and the thinning. Where trees are grown on soil rich as it should be it certainly is very important that, well, generally one-half or two-thirds of the plums be picked from the trees in order to raise fruit of decent size or good quality, for if the tree is overloaded you get plums of very poor quality as well as small size. Nearly all varieties of the plum, of course we will except the Japan, nearly all of the European varieties incline to make a heavy growth, shoots three, four, five feet long, very irregular; therefore every spring go through and cut off one-half of the new growth—keep your trees down—make a good round-shaped top. I made a mistake in the first I set, I didn't trim them at all, the trees went right straight up in the way they will, when heavily loaded the limbs were breaking off. Instead of that, cut off half of that heavy growth, keep your trees short, stocky-growth trees where you can reach them.

Q. What would Mr. Pope say in regard to the Satsuma?

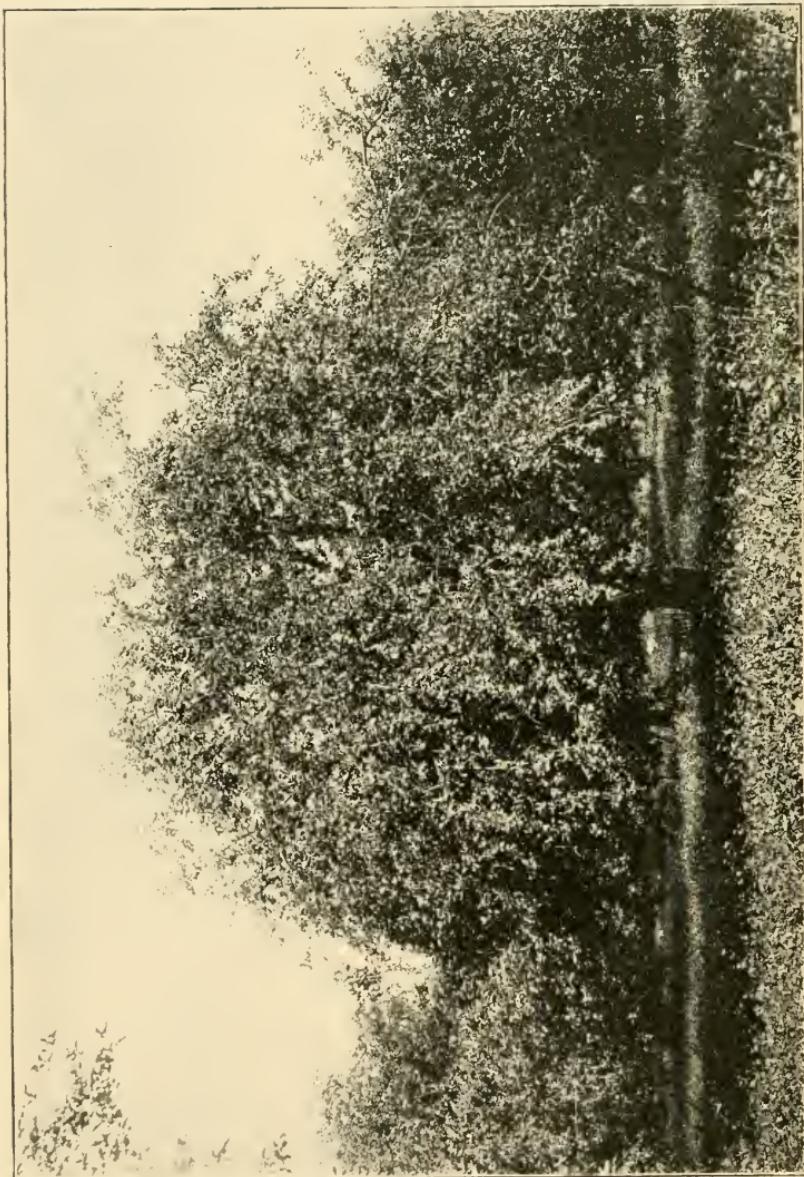
A. I would say that a great many people will be disappointed in this unless they are acquainted with it, in picking it too early. It makes a very good canning plum but it must remain on the

tree after it begins to color for about three weeks. The Satsuma will color about three weeks before it is ripe but when it remains on the tree until it is finally ripe, that brilliant purple color through the flesh seen as it is on the outside makes it a very fine looking plum, and it is a very good canning plum, but not equal to the Reine Claude, which is one of the richest plums for canning. None of the Japans compare with the European plum Reine Claude. Prune plum trees in the spring before the leaves come out.

Q. I would like to ask if the plum can be grown successfully on low, intervalle land, and on heavy soil? If so, what variety?

A. Almost any variety, particularly of the European, if the ground is thoroughly underdrained, but like any other tree it will not bear wet feet. If it is underdrained so the water will drain off, there is no difficulty in growing it on low clayey soil.

Dr. TWITCHELL: I was glad to hear Mr. Pope say what he did or hint at his thought in regard to the varieties. It seems to me that we have been running wild after foreign varieties and have lost sight of the fact that while we perhaps have some additional troubles in the oversight and protection of the European, yet when we want quality we want to sit down by a European plum tree. Perhaps the Burbank may be the easiest to grow of almost any, coming into use early in the season and hanging on the trees until the last of October as they do with me, yet I cannot class it better than inferior except in the early stages for canning. Abundance is a better plum but there is no plum for eating which will take the place of the Green Gage. Whether the climatic conditions this year have been the cause or not, I think all of us who have attempted to grow plums have realized that the black knot was afflicting us more than usual. During the last eight or ten years since I have been on the place where I am now, I have been trying to grow a few trees and I have had more trouble this year than in all the time past. The Japanese trees have been afflicted less, but still showing a good deal of trouble and calling for constant watchfulness. In pruning I have practiced nipping the shoots after they had made what I considered good fair growth in the season, nipping them back, and in that way I have been pretty well satisfied with the yield of fruit that has followed in succeeding years.



Baldwin tree in Monroe County, N. Y. Record in 1892, twenty barrels hand picked apples.
Photograph by Prof. John Craig.

A SERMON ON THE NORTHERN SPY.

Hon. SOLON CHASE, Chase's Mills.

Now this is not my first time of appearing before the people of Farmington. I have not been here for some few years, but it don't seem but a very little time since I was here before. I was preaching a sermon at that time and my text was, there was "too much hog in the dollar," and I made a good many of them believe it. I didn't make them all believe it. But conditions have changed, hogs have "riz" and I don't need to preach that sermon any more. Tonight my text is "the Northern Spy,"—the Northern Spy apple. Now I claim to be a man of truth and veracity but sometimes I have had my word disputed a little. That is not strange, for sometimes the truth is too strong to be believed—it wants to be restricted a little, and sometimes it wants to be stretched. But I am going to prove what I say to you about the Northern Spy. I don't want you to take my word for it. I know one time not a very great while ago I got into trouble with the women folks at Chase's Mills, and I would rather have got into trouble with the whole of Farmington. They said I didn't tell the truth. I told a story about the women folks having a rag bee in the winter time at my brother's wife's. There was a snow storm. The men were out breaking the roads with horses. But the snow storm didn't stop the rag bee, they went on snow shoes. I counted the snow shoes in my brother's house and there were seventeen pairs of snow shoes, and I counted them over twice; and when the truth came out afterward, I had lied, there were but sixteen pairs of snow shoes. And ever since then they haven't believed always what I said.

Now what I am going to say about the Northern Spy I am going to prove by no less a person than the president of the Pomological Society of Maine, I can prove my story by him because he has been into my orchard and seen my apples. As I said today a Northern Spy is good enough for me. My Northern Spy orchard is a farm that was abandoned, I wasn't a very large boy, I was a small boy, but I remember all there was left of the house upon that farm was an old cellar, and all there was left of the barn was a few boards—the barn was tumbled down.

That farm must have been abandoned more than twenty-five years at that time and that was as much as seventy-five years ago. That farm was abandoned a hundred years ago and had grown up to woods, and my father bought that farm onto his farm when I was a boy, and I inherited it from him. That is why I am there, and I am right there where I was born.

Thirty-five years ago I decided I would raise an apple orchard on this land. Now where I live, I live right among rocks and hills. Chase's Mills is a little hamlet about as big as it was a hundred years ago. It hasn't grown any that I know of. It is a good place to live in. Down below the rips in the bend of the river is twenty-five acres of clayey loam where there isn't a rock or root. Further down the river, where the land slopes down to the river is a side hill, sandy, loamy land—rocky soil—that is where I raise Northern Spies, half a mile from the house, five acres. Thirty-five years ago I set that land all out to apple trees; I didn't know what they were. The trees grew well for a few years until there came a winter that killed almost all the apple trees in the valley of the river in our section—killed natural fruit trees—didn't kill the apple trees upon the hills but the natural fruit trees. I went over one spring and found the trees most all dead. I didn't think much about them, that is, I thought it was not much use to try to raise apples there, I had got them all started and a good many of them were dead. I went to work raising corn, plowing the land. Some of the trees lived and pretty soon they began to bear, and the trees that began to bear were the Northern Spy. They began to bear when they were small, I found the apples were good and I began to have a little courage. Well, along about that time, I experienced religion, that is I got that "Greenback" religion and for ten years I travelled this country all over, and during that ten years I didn't attend very much to this orchard. The trees grew up and bore some, and the Northern Spies kept growing and kept bearing, bore pretty well.

Finally I went to grafting the living trees that were not Northern Spies, and the trees that had died and sprouts came up. Now three years ago I went into that orchard, and plowed the whole thing over, all set to trees, most of them Northern Spies. This year I raised 250 barrels of Northern Spies and about 100 barrels of other sorts, mostly Baldwins and Greenings. Three

years ago I went into that orchard and cut off the lower limbs, trimmed it so I could plow it, and where the large trees were I kept harrowing the ground, and what I have done in orcharding the Northern Spies I have done with a "harrar", plowed that sod and turned it over and where the trees were large kept "harraring" of it all summer.

Now I went to a meeting of this society down in the town of Chase's Mills at our grange hall a good many years ago, I was raising Northern Spies a little then, and there I got an inkling of raising small fruits and I planted small fruits in among these small trees,—strawberries, raspberries, blackberries. As I say, we plowed the orchard and where these large trees were we raised 250 barrels, the most of them from forty trees, and I have done it all with the "harrar," by "harraring" that ground and keeping the grass and everything all down, didn't manure that ground much, it was all in the "harrar." Where the trees were not so that you could get at them I had a Frenchman take a pick and go in and dig and make it mellow. Where the trees were small, I would plant corn in some places, and plant small fruits, but would leave a chance to drive the "harrar" right alongside of the trees. You don't need to make your ground very rich to raise apples. You make your ground so it will bear two tons of hay to the acre and plant Northern Spies and it won't bear an apple; but plant on a gravelly knoil and keep the "harrar" going and you will get enough of them. Now my son Isaac and his wife Jennie and a young Frenchman picked ten barrels of apples in two hours from a Northern Spy tree. Those ten barrels of apples were worth as much as a middling fair-sized hog. Now a hog is a money maker but I want to tell you that Northern Spy farming is more attractive to women folks than hog raising.

Last spring I sowed clover upon that ground, calculated to plow it in next spring, but it has been a good year this year for grass to catch and that clover has grown up and in some parts has headed out, and so day before yesterday we turned over half an acre; we are going to turn the rest of it over in the spring and then we are going to put a "harrar" in—all in the "harrar" that is what it is. Take an old orchard—I don't care where it is—and plow it up and cut off the dead limbs, plow it and keep it "harrared" and you will get apples,—don't care whether Northern Spies or anything else. I am not troubled with the try-

petas. When I gather my apples, I pick up the windfalls and put them into the barn and feed them out to the cows a few every day. Clean the ground all off. If you will destroy the windfalls you are going to get rid of them. Another thing, if you will keep your "harrar" going and make your trees grow thrifty, the caterpillars and insects are not going to trouble it; if they find a tree half dead they will go into that and kill it.

Our farmers don't know what a mine of wealth, what a possibility there is for the Maine apple. Here we are right upon the Atlantic coast, here is an export demand for Maine apples, and if we only raise good fruit we will have a market for them. When apples were very low I have sold Spies for five and six dollars a barrel. Last year I sold 100 barrels of Spies for \$4.50 a barrel, along in the middle of March. Well, I didn't expect to sell them so soon; I was kind of raising the price, calculated to get more, but a fellow took me up and I let them go. I kept a barrel of those apples to eat just as I brought them from the orchard. I pick the apples carefully in the orchard, I do them up in the orchard—not very hard but so they won't jar any, put them into the cellar and let them lay there until I take them out and pick them over when they are sold. I left one of those barrels in the cellar last spring that laid just as I had picked it in the orchard; I opened it along about the middle of April or the first of April and kept eating out of it. The last of them we ate the middle of June and the next meal we had strawberries on the home table; we had strawberries two or three weeks until haying time and then we had raspberries, and so on. I found just five rotten apples in the bottom of that barrel; that is just how that barrel of apples kept. I take Northern Spies and put them into my cellar and there is no shrink to them after cold weather comes; if there is any shrink it is in the fall. I calculate to keep them cold.

Most of our farmers believe they are not going to get any apples and they don't get them—what they do get they call good luck. They don't go into it in a scientific, common-sense way to make a crop of apples, to make the thing permanent. You take and cultivate an orchard and you are going to get a crop every year. The more manure you put on the better it is, but without manure you will get apples if you use the "harrar" enough, and you will not only get apples but you will make the

trees grow and you will be surprised to see how you will do it. I know what I have done there for three years. The orchard didn't bear very much when I began with that work.

When I was setting out trees in my orchard—places where they had died out, some killed by grafting, some vacancies—one of my neighbors said to me: "Why are you setting out trees there, you won't be here when they bear apples." "Well," says I, "I just enjoy religion in setting out those trees, for my doctrine is if a man plants apple trees for the benefit of those not yet born he is making the world better by living in it, and when we do that we can't help having a very good time, and the man that does that and lives that kind of a way he don't grow old any as the years go along."

You don't know anything about how I enjoy religion over in that orchard. I go over there on Whit Sunday and sit down upon a rock, and there is the buzz of the honey bees and the odor of the apple blossoms in the trees, just as white as they can be, trees that I planted with my own hand, and I enjoy religion as well as I could if I was down to my church along with Brother Gilbert all the time.

Now you can get good trees in a pasture, bear apples every year, the cattle running in among them keeps all the grass down. You can't set out a young orchard in a pasture for the cattle would break the trees down. There is lots and lots of good orchard land in Maine. In the Western states there is good hog land that will raise good corn, worth \$100 an acre without a sign of a building or a rod of fence on it. We can make our orchard land in this country worth as much to raise winter apples on as the prairie land is to raise hogs. We can do it if we are a mind to, and I believe the time will come and right away. If you cultivate your orchards you are going to get good apples. We can begin and plant new orchards, improve the land and you will find that the railroads will be blocked with apples the same as the Western railroads are blocked with wheat—there will be a demand for them—I can see in the future. Now here we are right next to tide water; it don't cost but a little to carry a barrel of my apples to Liverpool, ocean carriage is cheap. The apple is the only thing that we export. There is no export demand for anything that the Maine farmer raises except apples. Our apples are better than the apples raised in any other of the

United States,—better keeping, finer grain, different entirely—they don't get ripe here till most winter and they are long keeping. Already they have got a reputation in Europe as the best apples that there are. Now what we want to do is to improve the quality all we can. If we can get nice, first-class, long-keeping apples, why the price there is nothing to many people that want the apples. If we can get the apples up to perfection, why I am going to get a good price for them and there is going to be a demand for them all over the civilized world. Already they are shipping them to Germany, shipping them everywhere. Our railroads are handy so we can get right down to the shore, while Western apples have got to come a long distance on the cars. In New York state and Pennsylvania I have seen Baldwins and Greenings rotting on the trees, get ripe and rot right down. Here in this State of Maine they ripen after we pick them and there is where we have the advantage. We can keep them.

CULTURE AND MARKETING OF FRUITS.

By PROF. W. M. MUNSON.

I have talked to you for ten years about the culture of fruits. Some of you, I have no doubt, are getting a little tired of the same old story. You have heard some of the things that I have been talking about during these years corroborated by many of your local growers during this and previous meetings. You have seen some of the results of culture in New York state and in other states and in the Provinces, as exhibited by the slides which were presented last night. Some of you are aware that for several years past we have been doing something in the way of culture of orchards down in Kennebec county. I have a number of slides which have been prepared within the last few days, illustrating that work, and some of the methods of orchard culture which we recommend. I should be very glad to show these slides to you at this time but that we are without electricity. I shall try and show them to-night, however. So I am not going to take your time this afternoon in talking very much about the culture of fruits. Suffice it to say, you now believe, as I am

convinced from seeing your orchards, that culture does pay. If you cannot cultivate with the plow, you can cultivate with the hogs; and there is no question that the use of hogs in the orchard, aside from loosening the soil and stimulating the growth of the trees, will be of lasting benefit to the future product of the orchard by destroying the injurious insect pests.

Culture, spraying, marketing, are three of the important considerations in the successful management of orchards. We have heard a great deal about culture, we have heard a great deal about spraying. There is no longer any question as to the desirability of spraying our trees so long as we bear in mind what we are spraying for, in other words why we spray. But I want this afternoon to present to you just a few suggestions, rather to bring out some points which you yourselves already know than to offer anything new or original, upon some of the points connected with the marketing of fruits. For I believe that the business end of horticulture is at the present time one of the most important factors in the success of that industry. Our Maine orchardists can produce fruit—who dare say otherwise after looking around this room—but do our Maine orchardists who sell to the first man who comes along follow out the best business principles? You know as well as I do that you do not. Now there are some exceptions, I will admit, but as a whole you know as well as I do that you are not following the best business methods in the marketing of your products. So then, I say:

The average grower of fruits and vegetables is in greater need of education upon the subject of marketing his product than upon the best methods of production. Many a man is stranded on the rock of ignorance, carelessness or absolute falsification in the business end of his operations. The dealer to whom he consigns his products, fearing to be misunderstood, sells the goods on a low margin and makes no suggestions. Criticism doesn't pay, and may result in the loss of a shipper, and is therefore considered not worth while. It is, however, well worth the while of any wide-awake fruit grower to take the time and incur the expense of a trip to some leading market center, as Portland or Boston, for the special purpose of studying the requirements and methods of the market to which he is to ship. Dealers will be found only too ready to show every attention and give every facility for investigation to prospective shippers.

What to grow for market, is to a certain extent an individual matter. The markets of the world, however, want the best, and will always pay a fair price for it. It is well to remember that an attractive appearance counts for very much in the sale of fruits; but this is not all. Ben Davis, which for years has sold almost wholly on its appearance, is now coming to be recognized at its true worth. We may honestly differ as to the essentials which make for the success of any given variety, but all will agree that the higher the intrinsic merit of any product, and the more honestly and attractively it is marketed, the greater will be the chance for success and profit.

What the markets want first is quality—including appearance—and quantity is the next consideration; for the successful shipper must have enough fruit to command the attention of the market. The fruit should be carefully graded, placed in new *full-sized* packages, and full measure should be guaranteed.

The so-called "short" berry box or grape basket, apple barrel or box, is an abomination and a disgrace to the American grower or shipper who uses it. The flour barrel, which is largely in use in Maine, is of good generous size and is perfectly legitimate, but it should always be thoroughly washed and dried before use. The flour dust upon the fruit is regarded with suspicion by buyers, and will often cause a cut of 25 or 50 cents in price. Only a few years ago the practice of spraying fruits in this country was severely condemned by certain of the English papers because, it was said, "the fruit in the London markets showed the poison on the surface of the fruit in the form of a fine greyish or whitish powder." The trouble was that flour barrels had been used by the shipper.

Now because of the geographical position of New England, the foreign apple trade, which amounts to about one and one half million barrels a year, is of the greatest importance. We all know that in this trade, as well as in the home trade, there is a great deal of dishonest packing, but because of the method of selling in European markets fruit is there placed more nearly on its merits and any dishonesty is at once disclosed. Our Canadian friends have learned the lesson that the policy of honesty on the part of individual packers must be enforced or the commercial reputation of the country as a whole is endangered. Is Maine less progressive than her neighbor, and will she sit quietly by

and see the markets of the world discriminate against her simply because of her inertia?

STATE REGULATION.

A brief resume of the provisions of the much talked of "Fruit Marks Act" of Canada may not be out of place in this connection. The act, as passed in 1901 and amended the following year, provides:

(1) That the face of all fruit packages must fairly represent the fruit throughout.

(2) Closed boxes and barrels must be marked with the name and address of the packer, the variety of fruit, and its grade.

(3) It is an offense, within the meaning of the act, to dispose of, or have in possession for sale, fraudulently packed or marked fruit even when buyer and seller are ignorant of the fact.

(4) The act provides that No. 1 or XXX fruit "shall consist of well-grown specimens of one variety, sound, of nearly uniform size, of good color for the variety, of normal shape and not less than 90 per cent free from scab, worm holes, bruises and other defects, and properly packed," but does not prevent the packing or selling of any grade that is properly marked. There is no definition of grades marked "No. 2" or "XX" and "No. 3" or "X."

(5) Commission merchants who, after notice, handle fruit put up contrary to law will be prosecuted; but the act makes no provision for the inspection of particular lots at the "request of buyer or seller."

The penalty for a violation of the law, with reference to packing and marking, is not less than 25 cents nor more than \$1.00 per package; for removing an inspector's brand, \$40.00; for obstructing an inspector, \$25 to \$500; the fines being equally divided between the informant and the government. Merchants are held responsible for the fruit in their hands, but in every case the original offender is prosecuted if found.

The beneficial effects of this law are already being felt across the border, and it can but result in giving a tremendous impetus to the fruit industry of the Dominion. Shall Maine lead in a similar movement in our own country? Is it not within the province of this society to go before the State Legislature at its next session and urge the passage of some measure which shall

tend to protect the reputation of Maine as a fruit producing state? I am aware that such a measure would meet with opposition, and have little hope that action of the nature indicated can, at present, be secured; but the suggestion is presented for the serious consideration of the fruit growers here assembled. Nearly all of the raw material which the farmer buys,—his fertilizers, his seeds, his feeds—are subject to legislative restrictions; shall he then object if the products he offers for sale are placed under similar restrictions? Do those who object to such a measure dare stand up and give their real reason for such objection?

CO-OPERATIVE MARKETING.

For many years the farmers of New England have recognized the importance of co-operation in purchasing their supplies. The importance of the Grange in this direction is too well known to require discussion. But in the co-operative marketing of produce little advance has been made. This is a day of trusts, combines and syndicates, and in order to protect his interests, decrease expenditures and facilitate the distribution of his products, the farmer and fruit grower must fall into line. Co-operative creameries and cheese factories with or without the aid of outside capital, have been tried with varying degrees of success. In every instance, however, so far as I am aware, failure has come as a result of petty bickerings and jealousies and failure to grasp the full measure of the situation. The same principle might well be applied to the marketing of fruits, vegetables and other farm products. In this direction we may learn from the experiences of our friends in California, where some fifty co-operative marketing societies are doing business at present, and where the individual is so severely handicapped by expense of transportation that practically all of the business is done through these associations. Now I am aware that the millenium has not yet arrived, and that there are serious difficulties to overcome, nevertheless there is no doubt that untold benefits will result if the fruit growers of the State of Maine will unite in larger or smaller groups, establish cold storage plants, charter cars and if necessary vessels, employ trusted agents to look after the details of transportation and distributing points, and guarantee the quality of the goods put upon the market. I can at this time touch but briefly some of the more important points here suggested, and

in no case would co-operation affect in any way the importance of the general principle of State regulation.

STORAGE.

From the little town of Vassalboro there are shipped annually 5,000 to 10,000 barrels of apples and similar amounts from Winthrop, Monmouth, and other stations along the line of the railroads. This fruit comes in lots of from 10 to 500 or 1,000 barrels each, and is shipped at various times, in various ways, and at various prices. Many farmers have no facilities for storage and too often accept the first offer received for the crop and rush it on to the market at a sacrifice; others store in warm cellars or other improper places and lose much from deterioration and decay. In any case, the unnecessary middle-man comes in for his share of the profit—and we may be sure it is not a small share. The gist of the whole matter may be given in one homely phrase: Don't pay the other fellow for doing what you should do yourself.

Now by the establishment of cold-storage houses at frequent shipping points, the growers themselves may take advantage of the inevitable rise in prices as the season advances. If they can not agree on terms for co-operative shipments, which it is most desirable they should do if possible, they can at least erect storage plants, engage a competent man to take charge, and make a *pro rata* assessment for its maintenance.

Fruit for storage should be graded in the orchard, and only the best grade put into refrigeration and that without delay. The lower grades will not pay for the time and extra cost of holding; for it should be remembered that fruit is not improved by cold storage. If it is in prime condition on entering the refrigerator it will be likely to come out in proportionately as good condition, but if defective on going in, it will be equally as bad, and will "go to pieces" very quickly, on coming out.

SHIPPING.

In the transportation of fruits it goes without saying that the larger quantities will be able to command better rates, better facilities, and more immediate attention than will small, isolated lots. In the case of car loads intended for shipment to England, from any point in the State, the only handling received is in

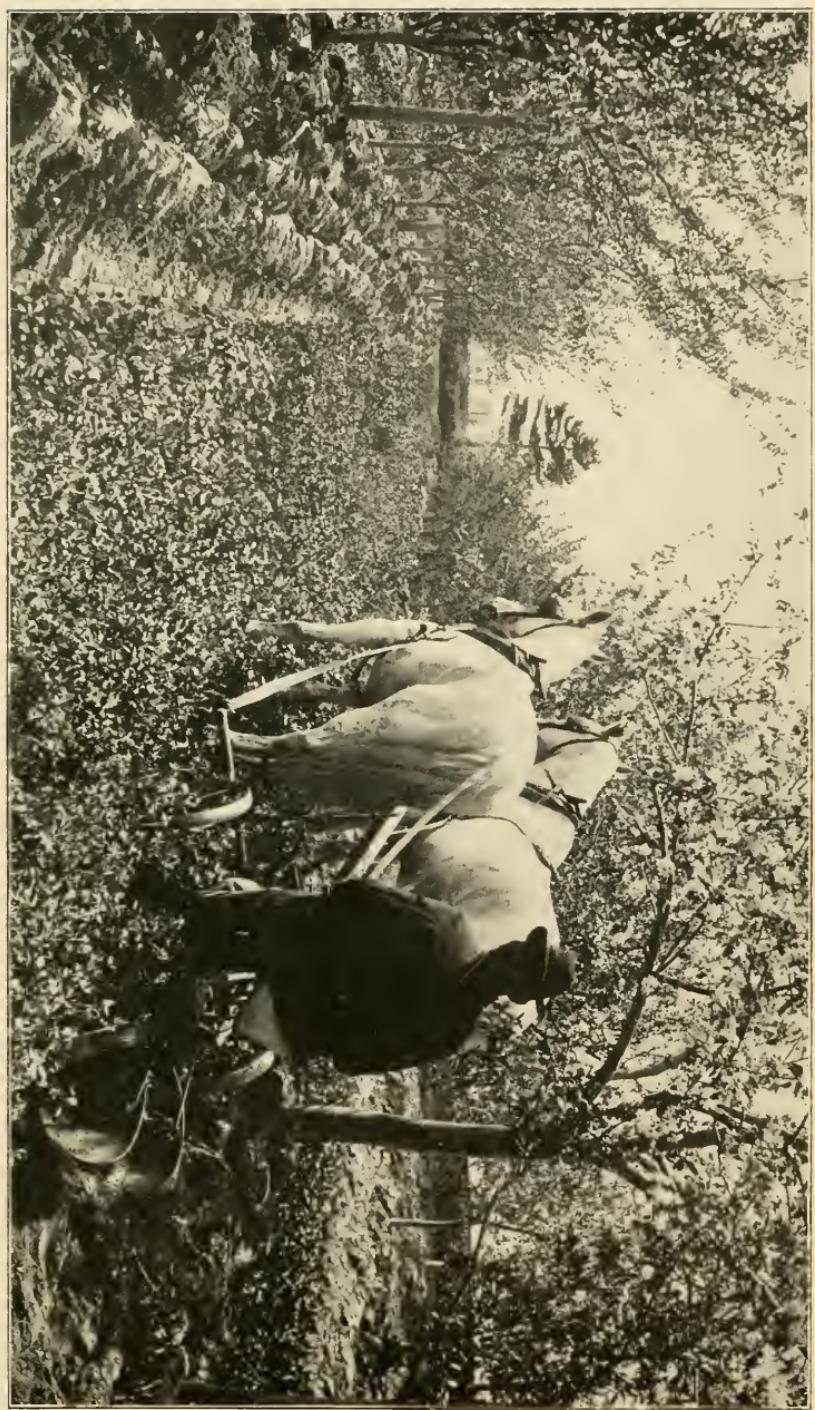
loading on to the car and again in removing from the car to the hold of the ship, as the railroad tracks run right along side of the vessel and all cartage is thus avoided. With such lots, also, it is possible to secure heater cars, and removal by through train, so that the minimum of time is spent upon the road. In the case of small lots, on the other hand, several transfers from one car to another, or even removal across the city by truck, may be necessary and the consequent bruising will often result in very serious damage. The freight rates will also be higher, and the length of time for shipment will be longer, and there is an added danger of freezing if fruits are shipped in the winter. In case the fruit is to be marketed in Boston or New York, water shipment is preferable to rail, because of the more reasonable rates. The handling, however, may be quite as rough in the one case as in the other and it is doubtful of any great gain is made by this method of shipment.

It is evident, with these facts in mind, that much advantage will result if growers can unite in a co-operative shipment instead of acting as individuals. The California Shippers' Association usually has one or more agents in various parts of the country whose business it is to keep watch of the different markets and from various points direct the fruits to the best markets. On a smaller scale the same feature may be adopted to advantage in our own State.

PACKAGES.

The selection of packages in which to market choice fruit is often a factor of no small importance in the returns. At the present time this question, so far as Maine is concerned, is largely a question of whether boxes or barrels shall be used for our best apples. Upon this point there are wide differences of opinion. But certain it is that whatever the style of package, the size should be uniform so that the buyer may know just what he is paying for.

There can be no doubt that, in the majority of cases, consumers prefer the box to the barrel as an apple package, for various reasons. In the first place the fear of "deaconing" is very general—and not wholly without reason. The opportunity for such a disreputable practice is much smaller when the box is used. Another, and in some cases stronger, argument against the barrel is its size. Many a man would buy a bushel or a half-bushel of



Plowing in Mammoth Clover with sulky gang plow at Hillcrest Orchards, owned by Ralph S. Eaton, Kentville, N.S.

choice fruit who could not afford a barrel, or who would have no use for so large a quantity. The term barrel is also of very indefinite significance. It may refer to the straight-sided cement cask, the typical apple barrel of regulation size, or the generous flour barrel. The buyer is never certain which size he will get when giving an order. The original cost of package is, however, in favor of the barrel.

The size of boxes also varies considerably and should be regulated by law. The bushel box used quite commonly in Chicago is $11\frac{1}{2} \times 11\frac{1}{2} \times 18$ inches inside measurements, and is endorsed for strictly fancy fruit. The Canadian box is $10\frac{1}{2} \times 11\frac{1}{2} \times 22$ inches inside and gives good generous measure. The California box, on the other hand, is only $10 \times 11 \times 20$ inches in the clear, thus holding only about 40 pounds of fruit. The Northwestern Fruit Growers' Association, embracing Oregon, Washington, Idaho, Montana and British Columbia, have adopted the standard size of $10\frac{1}{2} \times 11\frac{1}{2} \times 18$ inches in the clear. Some of the Colorado growers have adopted a size which seems one of the best. This is $11\frac{1}{4} \times 11\frac{3}{4} \times 18$ inches in the clear and holds about 51 pounds of Winesap or other choice apples and 44 pounds of Ben Davis—or just a little more than a bushel. The sides, top and bottom of this box are made of $\frac{1}{4}$ -inch boards and the ends of 13-16-inch with a cleft on each end. Concerning its use, Mr. J. H. Crowley of Rocky Ford, Colo., says: "In packing we put the top and cleats on, face with double faces, then fill in full; lay bottom boards on, put in press and nail bottom; turn box over and stamp name and variety on end to show face side up. For fancy apples we pack in layers, four layers and four tiers. In storing, hauling or loading on cars, the boxes should be cleated in tiers. This box, or one very nearly like it, is the coming package."

From these and other reports it will be seen that there is need of some agreement as to the size of boxes used; but in almost every instance where boxes have been used both shipper and consumer have been pleased with the results. Is there not in this fact a suggestion to the progressive apple growers of Maine? May we not, with advantage to all concerned, put our strictly fancy Spys, Kings, Baldwins and other highly colored fruits in such attractive form that they shall command quick sales at a great advance over the general market?

A WOMAN AMONG SMALL FRUITS.

By MISS LILLA M. SCALES, Temple.

When T. B. Reed was Speaker of the House, a representative from Michigan who wished to carry a measure which he knew Mr. Reed strenuously opposed, kept reiterating during a lengthy speech: "And this the gentleman from Maine well knows." Finally Mr. Reed's patience became exhausted and he drawled out in his inimitable manner: "Will the gentleman from Michigan tell the gentleman from Maine something he does not know?" And as we (my sister and myself) are only amateurs in one of the most delightful and beautiful of arts, that of gardening, no doubt you will all appreciate Mr. Reed's remark and wish I would say something *you* do not know. Although always having a natural inclination for the work, we had done but little in that line until less than four years ago when we came into possession of a small intervalle farm—which we still carry on; our interests consequently are as varied and numerous as those of the man, who on being asked his occupation, replied that he fished a little, tinkered a little, farmed a little, and preached a little, and our fruit raising thus far has been only supplementary to the regular farm routine.

We have been experimenting along various lines in order to ascertain what fruits are best adapted to the soil and most profitable for markets. Blackberry culture is impossible to any extent, the land is too low, the soil too moist. We planted Snyder and Kittatinny. The canes grew enormously large, but were mostly ruined by the cane borer. Those that remained would snap off at the base when laid down in the fall; rarely would a plant survive the winter. We have also given up the blackcap raspberry for the same reason. The Cuthbert raspberry grows and fruits finely, but like the blackberry requires protection through the winter. Golden Queen is a little hardier; would not advise planting it except for home use. It is a delicious table berry but discolors if kept over night. Some peculiar disease affects this raspberry with us. We have never noticed any signs of it until after the blooming season has passed. The leaves turn whitish and curl closely up under the midrib, the fruit is small

and only partially matures. There are no apparent indications of an insect at work on leaf, stem or root. Occasionally a Cuthbert is similarly affected, and last summer in a distant pasture I found some plants of the wild raspberry in the same condition. I would like to know the cause and remedy if there is one—have feared it might eventually destroy all our varieties.

Our Loudons have shown no signs of the disease, if it should be so called. They have proved perfectly hardy, remaining upright through the winter without any protection and leafing out to the tips in the spring. The fruit ripens a little earlier than the Cuthbert, which makes it very desirable. We have never raised any for market. Mr. E. P. Powell says it is not to be recommended for that purpose, as it does not bear shipping.

Of currants we have several varieties: Fay, Cherry, Versailles, both red and white, Old Dutch and some unnamed. Our best white currant is a seedling found growing wild in the field years ago. If the rows are kept clean and heavily dressed, the bushes properly pruned, the currant worm subjugated, provided a heavy frost does not occur when the plants are in bloom, a luxuriant crop is the result.

Our currant plot always reminds me of Rip Van Winkle's garden, which he said was the most pestilent little piece of ground in the whole country—for witch grass will insidiously creep in and all at once the bushes are smothered. Mulching only encourages the grass to grow and flourish. Will some one please suggest a remedy?

We have had no success whatever with the gooseberry. It neither grows nor fruits. The cause to us is unknown. Our main crop is the strawberry. A number of years ago before we began farming, a friend gave us some plants of the Charles Downing. Knowing absolutely nothing of strawberry culture, we set them carefully out. The more they were tended, the greater were our trials. The runners overspread all our little plot in a hopeless tangle, the berries were few and far between, no larger than wild ones; thus our first attempt proved a perfect failure. The next fall, a neighbor on moving away told us to help ourselves from a bed which he had fruited. It was considerably grown up to weeds and grass, but finding many beautiful looking plants with large, fresh foliage, we proceeded to take up

a hundred without disturbing the roots, carefully protected them during the winter, kept them free from weeds, with the (to us) surprising result that such fine plants should produce only a few mis-shapen berries. Later we found they were the Sharpless, almost utterly worthless except for fertilizers on our soil. As this was another complete failure, we resolved to try again and the next spring purchased 175 Crescent seedlings and still grow that variety for market and home use. The Sharpless was soon discarded for Lovett's Early, which has a beautiful crimson color. It fruits finely, even small runners set late in the fall will bear the next spring.

All other varieties which we have tried have proved of little or no value. Among them are the Epping, Louise, Gandy, Parker Earle, Parker Earle, Jr., Wilson's, Albany and Bismarck. The Clyde has been highly recommended to us and we have grown it for two seasons. Either the plants were not true to name or the soil is too moist; it does not grow vigorously, the foliage is of a pale, sickly yellow color, berries light red and very acid. It fruited well but the leaf stems were so short that the fruit was unprotected and the greater part actually cooked by the sun. The past season has been so unfavorable we shall give it one more trial. Our land is so infested with witch grass that it is almost impossible to find a spot where we can grow strawberries in considerable quantities.

Three years ago we had two pieces of run-out land on the very edge of a swamp ploughed up. Each contained less than one-fourth of an acre, neither had probably been cultivated or dressed for half a century. In the spring stable dressing was spread on lightly and harrowed in; one we planted to potatoes, the other to strawberries, using also ashes and commercial fertilizers. In the fall the plants were carefully covered. They came through the winter in first class condition, yielding over 22 bushels of fine fruit.

Last year we set out the other plot, the one on which we raised potatoes the preceding year. Being nearer the swamp it was more moist than the first. I never saw plants grow so enormously. A portion of the land was so wet water stood between the rows nearly all summer. During the spring while the frost was coming out of the ground a part of several rows were six

inches under water, and at picking time were no dryer than when first set. This proved the best portion of the bed.

Owing to circumstances over which we had no control, only half of our plants had been covered when winter set in. This with the severe freeze early in May proved very disastrous and a half crop was the result.

This year we are using the same ground as two years ago. I know the best authorities say, "Strawberries should not be succeeded by strawberries." No other spot seemed available and as a heavy stand of green clover was ploughed under we thought the soil would be in good condition for another season.

The greatest menace to our strawberry culture is the white grub, and the only remedy so far has been to lift the plant and destroy the insect, which will usually be found under the plant if taken up in season. Fully one-half of a quarter of an acre we have been obliged to set three times. I heard a person say a few days ago he could not raise strawberries, the angle worms ate his plants all up; it must have been the white grub instead.

Mr. A. M. Purdy in a recent issue of the Tribune Farmer said he should have salt sown on a piece of ground that was to be ploughed for corn this fall, and again in the spring before harrowing, but made no mention of the quantity to be used, only that it was to prevent the ravages of the white grub. I would like more definite information on the subject.

As our strawberry rows must be raised in order to provide the necessary drainage, we use the cultivator but little. If our plot was larger of course all hand culture would be impossible. Three sharp hoes of different sizes, each provided with a long handle so there is no unnecessary stooping, and a good garden rake to use between the rows that no weeds may be left to root down we find sufficient.

I have no patience with the man who on dull days in summer calls out the members of his family and then all proceed to get down on their knees and weed out the strawberry bed. No wonder so many children grow up disliking to work in a garden!

Pine needles make an ideal covering. They are clean, light to handle and no danger of the seeds of weeds or grasses being sown as when straw or hay is used. Instead of covering only the crown and roots as many authorities advise, leaving the tips of the leaves exposed, we prefer to cover the entire plant—

there is no danger of its being smothered under pine needles—and a plant thus protected, even if not set until the latter part of October, will live through the winter and in the spring push right up fresh and bright. No other mulching is necessary to protect the fruit from sand or gravel.

A learned preacher in an Easter sermon said that in the spring all the husbandman needed to do was to plant his ground and then sit down and wait patiently for the harvest. Judging from the appearance of the strawberry bed in the garden of the average farmer, he is evidently of the same opinion, for I do not think any one can raise fruit successfully, and especially the strawberry, without having a natural love for the work, it is such a pleasure to watch the growth of the tiny plant, study its needs, give it careful protection from the ice and snow, and in spring to see the buds gradually unfold till suddenly the rows burst into snow-white bloom, and later to be rewarded with the luscious fruit, gleaming like rubies amid their foliage of green—a sight to delight the eye and gladden the heart.

Prof. CRAIG: Mr. President, I am afraid that I cannot give expression to the remarks that should be called out by such an excellent paper. It does seem to me that when women come into horticulture they always present a side which we men are apt to overlook. You observe how we men keep talking on the dollars and cents side all the time, but when women take up the question they touch on the more æsthetic side and tell us something about the beauty and the quality of the product. We may notice that the varieties were characterized in the paper and one was set off against the other largely on the basis of quality. I think we consider too much the selling value of fruit. Take the Ben Davis, for instance. If it grows well and sells well, it is a good thing to cultivate. We don't consider the future.

Then there is the other and finer sentimental and æsthetic side to be taken into consideration, the influence on the home and all that, which was suggested by a little touch at the end of the paper we have just heard. These are things that we as fruit growers ought to keep in mind more persistently.

But in this paper the practical sides were also very nicely handled, it seems to me. One thing I should like to say about the strawberry, and that is that it is essentially an amateur fruit, it is essentially a plant which belongs to the home, and if there

is anything which is likely to fix the thoughts of children upon the home it is the growing of plants. There are different sides to that, too. I remember in my own case that my thoughts and memories of the strawberry were not so much connected with the berry and cream side, as it was with the weeding exercise which was mentioned. That was quite an important part of my early experience. The weeding of strawberries and the weeding of carrots were closely associated with my earliest memories of garden work, and as I got down on my knees and followed that row I used to measure it with my eye and mentally subtract each foot from the total length as I progressed. But if we practice modern methods these hand-weeding difficulties of culture may be entirely obviated.

I would like to say that in New York state, in the principal strawberry county in that state, there are now growing up two sets of strawberry growers,—one set which has the ideal of quality before it, the other set which has the ideal of quantity before it. The growers for quality select their varieties, practice certain methods of culture and usually reap higher rewards than the other set. The one is the strawberry farmer, and the other one is the strawberry culturist. In one instance which I knew of very well, the man grows Marshall—I don't know whether the reader of the paper has grown that variety or not, but the Marshall is to the strawberry what the Spitzenberg or the McIntosh Red is to the great class of apples,—it represents to my mind at any rate the acme of excellence, but like many of these finer varieties it is not as productive, and it requires special care. Now the Marshall should be cultivated in narrow rows instead of wide rows. The ordinary way is to cultivate your strawberries in a matted row of two to two and one-half or even three feet wide; and in these rows where the plants are not thinned out, naturally there is a great deal of competition and it is a struggle in which the fittest survives. The general size of the fruit is brought down. But in growing the Marshall this grower, as I say, keeps his rows narrow and thins his plants. He arranges and sets a plant here and carries out four runners at opposite points, making a row about fifteen inches wide, and having the plants spaced as it were, each one is able to take advantage of its circumstances to the fullest extent. So much for the growing.

Of course good tillage and careful covering in the autumn is necessary. Then comes the marketing, which perhaps in his case is the most important part of all. These berries are picked and are graded. They are put up in specially made boxes. These are square quart boxes. The boxes are wrapped in such paper as you use for wrapping your fancy butter, paraffine paper, and four of these boxes are included in one little crate. Now last year he showed me his receipts from the first shipments of Marshalls which came down to Boston from Oswego county. Those four quart boxes brought him \$2 gross, 50 cents a box; that would easily net him 35 cents a quart. The second grades went in with the ordinary commercial lot. Now I have recited this in order to show that if you are going to grow for quality you must not stop with cultivation but your work must be carried to the extreme end, and that in order to be successful one must attend to the market side as thoroughly and as carefully as the growing side. Now there are only a few growers doing that, but it suggests to me that there is a profitable avenue in that direction. The great body of growers of the strawberry in Oswego county are growing them on the ordinary commercial plan. They are growing ordinary varieties peculiar to that section and the most popular varieties are Bubach, Glen Mary, Eureka and Atlantic,—those four varieties have the lead there. For high class varieties the one which I have just mentioned, Marshall, and Glen Mary are the two most used.

I was interested in what the writer of the paper said about that raspberry disease. I wonder if it is at all prevalent in this section. We have been investigating it in New York state. The Geneva Experiment Station has done most work on it, and it has been proved to be a fungus disease,—that is to say, a plant parasite. No remedy has been discovered which will hold it in check, that is, no spraying remedy; the only thing that can be done is to treat it as you would an infectious disease,—take up and destroy all plants affected as quickly as the disease is noticed.

I would like to say a word about one or two varieties of currants. I think as a rule we are fond of throwing currants all into one group and say that currants are currants, one is as good as another. Those of us who have tried and tested the different kinds have changed our minds on that. For home use I don't know of any currant which will approach the Moore's Ruby in

quality; Wilder or Wilder Red as it is called, is another one peculiarly high in quality. Now there is practically as much difference between a Moore's Ruby and Red Grape or Red Dutch as there is between Ben Davis and Northern Spy.

In the matter of raspberry growing, a grower of my acquaintance markets raspberries in pint boxes and picks them with the hull on. He has his pickers trained so that they snap the berry with the hull on just as you do in picking the strawberry. He picks only his best Cuthberts in that way. He ships his to the Montreal market, of which he is within easy reach—sells them in pint boxes for 15 cents a box and has cultivated quite a large trade which is exceedingly profitable, as you may recognize, at those prices. But you first must find the persons who will purchase your goods.

Now I do not think I have anything more to say,—being called upon hurriedly,—on the general small fruit question beyond the fact that it is, I think, like poultry raising, an industry which is admirably adapted to the energies and ability of women; it is a business which she can carry on very advantageously and in which she often outstrips man in carrying it on successfully.

INSECTICIDES, THEIR USES AND DANGERS.

By Dr. GEORGE M. TWITCHELL, Augusta.

In any discussion of fruit questions at a gathering like this, there are certain facts of such transcendent importance that they cannot be too often nor too forcibly presented. Only as we get these ingrained into the warp and woof of our thought will it be possible for their full significance to work out through our finger tips and in our speech. I present at this time two:—

1st. That a large portion of the State of Maine is peculiarly adapted to fruit culture, especially the growing of apples.

2d. That the quality of Maine fruit, when protected and permitted to perfect itself, is of finer grade than that of any other section of our country.

These are the fundamental facts upon which the changes may well be rung until every boy and girl in this commonwealth is completely filled with their importance.

We have been sitting down and congratulating ourselves over the adaptability of Maine for fruit growing and the quality of our apples, and have overlooked the lesson so apparent to the business man in other lines of work. We have pointed with pride to our exhibits and the volume of their output as though we were doing more than playing about the borders of a great area, rich, promising and certain to give returns.

What is needed now is a thorough awakening to the possibilities of this business as an industry. I said we have been playing about the borders, and that this is true one has but to drive about the country and note the rows of trees by the roadside and the indifferent treatment and care given them by the great majority as compared with what the orchardists of Maine are accomplishing.

Fruit growing is not an industry in Maine save in a few isolated cases, but an adjunct to other lines of work, and hence, not being the essential, fails to receive the attention its importance demands. We forget or fail to keep in mind the two fundamental statements already emphasized. Any presentation of the subject of insects and the use of insecticides hinges upon our conception of these two underlying facts, for if fruit growing be of secondary importance insect pests and their destruction will not claim that close attention necessary to insure highest quality in the fruit. Year after year we are finding the army of these pests seemingly increasing, new varieties appearing, and the scientists at our experiment stations are kept busy studying the life history, habits and method of control or destruction. The greatest obstacle in the way of successful fruit growing is to be found in this great army of destroyers, neglected by so many, diligently fought by so few. Until we come to an appreciation of the possible value of fruit growing as an industry, and realizing the quality sure to follow protection from these pests, give careful attention to spraying, our hold upon the great markets must be more or less insecure. The fact that from the great fruit centres of the West, from Michigan, Minnesota, Illinois and Ohio there has been coming this year an increasing flow of inquiries concerning the volume of our fruit and its quality, only attests the importance of the question before us.

It is impossible to brush away the claim made by the careful student for the thorough and systematic spraying of all fruit

trees to destroy the pests which, unmolested, will inevitably destroy the fruit, and also to protect against the fungous diseases which so radically mar the appearance of the crop. Spraying must be resorted to by each and every grower if he hopes to realize from his orchard. To neglect is suicidal, for prices in all the centres are fixed by arbitrary standards, and buyers are critical in the grading of the fruit. Strange as it may seem, the majority seem unmindful of the lessons and negligent of this all-important safeguard.

It is not my province to classify or treat in any way the myriad classes of insect life against which you are obliged to contend, but I desire to discuss this great question of insecticides, with sole reference to public health and the future of this industry. In so doing attention must be called to some familiar facts. When these insect pests first appeared and the cry went up for relief, our scientists naturally turned to the active poisons as affording the easiest, quickest and most effective results. Arsenic, a mineral and a most virulent poison, killed these pests, and at once formulas were prepared and instructions given for the use of different combinations having Paris green (arsenic) as the base. These, intelligently applied, did effective work in destroying insects, and so came to be the chief reliance, until this year throughout the length and breadth of the land the published bulletins on spraying have given implicit and exclusive instructions for the preparation of solutions of arsenic, chiefly in the form of Paris green. No advance has been made during the past twenty-five or thirty years, and none attempted save in appliances. Arsenic, an insoluble mineral poison, is urged to-day as it was then, and is used by nearly every fruit grower who sprays his apple trees, unmindful of the fact that wherever found it becomes a menace to public health, and needs only to be present in sufficient quantity to work positive injury. Its coming was natural, for our experiment stations answered in the shortest possible time the call of the people for help in freeing their trees and growing crops.—its continuance is a severe criticism on our stations in that they have rested on the fact that arsenic kills, and have not sought for other agents, non-poisonous in their nature, capable of destroying the insect pests, and entirely free from the shadow of danger to man or beast.

It is high time that public attention was called to this question, for from every experiment station and through every publication the warning against the ravages of myriad forms of insect life has been repeated until there is coming a condition of dependence upon the formulas presented and indications of their more extended use in the future. This in itself is a matter for congratulation, for it indicates mastery, but it may seriously be questioned to-day whether that mastery must necessarily be gained by the use of agents the sale and use of which is considered so hazardous by the State that special precautions are required to advertise the deadly nature of the contents of every package sold.

Arsenic is insoluble, and, when used in the form of spray, as the liquid evaporates it remains on the leaf and fruit, also on the ground, as when applied dry, to be blown about by the wind, inhaled into the lungs, always a poison and never to be handled without danger. Years have passed during which the trees have been sprayed frequently each season, and no man can state with any degree of certainty when the danger line is reached through the continued use of Paris green.

Another phase of the question is that wherever it rests upon a leaf its sole action is to kill. It may be infinitesimal in quantity and microscopical in effect, but it is there, and no one can pass through an orchard or potato field where Paris green has been used without finding ample evidence of its death dealing power. It will be well if we remember that whatever destroys or retards the perfection of the leaf, in just that ratio prevents perfect fruitage as well as growth of plant or tree. "The leaves of the tree are for the healing of the nation," says the good book, and that the leaves may heal by and through the service they render as lungs to the tree and food collectors for the perfection of fruit, they must be preserved intact to the full harvest time. By the use of solutions for spraying, or dry applications having arsenic as their base, this perfection of leaf-life is impossible and, as a certain result, fruitage is imperfect.

Because we get fruit from our trees and potatoes from the ground after using these arsenical agents to destroy insects or bugs we overlook the fact of injury, or reduced crops, of decreasing vitality, of weakened life of leaf, of early decay and dropping, and a lower grade of quality; yet these are the conditions recorded by the growers who ask whence and why should these

things be. Not infrequently does one hear the query: "Is the potato passing out of existence, as shown by the failure to perfect its seed—the potato ball, so called?" The frequency with which letters come to the desk of every publisher of an agricultural paper, asking for information regarding these changes and expressing fears as to possible outcome suggests a widespread feeling of apprehension regarding what is manifest and anxiety as to the future of these important crops.

It will be admitted by all that for complete growth of tree or vine, for largest possible yield and choicest quality of fruit or crop we must at every step conserve the life of stalk and leaf, feed the entire plant or tree to the completion of the harvest time. To do this the preservation of the lungs—the leaves—becomes of supreme importance.

To my mind, as a simple student of this great problem, there is no question of greater importance to the fruit grower of Maine than that involved in this question of insecticides. Investigation and experimentation may well be conducted not to determine the degree of danger, but to search out the agent or agents which will insure complete protection while promoting growth and life of leaf, stem and stalk.

It is not my province to discuss agents save to call attention to the dangers threatening a continuance of present methods and practices. To claim that no other pathway is open to the grower, and that he must still cling to arsenic, proves the man a charlatan and not a student, for under the most careful experiments, conducted by intelligent farmers directly interested in the outcome, it has been clearly demonstrated that there is no call for further reliance on arsenical preparations to destroy insect pests. It is perfectly safe to say that we can promote healthy growth while destroying, not driving away, insect pests.

There is no question as to the truth of this claim, for acres of growing plants and orchards tested in part with solutions of arsenic and in part with non-poisonous compounds tell the story. In the case of Paris green applications the leaves early showed signs of decay and a slight hold on the limb, indicating weak feeding powers, while alongside was a rich, deep, healthy growth, and a yield in fruit as well as crop which fully confirms the lesson, and in every case bears unmistakable evidence of the sure benefits derived from the vigorous, living leaves. Size, quantity

and quality are in the balance and unite in emphasizing the necessity for preserving the life of the leaf to the full harvest time. Whether on the peach trees of Massachusetts, the apple trees of the Annapolis valley, or the potato, cucumber, squash, tomato and other vegetable crops of Maine, the testimony born of experience is positive against arsenic and in favor of a non-poisonous agent, and that evidence is presented in such a manner as to reach directly the heart of the grower and lead to his conversion, for it touches his pocketbook and comes in the form of larger yield and finer quality.

I do not stand here to discuss an experiment or advertise in any way the preparation of any corporation or the use of any special drug, but to emphasize an all-important fact, for with the growing importance attaching to spraying there comes the necessity for solutions absolutely harmless to use yet destructive to the pests which attack the fruit and growing crops.

It gives me great pleasure to be able to state that our able, conscientious horticulturist at the experiment station, Prof. Munson, is already at work upon this problem, seeking for such combination as will insure perfect freedom from danger and promote the life, growth and health of tree and plant. I am not an alarmist in any sense, but call attention to this question because of its grave importance and the fact that the public mind is becoming distressed over the question of food adulterations, the use of preservatives which prevent digestion, and the danger to health lurking in the agents relied on to destroy insect pests. We cannot continue on this road with impunity. Pure food is necessary for health. Embalmed beef or preservatives in fruit or jellies are destructive to life, and arsenic used to destroy insect life must be classed as dangerous. The state puts its seal of poison on every ounce sold, thereby giving its warning to the public. Beyond this question of public danger about which there can be no dispute, save as to the time when it is to be met, the financial issues claim attention. Tests made by experienced growers demonstrate that spraying with arsenic injures the leaf, and the destruction of the leaves materially affects the size and essentially the quality of the fruit and crop. Minimized in quantity as it may be the danger is greatly reduced and the effect not so apparent, but the certainty of injurious results sooner or later, and the fact of the deadly nature of the drug, may well be con-

sidered. The excuse for its use in earlier days has already been noticed, but that does not hold today.

That spraying both to destroy insect pests and protect from blight, rust and scab must be resorted to by every grower is one of the lessons not yet drilled in, else we should not see so large a per cent of poor fruit or hear so many complaints of rust, blight or scab, and this society can do no better service than to organize an educational campaign along these lines. The danger and loss are not appreciated and surely it cannot be computed.

One man sprays and his neighbors do not and all suffer materially. Insect life will multiply, new forms will doubtless appear, increased complications are sure to arise, and to be forewarned is to be forearmed.

We must prepare to meet the Browntailed Moth, the Gypsy Moth, and without doubt the San Jose Scale. We shall best be prepared to cope with these when we appreciate in largest measure the importance of spraying for the destruction of pests now common among us and for the prevention of diseases so prevalent today.

We have faith in fruit growing, and the certainty of natural conditions of soil and climate being established, it needs only that the industry present itself as a worthy investment for wealth to flow in and the fruit trees multiply. Had a fraction of the treasure which has gone out of this State into orange groves in Florida and California been invested in orchards on these hills of Maine, the bending branches would all these years have yielded their juicy fruit and the dividends would have satisfied far better than the assessments so often met or the occasional returns received from far away slopes.

The cry that Maine is not an agricultural State is dying out, and in its place one hears the whisperings of faith in a future when our varied lines of husbandry shall claim attention and over our hills the petals of the apple trees shall drop in early June like snow flakes in December, and our fruit, guarded from all insect pests and protected by agents which give rather than destroy life, shall go out to satisfy the lover of the richest nectar the gods ever created, whether on native soil, on far off prairie, or on the isles across the sea.

THE STUDY OF PLANTS ON THE FARM.

By Mrs. V. P. DECOSTER, Buckfield.

We people who live on farms can study plants in one form or another all the year around. We do not need to wait for a summer vacation or even for summer itself. In winter, we can study the trees and shrubs and buds. For you know that all these bushes by the brooks and the trees which leaf out so early in the spring cannot have time to grow their leaves and blossoms so quickly after the snow is gone. If you examine them in winter, you will find the little buds all formed and covered with a warm waterproof coat.

And the first warm days in spring make them begin to swell and grow and throw off their winter clothes. The first ones children always notice are the pussy-willows, which appear not only to have a water proof cloak, but a fur coat under that. Almost at the same time come the catkins or tassels on the alders and hazel nuts. But these same tassels have been there, dry and hard, on the bushes ever since last summer. I want you to notice the two kinds of blossoms on the alders and hazels. The important ones which bear the seed at first appear to be blighted buds. Then see how many trees will soon be in bloom. The poplars first, so like the pussy-willows then the maples, both red and white, the beautiful lace-like blossoms on the elms, the dainty tassels on the birch, the Balm of Gilead and butternut. But later and most beautiful of all, how we love our fruit tree blossoms!

The pear, the plum and cherry trees fill us with delight. But 'tis when the hillsides of old New England are white with apple blossoms, and the air is heavy with their sweetness, that we have the grandest bloom of all. Life means so much then. We are in tune with nature. We enjoy the present bloom at the same time we enjoy the anticipation of delicious fruit. Much of the sturdy strength as well as mental worth has been gained by the New England people from lessons learned under these old apple trees, as well as from their luscious fruit.

The trouble with most children in studying plants as well as other things, is because they do not keep their eyes open wide enough to see more than a small part of what is all about them.

If you should go to school some day and see a new boy among the scholars would you walk right past him, with scarcely a glance, and pay no attention to him? No, indeed! You would notice that he had blue eyes, a freckled nose, a hole in his jacket, etc. And you would ask someone what the boy's name was, also his father's name, Where does he live? Is he going to stay? What does he do for a living? Has he relatives? And after learning all you could about that boy you would play with him and call at his home and invite him to yours. Someone might tell you he belonged to the Davenport family, and his name was Jonathan. You would call him Johnny or John, for short. Well, now, that is just the way to get acquainted with the flowers. When you are passing through the woods and fields and see a new flower, pick it carefully, root, leaf and all, when possible. Take it home or to school, find out its name, family, habits, etc., just as you did Johnnie's. You will find it belongs to some family as John did to the Davenports. Probably the flower, too, will have some long, hard name, and some short handy English name. You can learn the "nickname" when you are little and gradually as you grow older, you will learn the Latin names too.

Just as you invite Johnny to your home, bring the wild flowers, too. They are shy and bashful often times and not used to the food you may give them but if you will study their tastes you can have a wild flower garden and little spots all about the premises where they can live quite happily and so you may get better acquainted. You scholars often give each other photographs of yourselves, but you may have something even better than those of your flower friends. That is, an herbarium, or a collection of pressed flowers. Begin now, while young, then you will keep adding to it with renewed interest and knowledge as the years go by. And while performing the labor of pressing and mounting them you will fix their names and facts about them in your memory. I have brought you, here, a few sheets of mounted specimens of our earliest flowers, so that you may see just how it is done.

Gather them carefully taking the whole plant, root, stalk, leaf, flower, and seed when possible. Spread them out between sheets of unglazed paper, newspaper will do, although it is better to have something unprinted; then put boards and heavy weights upon them and press them a week or more, until they are perfectly

dry. The first day or two they should be changed to dry sheets, two or three times each day, then once a day will do.

Then, when dry, fasten them upon the sheets which you wish to keep by pasting little strips of paper across them. In some cases you can paste the plant itself on and with some large specimens, you can take a few stitches with a needle and thread right in the axil of a leaf. Then down in the right hand corner of the sheet write genus, species, time, place, color, etc.

When you are making botanical excursions on purpose for flowers, it is well to have a closed tin botany can or box in which to carry your specimens and a strong, sharp knife. Also, if not too much trouble to carry, a portfolio or book in which you can lay the most delicate flowers. But, to study plants on the farm, do not confine yourselves to the wild flowers. Study everything about you from the grasses to the corn, from the strawberry blossom to the mellons. When you are sent to weed the strawberry bed or kill the squashbugs, do not call it drudgery, but keep your eyes open. Notice the two kinds of blossoms, the pistillate and staminate. See how busily the bees are doing a two-fold work, not only in securing food for themselves but fertilizing the blossoms by carrying the pollen from one flower to another,—you cannot study flowers long without becoming interested in the insects. For they are very dependent upon each other. It is a wonderful study to see how different flowers employ different methods of attracting the insects best adapted to pollinate their blossoms. And you cannot study the insects without becoming interested in the birds. So that everywhere new fields of delightful study are open to the country boy and girl.

You can learn much from experience without books, but you can advance faster and with more interest by having good reference books to help you out occasionally. In the past few years a wonderful interest has been manifested all over the country in these nature studies. They are being taught in our public schools, and many books are being published as helps, but however much a child may be told, and if he has a whole library for reference it will do him no good, unless he can learn to think and observe for himself; with a sincere love and interest in nature.

If we can teach these girls and boys to love nature, they will not only have a sweeter and happier childhood but they will grow up to be wiser and better men and women. Those who remain on

the farms will be better farmers; happier in their work, knowing better what the possibilities of country life may be. And those who go to the towns and cities will be better fitted to enjoy any advantages, while their minds will constantly turn to the pleasant things they learned in childhood. Many of them will return to spend their declining years on the farm.

ORNAMENTAL PLANTING ABOUT THE FARM HOME.

By Prof. FRED W. CARD, Kingston, R. I.

The subject of ornamental planting leads at once to the larger subject of landscape gardening. It is proper, therefore, at the beginning to ask ourselves what is landscape gardening and what is it not. Landscape gardening is not the growing of plants for their flowers, however desirable that may be. Neither is it the growing of plants for their individual beauty. Still further, it is not the growing of plants for the production of pattern designs or such effects as might be sought in the decoration of a dinner-table. Landscape gardening may embrace all these but it is first and primarily the production of a picture, a picture of which the home should be the center. This picture differs in many respects from that produced by a painter upon canvas. The artist who produces the garden picture must make it presentable from every point of view. He must reckon with possible damage from insects and fungi, from storms and accidents. He must furthermore produce a picture which is presentable when made and which shall grow in beauty as the years go by. All these things are not easy, yet the results will be far better if a definite object is sought than otherwise. Too often ornamental planting concerns itself only with the individual plants involved, forgetting entirely the effect upon the scene as a whole. The result is more often a promiscuous jumble than a restful picture.

In its development landscape gardening has passed through different stages. In the olden days each man's house was his castle, surrounded by high protecting walls. The garden was limited to the space within these walls. This led of necessity to narrow conceptions, sharp lines and angles and geometric designs.

The child of this style still remains in the so-called Italian school of gardening, which deals chiefly with pattern beds, formal designs and exotic plants. But as time went on, the garden wall disappeared and the garden began to feel its freedom. The beauties of nature came to be more appreciated and the fashion of gardening swung to the opposite extreme of patterning after nature in all things. Beautiful as nature is, she is not without faults, and to copy in the garden is little better than to depart entirely from her teachings. The true garden seeks to interpret nature, to eliminate her faults and to bring out the essence of her message. Herein lies the aim of the present style of gardening, sometimes called the gardenesque. It endeavors to produce a quiet, restful picture, looking to nature for the expressions to be wrought out.

The principles to be followed in producing such a picture are simple. The first is to provide a broad stretch of greensward. This is the canvas upon which the picture is to be painted. Few things are more restful to the eye than a broad stretch of green, yet few mistakes are more common than to fritter away this greensward in meaningless planting. The second principle grows logically out of the first. It is that planting should be about the borders of the grounds or about its permanent features. Only thus can the canvas be preserved. The third principle is that this planting should be in masses and strongly irregular. Herein lies one of the greatest difficulties to the novice. Nothing seems easier than to plant an irregular group of trees or shrubs; in fact, few things are harder. It is far easier to produce a stiff and formal clump than to produce a free and easy group. Courage and boldness are demanded in the planter in order that grace and freedom may appear in the group. Both the ground outline and the sky outline should be strongly irregular. Nature gives many useful hints in this among the groups of her own planting.

Whether in groups or as single specimens the trees and shrubs used should be allowed to grow after their own manner. Nothing detracts more from a picture than the attempt to mold into stiff and formal shapes the plants of which it is made. Particularly bad is the treatment often given to evergreens whereby they are supposed to be made to look trim and neat by trimming them up. An evergreen tree with its lower branches removed is

ruined. So too, a shrub which naturally grows drooping and graceful may be spoiled by stiff and formal pruning.

About any home there are objects or views which are unattractive. The picture should be so planned that the groups of planting should shut out these undesirable scenes from the walks and windows most used. Buildings which of themselves are unattractive may often be made to appear attractive if partially screened by foliage. A plain shed or barn if treated in this way loses entirely its undesirable appearance and may really add to the picture. Perhaps no feature of ornamental gardening could be made to contribute more to the beauty of the farm home than this one properly thought out and executed.

Not only are there undesirable scenes to be shut out but there are attractive ones to be brought in. A deed of conveyance carries with it no monopoly of the beauties of a scene provided that scene can come under the eye of an observer from outside. Oftentimes the most beautiful part of a picture may lie beyond our own borders. To shut out such a picture by our own planting would be a great mistake. To bring it in and enhance it by giving it an appropriate framework of foliage is the course to pursue. Many a scene which in itself would possess little of attraction becomes beautiful when seen through a vista of trees. Hence properly planned openings may render what lies beyond much more attractive than it would be if spread out openly to view.

Walks and sometimes drives are a necessity but they should be treated always as a necessity, not as an ornament. Could they be done away with the picture would be better. They should, therefore, be as inconspicuous as possible. They are for utility and should be constructed with that end primarily in view. They should be directed and go where they affect to go. This does not mean that they must be straight. Footpaths are seldom or never straight. A path curved enough to give it lines of beauty and still appear direct. If then a well planned group is placed in the bay of the curve to hide the view of one end of the path from the other, the effect will be good.

If water enters into the picture it should be carefully handled in order not to appear stiff and formal. Nature may here be more closely copied perhaps than in most other places. To correct and smooth up a brook is generally to spoil it. Water can

seldom be tamed. If deprived of its freedom it loses its beauty.

Nature may give us many hints regarding the improvement of highways. If allowed to do so she ornaments them well. While in some places straight regular avenues of trees may be the best form of highway planting, the natural growth which comes of itself is often more attractive. A little assistance to such growth may many times add greatly to the beauty of a road.

Church and school grounds are perhaps the most hideous of all places with regard to ornamental features. Church gardening has scarcely been thought of in America yet a very simple treatment would often suffice to almost transform the picture. In the church it is less serious than in the school because people are compelled to stay there but a brief period on Sunday. At the school our children, during the most impressionable period of their lives, are compelled to spend a considerable portion of their waking hours. Is it right that they should spend those hours in such barren and dreary places as they generally must? It is argued that children will destroy whatever is planted, that planting will do no good. That argument has some foundation but far too little to warrant its preventing planting about the school buildings. If the children themselves are interested in the work and are allowed to help do it, the damage wrought will not be too great to admit of easy repair. Do we not owe it to our children that they should have something of beauty in their surroundings during their earlier school years? The treatment need not be elaborate; the simple things growing in the woods and along the fences near by may be just as effective as stock purchased from the nurseryman. Indeed it is often more so. School gardens are coming to be known in our cities, why not oftener in the country?

The home garden is the most important. It is here that we may hope for most and here that we may accomplish most because there may be persistency of effort. It is not necessary that there should be expensive plants and money outlay. It is not necessary that the buildings should be expensive or attractive in themselves. The simplest dwelling with a proper setting may become far more attractive than the costly one without such setting. Taste, love and labor are the only essentials. The woods and fields offer an abundance of material.

FRUIT AND FLOWER STUDY IN ITS RELATION TO THE PRIMARY SCHOOLS, ILLUSTRATED WITH LANTERN SLIDES.

JOHN CRAIG, Professor of Extension Teaching, Cornell University, Ithaca, N. Y.

As the first speaker was so beautifully portraying the delights of nature study before you, a little story which I once read came to mind. The story was told somewhat on this wise: Two men ploughed adjacent fields. The one ploughed straight furrows; he put up his sighting posts and directed his horses accurately to the mark ahead kept his eye on the mark and looked not to the right nor to the left. He did not notice the clouds in the sky nor the flying butterfly; but he ploughed his field well, and harvested richly. His mind was upon the accumulation of wealth. His neighbor across the way ploughed also, but his furrows wandered this way and that way. He sometimes stopped to examine a stone; he occasionally paused to study a weed or plant; a butterfly attracted his attention. The one man grew rich, his son inherited his money, left the farm, went into the world spent it as rapidly as possible. The son of the other man grew up a companion of his father and became one of the most famous of landscape artists. There is a moral in that tale, a moral in which training and heredity play an important part.

And so let us begin our views of nature study, what it is, what it may do, and how we may carry it out, with a picture of various types of homes, because the home being the center of the universe is the place where all culture should begin.

We cannot all have homes of this sumptuous kind. Here nature, and art the handmaiden of nature, have combined to make a picture at once artistic and magnificent. We cannot all have homes like this, nor need any of us in this country have homes like this hovel. That was a home. I took a picture of it myself and it was in New York state. We are not advertising that kind of home in New York state, nevertheless there are such habitations, such places where people dwell, where children are brought up and from which they go out into the world and expecting to take their place in the world, to improve the world.

Query: Do they?

(Illustration a stone mansion.) There are homes of this kind, where wealth creates a grand marble mansion, where money buys beautiful ornaments for the interior, but there is no stamp of the nature lover on that home; there is no mark of the man who loves the things that are in God's out-of-doors, the most beautiful in all the universe. It is simply a creation of man and no man can ever make things as beautiful as nature. He only imitates.

Taking a trip through western New York a few years ago, I stopped at a cross-roads because I was attracted by this little hut on a piece of public property. The thing that really caught my eye was the way in which it was garnished by a covering of vines and growth of the natural creeper which abounds so freely there. I talked with the old man who told me that he had lived alone for thirty-six years in that hut after coming to this country from Scotland, and in quavering tones he told me how he had planted these vines, and that they were the things that now as he approached the parting hour he did not like to leave,—the things that grew up around him, that sheltered and covered him. So that no matter how humble the cottage, we may by getting a little closer to nature make it much more homelike, more restful, and thus impress the children with a love of those things that we wish them to carry through life, and those things which will enable them to feel that they are not alone in any part of the world. Nature study then should begin in the home and should begin as early as we can inculcate the first thought of the bud or the plant or the stone or the star, or anything which makes up the great universe.

Illustration: "*Making garden.*"

Here is one of our Cornell students who graduated, and then did the next best thing, got married. He sent me a picture a month or so afterwards and showed me how he was beginning nature study on his farm. His wife was helping, and they were starting off in the proper attitude towards their life work.

Illustration: *Children among animals and plants on the farm.*

I need not pause for a moment to elaborate the wealth of material which those who wish to take up nature study have about them. Just looking at these three slides will bring that point out more forcibly than I am able to. The flowers furnish an inexhaustible wealth of material, and there are so many interesting things about them. We farmers who grow apples have

in our own door-yards the most effective material with which to interest children. And let me say, lest I should forget, that nature study is after all the beginning of agricultural knowledge. This point has been well brought out. We sometimes introduce it into schools under the name of "nature study," but we are really teaching agriculture and perhaps more effectively than if it were put into the curriculum as such. It is in fact agriculture disguised. Although "the first farmer was the first man," and although agriculture is the oldest of the arts, it is probably the youngest of the sciences, for it is only within the last twenty years that there has been an awakening to the dignity of farm labor and to the necessity of severe study if one would succeed in agriculture. Just think of it, the student cannot touch a thing in the realm of natural science that does not affect the operations of the farm. So that when the child is admiring the blossom of the apple tree in his father's garden he is unconsciously learning something which will help that child to grow fruit in the future. And the animals. I heard of a curious little incident the other day, and it was told me as a fact by some friends who invited their city cousins to come and visit them. You are aware there is a common notion that the city girls and boys are the smart girls and boys, that the country boy is the boy who knows very little. This notion has grown up because the country boy does not at first shine in the city, but just change the positions and you will get a pretty accurate idea of the real knowledge of each. This particular city child of which the story is told visited her country friends and was very fond of milk. The first day she drank greedily, the second day she liked it very much, but the third day she absolutely objected to taking any milk at all. They asked her why, and she said: "Why, I have been out to the barn, and that milk came from a dirty old cow, and I am not going to take it." That is perhaps an exaggerated illustration of the ignorance of city children regarding the things on the farm; but it is as fair as some of the illustrations which are used to show the ignorance of the country boy when he goes to the city.

Illustration: *Wayside Flowers.*

The woods furnish many of these charming studies. It does not make any difference whether we go out in lady slipper season, in golden rod season, or in aster season, or whether when the

snow falls and the ground is covered with snow and the teasel is sticking up from the ground, there are things constantly before us that are attractive and interesting. Here is a club of the beautiful New England aster. And the animals. How many children are afraid of the domestic animals and of snakes and of other things which are really in themselves harmless. This is all due to a lack of familiarity. There should exist a healthy companionship.

Illustration: *Cornell Junior Naturalists Clubs.*

Here is a band of junior naturalists. Now I want to tell you something of the junior naturalist work of the state of New York. A prime object of these organizations is to train up an army of home makers. A friend of mine in Wyoming sent me a picture of a home the other day. It shows the first settler, as he squatted on his claim away out miles and miles from anywhere. No trees, shrubs or cultivated flowers. There is too often a desire on the part of home makers, of those who garnish their homes, to seek the grotesque, unusual or striking, and the picture before us is to illustrate that point. Now the natural things, the pictures which nature creates, are vastly more beautiful than anything which man has done, and that is one reason why landscape gardening as a fine art, is superior in my opinion to painting, because the man who can by using turf as a canvas and plants as pigments make out of them a picture as beautiful as we find nature has made, possesses in my opinion a higher art than the man who can simply with pigments imitate nature on canvas.

Illustration: *Sheared Trees and Italian Gardens.*

Here we have the work of a gardener in trimming or contorting plants into curious shapes, but what is there more beautiful than the way in which nature builds one of our magnificent native elms, whether in winter when it is denuded and bare or in summer when it is clothed with its beautiful drapery of green?

And so the work of the naturalist, of the man who would teach children to love nature, begins with the natural, common things about him.

Illustration: *School Children at Play.*

Here is another example of energy going to waste. Is it not principally a question of directing it into the proper channels? Boys are said to be bad boys because things are not brought to them in the right way. Study is made to appear serious work.

They don't see things from the right attitude. It reminds me of a very homely illustration which I once heard a Prohibition speaker use. A farmer was driving to the hayfield, sitting on his hayrack. As he drove by his neighbor's house, his neighbor's dog ran out, jumped up and attempted to bite him. The farmer on the spur of the moment took his pitchfork, drove the tines into the dog and killed him. The neighbor was very much concerned about it, came out and expostulated with him warmly, ending by saying, "Why didn't you take the other end of the fork?" The farmer scratched his head a moment and replied, "Why didn't the dog come 'tother end to?" The question was one of attitude. Now the picture we have just seen expresses the attitude of a boy who has been told that he has got to go out and do that thing or he will get a whipping. He has not been told that he can have a share in the product, that that row of strawberries is going to yield fine fruit and that he may have a box to sell, or a box to eat, or a box to give his friend, or anything of that kind. There is no inducement, nothing attractive in the proposition. In this illustration we have our boy with quite a different attitude toward the work he has to perform. This man with the hoe comes along jubilantly and thinks it fun, and it is altogether, or largely, the point of view, the way we look at things.

Illustration: *Neglected School Grounds.*

I have tried to emphasize the necessity of beginning nature work in the home, but the school of course is the great cultural cradle of our race, and there we ought to begin the work. Oh, what surroundings! I don't know how Maine is, I don't know whether it would be possible to get a picture of a schoolhouse of this kind in Maine, but I find it not difficult to pick them up quite occasionally in different parts of the country. What inspiration is there for students to come to bare, ungarnished school yards and leave with anything else in their heads or hearts than that which has been pounded into them in the ordinary pedagogic manner. So one of the ways in which we have been attempting to introduce nature study into schools is by improving the school grounds.

[Then followed a series of pictures showing how school grounds might be improved.]

We are attacking the question on the outside. We are attempting to garnish or improve the school yards in order to make them more cheerful and attractive for the children. Children are wonderfully easily led, but it is mighty hard to drive them at times. A movement was begun in Rochester two years ago which had for its purpose the development of school gardens and also gardens in the home. Arrangements were made with one of the city florists whereby pupils could buy packets of flower seeds at a penny apiece. Word was given out in the school that this was possible. Perhaps you would be surprised to know that in a few weeks over 23,000 packets of seeds were sold. In order to find out something of the success of the movement it was decided to hold an exhibition of the products of these seeds at the State Fair at Syracuse the same year. The children were invited to send exhibits. The state promised to pay the express charges on those exhibits. A certain amount of space was set apart in the hall. One man was assigned the duty of placing the exhibits. The day arrived on which the exhibits were to come and they began to roll in by the wagon load. The space that was set aside was not only covered with exhibits but it was piled high, and the fair people just simply held up their hands in horror at the express bills which were handed over to them. I merely relate this to show that children are responsive if approached in the right way. In passing let me cite the excellent work that is being done at the Hampton Institute in Virginia where colored children are taught nature study in a very practical way by the school garden methods.

Illustrations: *Nature Study in Relation to Civic Improvement.*

I wish to point out in passing some of the broader phases of nature study in their application to urban life, to city life. I want to show that man is the destroyer of the beauties of nature, and that unless children are cultured, are taught, are shown how to improve the conditions that our cities will continue to grow uglier. Here is a picture, showing the unattractive side of city life. Possibly you may not be able to duplicate it in Maine, but I didn't find it difficult to secure this picture not very far from Ithaca, from whence a good many of these illustrations emanate. Here in this denuded waterway we have the work of man. By way of contrast let us look at some of the ways in

which nature clothes waterways and some of the ways in which man treats waterways. And then many of our city yards are unsightly and unhomelike. They are not playgrounds. I am speaking of these because the work of gardening in the cities is very closely allied to that of civic improvement, and civic improvement is only a larger view of home improvement. The home is a unit, that is all. In all this work the children ought to have a very intimate and close part. How many yards in your town are in this ungarnished condition? Here we have a little bit of nature contrasted with it.

[Then followed a number of pictures showing strikingly beautiful effects mainly brought about by the efforts of children and many eyesores the result of carelessness in country and city homes.]

In the city man appears only anxious to destroy the beautiful things, but is often desirous of erecting positive eyesores. After he erects them, then he garnishes them with signs of various kinds. In some of the cities, the improvement societies, aided by the children, are taking hold of this important work with excellent results. In passing let me say that you can obtain two or three illustrated pamphlets published by the National League for Civic Improvement now established in Chicago, describing the progress of civic advancement.

NATURE STUDY AT CORNELL.

Cornell University, through the bureau of nature study keeps in touch year after year with from twenty-five to thirty-five thousand children in the schools of the cities, of the villages, and in the country. This is done by first having one person take charge of that work; in the second place by issuing a little pamphlet once a month, of which I have given you some sample pages on the slide. This little pamphlet is called "The Junior Naturalist Monthly." The child is very responsive, but he or she must be approached in the right way, they must feel that they are dealing with a tangible person, with something real. So in order to stimulate and foster that idea, we have created a real person in the College of Agriculture, and have given him the name of "Uncle John." Uncle John is the pater familias of this whole movement, the man who has charge of all the work with the children. The Junior Naturalist Monthly is

issued each month during the school year. It is intended to deal with the common things that happen to be appropriate at that time—crickets during the cricket season, birds during the bird season, and types of flowers during their season; and to bring out the little things that are ordinarily overlooked. For instance, possibly some of the older people do not know that the crickets are not vocalists, although they thought they had heard their voices, but are fiddlers, that they make music by scraping their legs together. Such little things are brought before the children and attract their attention and they go on and study them and make many interesting observations.

Illustrations: *Junior Naturalist Clubs and Insect Studies.*

The children are banded into groups. Each group is called a club. They can organize a club when they have done certain things. I will show you what we demand of them later. In the meantime we will look at some of the subjects which are used to illustrate these publications. The insects are perhaps the most interesting of all because they furnish in their changing forms great variety. Uncle John writes a letter addressing each child personally, and it is that personal element which holds them together. Here is one of the big horned larva which forms an exceedingly interesting subject. The caterpillars themselves are very interesting subjects; the pupils are most interested in seeing them crack open their skin and crawl out. Here is the larva of the common tomato worm, and he is a pretty business-like chap when he is at work; he uses up the leaf of the tomato in short order. Let us pass through rapidly the various stages which occur in the life history of this one as he passes from the larva to the adult stage, and just here is a most interesting thing. We had a very suggestive paper this afternoon on Insecticides, Their Uses and Dangers. The writer did not tell us just what perhaps he had in his mind altogether, but the suggestion comes to me here now, that we can teach our children many useful things about the way in which nature holds the various forms of animal life in check. Here is this same larva of the tomato worm badly infested with a parasite, and it is interesting to know that the eggs of this parasite are laid in the body of the tomato worm, and that these are the cocoons of the larvae which after eating through pass into the next stage on the outside of the body. That worm is of course doomed and will never be

transformed into a chrysalis or pupa. In that way nature attempts to hold these things in check. So we have fungous diseases of various things. The next stage in the transformation of this particular insect we find in this picture, and then we have the full grown beautiful thing on the wing. And so, I say, insects form beautiful and attractive objects of study.

Illustrations: *The Evergreen Trees.*

I have sometimes thought it would be an excellent thing for horticultural societies to offer prizes for collections of tree seeds. They ripen at this time of year. The seeds should be properly named, and of course the competitors could not do this unless they watched the tree flower, unless they traced it during the season, and then collected the seeds in the fall. If you should offer prizes for collections of native tree seeds, I think it would greatly stimulate interest in the preservation of your native forest trees.

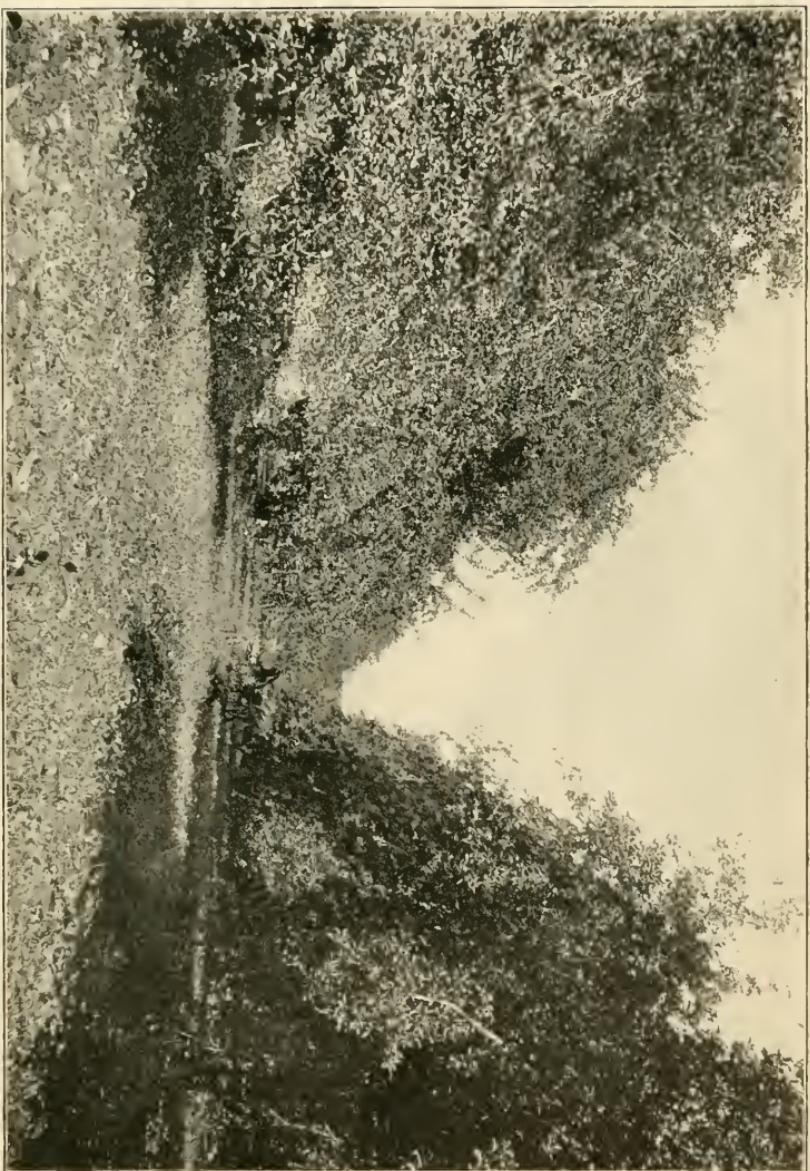
Here we have the common Norway spruce and just one or two examples of things that are a little peculiar. The witch hazel is one of those curious plants which blossom, as we think, quite out of season. You will find these blossoms on your plants now in the fall, after most things are thinking of going into winter quarters. Again in the glory of the maple leaves, we find objects of interest for nature study. I may say that these leaves are also used by the Junior Naturalists in the primary schools as objects for drawing lessons.

We organize clubs in the grammar schools. These clubs are carried on in the same way that ordinary clubs are carried on; that is, the children are made to pay dues. The dues are in the form of original observations on plant, insect or natural life of any kind. I have thrown on the screen here a couple of sample letters from schools. Here is one addressed to "Uncle John," the usual form of address. (Quotation from letter.) Each of these observations is supposed to be original, and are written during the English period so that the nature study lessons serve a double purpose. The pupil is credited by the English teacher on her composition, and then the letter is sent to "Uncle John" at the University, as the payment of monthly dues. Some of the pupils are quite ambitious, as you see, not satisfied with simply writing out a statement, embellish their statement with original drawings. Here we have flowers and

this I suppose is intended to be a honey bee. Here is another one. There the thing under observation was a pea; the seed was planted and here we have the various steps in the germination of the plant, described by drawings. Here is the seed, and as it began to spring from the ground notice the crook that first appears above the ground. These things bring the child pretty close to agriculture.

Now the clubs send in their dues—we call these letters their dues—once a month. Every time a naturalist publication appears, it means that they are called upon for dues. They send them in in clubs, the letters all packed together under one cover, and I have shown you a number of sample covers. They are tastily gotten up. The grades are shown on the covers, so you can get an idea of the age of the scholar. Here is another one showing the development of the corn plant, and then some observations on birds, the orioles, catbird, blackbird, bluebird, kingfisher, etc., and notes on insects. When a club which has been formally organized has sent in one set of dues, they obtain this charter,—when they send in their dues with a list of the names as appearing on this roster. Each Junior Naturalist is distinguished by wearing a button. That button is sent to each individual member of the association and is worn with a great deal of pride. They are then attaches as it were of Cornell University.

These clubs are not carried on from year to year. They are disbanded at the end of the school year, so that each season we have a new class of boys and girls coming up, and in that way we reach a large number. Last year we had about nineteen hundred of them in the state, aggregating something over thirty thousand in membership. Of course the great difficulty in organizing these clubs is to find teachers who have the requisite amount of training and who have the desire to take up the work, but teachers who do take it up find that it is no added load, but that it is a great help. They use the organizations for various purposes. If their children are tardy in the morning, they will say, "Now we will have a Junior Naturalist exercise the first thing in the morning," observation on something interesting, and they invariably report that this brings the children in on time. They enjoy it.



Baldwins, 40 years old. Stand 60x60 feet. Tilled, manured, sprayed. Has borne six consecutive crops.
Situated in Monroe County, N.Y. From photograph by Prof. John Craig.

We have heard about the possibilities of bulbs as nature study subjects, and they certainly are among the most attractive of plants for children to use. Here is a little class coming out to examine the condition of their bulbs, as they are growing them near the school yards.

Then we have a number of groups of school children. In Elmira a winter school has been doing splendid work. As in other works, you will find certain cities, certain schools taking the lead, and Elmira, Albany and Rochester are three of the big cities in New York which have taken a decided lead in this work. Here is a wonderful lesson. Sometimes the teachers are rather hard put in the winter for material. Twigs, and if they have them, window boxes, furnish useful material, and classes of the more advanced pupils study the winter condition of buds on fruit trees. They probably will have these in flower later on.

This work is not confined to New York, as you have heard to-night. The spirit of nature study is in the air. In the South it is taking hold of the schools. It is making headway, and with even such apparently unpromising material as colored children good work is being done.

Perhaps you will be interested in seeing the faces of two or three persons who have this work very near to their heart and who have been most instrumental in carrying it on. This is Mrs. Anna Bosford Comstock, the wife of Prof. Comstock, author of *Insect Life* and *Comstock's Manual*, who is one of the most effective workers at teachers' institutes in the state. The next is Prof. L. H. Bailey, who has always had this work very much at heart.

And now as we are getting along to the end of our series, and you may ask, "Is this work accomplishing anything? Have you any tangible results?" We who are connected with colleges of agriculture naturally wonder if all our efforts are unavailing, if the boys are still going to the cities. It is a very good thing when you come to think of it that a great many of them are going to the cities. It would be a bad thing for the cities if they had to build up of their own material, if they did not draw from the fresh blood of the country from time to time to infuse new life, energy and intellectual vigor into their classes. Is this work then doing anything? You see this letter is dated

October 30, 1902. It was just received a day or two before I left home. It is only one of many which come to our office, and it speaks for itself. It shows that boys are studying and practicing to become farmers. They are the bright boys. This is the encouraging feature of this whole work. The boys are studying and are beginning to believe that agriculture has something in it more than mere drudgery; that there is dignity; that there is as great an opening in it for men as there is in any other walk in life. And this is the kind of doctrine that we ought to teach.

Good-night.

MISCELLANEOUS, ETC.

Mr. GILBERT: Before closing, let me say we have some visitors with us whom we have not had the pleasure of hearing from. We are pleased to have them with us and would not allow them to go away until we have had the pleasure of hearing from them. It is our extreme pleasure to have with us this afternoon the President of the State University, and to listen to him at the present time.

Dr. FELLOWS: Ladies and Gentlemen, the pleasure is mostly mine, I think it probably is entirely mine in being here rather than yours. It gives me the greatest pleasure to meet the people of Maine, and as I am such a new comer to the State I am very anxious to go about in the different parts of the State where there are gatherings that I may become acquainted with the people among whom I am to live, I hope, for the rest of my life. But the speakers who have preceded me this afternoon have an immense advantage over me—they are experts in the line of work and study in which you are engaged. I am scarcely an expert in that line. I have made some beginnings and I hope to know more in the future. At such a meeting as this almost the first thought that comes to me is the significance of it. What does it mean that people from all parts of the State will come here and spend two or three days together, bringing with them the product of their year's work, discussing papers, listening to experts and devoting their attention to one line of study? It

simply means that this is the product of civilization and the highest product of civilization, when people who are on the down hill side of life are still studying how to do better than to which they have devoted their lives. I have devoted my life, so far as I have lived yet, to the purpose of education, and the more I see of it the more I think it is a noble work. Now this is education. You are in the business of education. The only difference between those who are actually producing work and furnishing the markets of the world with their products, and those who are teaching school, is that the ones who are teaching the young ones, the children, the beginners, are leading them up so that they may be able afterwards to study and teach themselves. You are teaching yourselves here when you are working on these things, and it is the greatest pleasure to me to see that it is not all young people that are studying and working. It is the salvation of the nation when all the people are studying for better methods. Why, such a meeting as this would have been absolutely impossible a little over a half century ago. Do you know that the first time that any one ever thought of having a comparison of products and industries of two nations was just fifty years ago,—only fifty years ago. A hundred years ago, and two hundred and five hundred years ago, people never got together except to fight. That is a fact. Meetings of savages were for the purpose of fighting. Men never assembled together in savage times except either to prepare for a war or to actually do the fighting. The few who had to labor, for instance, and that in the case of the savages is very often the woman,—were allowed to do and expected to do just enough to maintain life, but the real business of life was war. And the few who had the education and knowledge were a separate set by themselves. So most of the savage tribes had their men who were separate, called soothsayers or medicine men, or whatever they might call them, who in themselves were possessed of all the knowledge of the tribe or nation. And even after great cities were built and after great nations began to grow, the people who considered themselves the people and the leaders of the world and of their nation knew nothing, either in letters or in practical affairs. They left that to those who were especially set aside for it. And in the Middle Ages, learning, agriculture, what little of science there was, was left entirely to the monks in the cloistered monas-

teries, and no doubt we ought to thank those monks for what they have done for us. The few good gardens were made by the monks in the yards of their monasteries, and if they had not done that I don't know whether the world would have been devoid of fruit now entirely or not, but certainly we would have been starting with developing the wild fruit rather than developing such beautiful specimens as we have here now. But the fact that it was left to the monks to do what little of agriculture there was, to retain what little of learning there was, is a most significant feature of the times. The kings themselves had learned nothing. Why, Charlemagne boasted that he was greater than all kings because he could write his own name, and he employed a man to read to him, but he scarcely got to the point of reading himself, though he could sign his name, and it is said he could read afterwards, and he was a great king over all the land of Germany and France of today, and Italy. But the highest type of civilization is when all the people are studying, studying to do something, studying to do the work which comes to them either because they have deliberately sought it or because something has forced them into it, so they may do it in the highest possible and best way. I do not know that there is anything better that I could say in the few minutes I have to talk to you than to say how heartily my life is in the work of endeavoring to have people do all that they have to do in the best possible way. Now we cannot ourselves do everything in the best possible way of ourselves, because we have not time. If it is your business to raise apples and my business to raise horses and hogs, I have about all I can do to attend to the horses and hogs and you to attend to the apples. You can do some experimenting, I can do some, all of us can do a little along our own lines and we can give the benefit of our experiments to others. There are experiment stations established by the nation, giving us the benefit of their experiments, but all of these are of no value unless they are made available. My experiment will help no one else, the experiment station will help no one else, the experiments of all of you will help no one else, unless we come together in such associations as these and others and there trade our products—thus the knowledge of one becomes the knowledge of all and every one is possessed of the whole sum of human knowledge on any particular subject. A man now lives through in

his short years of schooling, he lives through the whole history of the human race. If each one of us had to start at the beginning and learn by experiment, as some of our earlier ancestors did, we never should arrive at any great result more than they, but we start with the product of all previous ages. The generation that comes after us will have these things to begin with, and it is our duty to leave to the coming generation the best possible legacy of all of the combined work and effort in every possible line. It has never been my privilege before to address an association devoted to this kind of work, but I hope it will be my privilege again provided you don't dislike to hear me, because I want to work in this line myself. I have had my perceptions made more acute, my interest has greatly increased since I have had charge of an institution which has an agricultural department to it. I think there is nothing more inspiring than coming directly in contact with nature, and you cannot do that in any of the other occupations in life as you can in farming in its various branches. To be sure a great deal of the wealth of this nation and of other nations has been made in what we call other lines, that is, manufactures, manufacturing products that have grown out of the soil or been dug from the soil, but after all, however much money may have been made in those lines, however great the development may have been in those lines and in the line of machinery, and so on, every one of us has to come back to the earth for our supply of food, and if we lose our interest in that and if we lose our skill in that, and if we do not try to make every bit of possible progress in that line, the world will come to naught in spite of all its advances in other lines. Let us do just what Dr. Twitchell has suggested, advocate the value of the State of Maine as an agricultural state. We know it is a state for lumber. Everybody knows that. It is put down in the geographies. My children came home the other day—one of the most remarkable things that they had discovered, that the Penobscot river was most noted for the lumber produced along its banks. They hadn't heard that before, but they read that in the geography. Let us put in the geography that it is an agricultural state, and let us put in every book and paper where we are advertising ourselves that this is an agricultural state, because we know it is. We haven't 500,000 square miles of land such as we have in Illinois; that don't make

a particle of difference. Such as we have is good—it is good for results and the results are unsurpassed. Thank you.

Mr. GILBERT: An imaginary line separates us from our neighbors in the Granite State. We pass through a section of that state in almost all of our travels into other sections. It is but rare indeed that we have a representative from that state with us here in Maine and it is my pleasure at this time to introduce to you the secretary of the New Hampshire Horticultural Society. We have been working him some in the way of awarding prizes, but we do not want to send him away until we hear from him. Will Mr. Baker step to the platform?

Mr. BAKER: Brother Gilbert told me just a few minutes ago that he should want to hear just a word from me but that the time would be very brief. It reminded me of a little incident that happened to me a few years ago when I found myself over Sunday in one of our little New Hampshire towns. I went to meeting, as they call it, and stayed to the Sunday School after the service, and the superintendent, when he called the school to order, said: "We have with us a brother from one of the neighboring towns and I am going to call on him to offer prayer, and if he prays more than three minutes I shall strike the bell." I am not going to have Brother Gilbert strike the bell on me if I can help it.

A few days ago I received a letter from your honored president, a gentleman with whom I have had the honor to be acquainted for a good many years, especially in the dairy line, inviting me to come here and attend this horticultural meeting and meet the people of Maine. It was so that I could come and I very gladly accepted his invitation. On my way here I learned that the Commissioner of Agriculture was to hold a meeting at Saco that evening, and finding that I could make connections I stopped off there. There I met your commissioner, Mr. Gilman, and also President Fellows, and Mr. Gilman told me when he learned I was coming to Farmington, "Brother Baker, you will find there one of the finest exhibits you ever saw." I was partially prepared by that to see a fine exhibit, but I must say it far exceeds any anticipation I had and I want to congratulate the society most heartily upon the superior excellence of this exhibit, which I think I have examined as carefully as I ever did any exhibit in my life. In 1893 as a superintendent of the

New Hampshire exhibit at Chicago I had to attend to our fruit exhibit there, where Maine also had a most creditable exhibit,—one of the finest exhibits there, so the judges said. In that exhibit there were 75,000 plates of apples, but I see represented upon the tables here many varieties while the samples are superior to anything that was shown there at Chicago; and I want to congratulate you again upon this most meritorious display.

Now we have heard for a great many years of Maine Baldwins, in fact Maine Baldwins are known almost the world around. What has given them this reputation? I was in Boston two years ago and a prominent shipper said to me: "About one-half of all the apples I shall ship from the Boston market to European markets are grown in New Hampshire, but three-fourths of those that go are labelled 'Maine Baldwins.'" Now why is it? They must have been pretty good apples or they couldn't have come in the same class with yours. I will tell you why I think it is. You have had in your State for thirty years a live, active pomological society, composed of men who believed in their State and who were using every endeavor to show to the world that they were raising one of the best products possible in the world in the fruit line, and you have advertised your product by putting up nice goods and raising good goods until today a "Maine" Baldwin is a synonym for a good Baldwin. Now we hope at some time with our little horticultural society over there that is only nine years old, to get for our New Hampshire fruit something of your reputation, but I don't believe, after looking at this exhibit—I am not going to slander my own state, but I shall be honest enough to say that I don't believe that time is coming in the very near future.

Mr. GILBERT: Before Mr. Baker leaves us for his home, perhaps it may be well to call his attention to the fact that the law of Congress has recently been passed prohibiting counterfeit labels, and we give them a little warning in regard to selling New Hampshire apples for Maine Baldwins.

Mr. BAKER: Mr. Chairman, I can't allow Brother Gilbert to put me in a false light, the branding was not done in New Hampshire but by men who came up there and picked them and sent them for Maine Baldwins.

Mr. SAMPSON, Secretary of the Franklin County Agricultural Society:

Since coming into the hall this afternoon, the chairman of the trustees of our society came to me and wished me in some way to thank you all who have come here, especially the organization of the State Pomological Society, and I feel somewhat incompetent to put words together to express how the people must feel in regard to it. Last year, at our annual meeting, the society voted to extend an invitation to the State Pomological Society to meet for its next annual meeting in this place, and I had the pleasure of writing that invitation, and perhaps it is not altogether inappropriate that I say a few words now. Certainly it is a pleasure to me to say a few words along this line. I can assure you from the bottom of my heart that we do appreciate it. I can assure you that your presence, your countenances, your shake of hand have enlivened us and influenced us to feel that there is progress ahead in this line of work.

And this grand exhibit, why, as the last brother said, it is a surprise to me. I must say I couldn't possibly anticipate anything of the kind. I am going to say that this exhibit is going to be an impetus to send us as a county way ahead. We may not realize it at once, but it certainly will. At our next annual exhibit I expect to see our tables, provided it is a good year for fruit, I expect to see our tables look better. I expect we will have to enlarge the room to accommodate our exhibit in consequence of this exhibit. In behalf of our society I sincerely thank you.

Now as to the town, it is not necessary for me to say a word probably on this line, because I know you have all felt the appreciation that there is felt in this village towards you for coming here. I know, because I have heard it on the street since these sessions began; bankers, business men, lawyers, doctors, all express the same grand sentiment, "We are glad they came here." "It is a grand meeting." "It brings us up." "It is lifting agriculture." Agriculture is on the rise, thank the Lord for that, if I may use that expression. The agriculturists of Maine feel it and we are on the rise. In behalf of Farmington, I thank you. In behalf of the county I thank you.

Mr. GILBERT: It seems to devolve upon me at this time to say a few words in response to the remarks you have just listened to, and also to give some information in relation to our presence here and how we came to be here.

The invitation was received from the Franklin County Agricultural Society, one of the most successful agricultural societies that we have in the State, and in accordance with the name which it bears of an agricultural society one probably as closely helping the interests which it represents as any other county society in the State. We appreciated the importance of that invitation and what might result from it. In order to make an exhibition or an enterprise of this kind or a similar kind a success in any locality, the people at that point must be interested in it. Very much devolves upon them, however much we outsiders can do, very much devolves upon them to make the occasion a success, and without that aid we could not have made this exhibition and convention what it has been here at this time. The people of Franklin county have given us a cordial reception. They have fulfilled their every duty in connection with their invitation beyond what we have asked or expected of them. Nothing on their part has been neglected.

We were criticised somewhat severely for locating this convention here at this point. Still the faith was in us that it would be a success and that criticism would be wiped out on the occasion of holding the convention, and I am free to say that I have no doubt that that criticism has been silenced and forever. And further than that, our secretary, on whom very much of this work and this arrangement of a program, securing the speakers, etc., has devolved, is a resident of this town, and I want to give him the credit here and now. He has been interested in this meeting and he has done heroic work in the matter of local affairs connected with this institution in so far as our side of the work is considered. Every detail has been attended to, methodically and systematically. Every detail devolving upon the locality has been carefully canvassed and attended to. He and I were designated as a committee of the board of officers to complete this work and so I have known, been thoroughly informed as to every part of it as it has gone along; so not only your people, not only your agricultural society, but your citizen—our secretary, have done all that we could ask of them and could expect, and should receive the large measure of credit for the success which I hope you will all accord to this occasion. We thank you heartily for this attention on your part. We hope that your efforts will be in a measure rewarded. We trust they

will, for wherever people do good work in a good cause they are sure to be rewarded. You in justice will receive a large measure.

Mr. POPE: I crave just a moment of your time. Some thirty years ago a few generous-hearted men met in the town of Winthrop and conceived the idea of organizing their effort in behalf of fruit growing in Maine. A few of you perhaps remember that time and may have been present. They there took measures which resulted in the organization of this State Pomological Society. Perhaps few of you know or are aware of the labor and of the time that was given by the officers, by the men at that time who had nothing as a precedent to work from, only their love and their desire to benefit their fellow fruit growers. They applied to the State. The appropriation which was allowed us was small. It was only through the efforts of a few public spirited men that this work was carried forward, and among them were such men as Gilbert, Sawyer, Varney, and those who without compensation, except from the satisfaction of doing good, carried on the work, frequently without money enough to pay the bills except as their hands went into their own pockets and helped out.

Now one of those charter members, who was then president, is at the present time our president, and a few of us life members, feeling that we wished something that should recall those days, have taken the pains to frame a certificate of membership and present it to this our worthy president, feeling that as it hangs upon the walls of his study it will recall to him the days and the hours and the weeks that he has spent with us—not for its intrinsic value but that the memories that it may call up will give pleasure to him. And perhaps I know better than any other man who was with him in the organization of the society and have been with him in every meeting since when he has been an officer, how much time and thought he has put into this, and know that the pleasure that he has received from the work that he has done far outweighs all of this, of that which can be received by those who simply attend these exhibitions for what little personal profit they may get from it.

In presenting this to our president we feel that he will appreciate it and recall the good feeling that the life members have

for him and for the efforts that he has put forth to assist the fruit growers of Maine.

Mr. GILBERT: Brothers and sisters: This expression of your pleasure in connection with myself and the service I have done in the interests of fruit growing is a complete surprise to myself and I hardly feel prepared to say a word in response or express my thanks for this expression of yourselves in regard to that service. I can only assure you that it is a far higher compensation than any mere pay. I have often thought as I have put in days and weeks of work, especially in this direction and in other directions also in connection with agricultural affairs, I have inquired in my own mind whether I wanted to exchange those days' works with the compensation I have received while performing them for mere pay—money—and I never have found the time upon any occasion that I have wanted to sell that time or exchange it for money. I have been so far favored in life with compensation for my efforts on my own farm and in my own orchards that I have got a comfortable living. I could have secured, by putting my labors in other directions, more of money,—I don't know how much more. I never calculated things in that direction. But I have received compensation. I have no desire to exchange it for money; and this expression on your part is a great satisfaction to me, I assure you, that you appreciate those labors and have yourselves thought of the way and the manner in which those labors have been tendered for the cause which they have served. I thank your heartily, and from my heart I thank you for this expression.

SECRETARY'S PORTFOLIO.

HENRY A. ROBINSON, D. D. S.

Henry A. Robinson of Foxcroft was one of our earliest life members, and one who in a special sense had the interests of the society at heart. It was a pleasure to have him with us at our annual meeting in Dexter in November, 1901, but it was a cause of no little sorrow to observe his declining health. Several times he called attention to the great pleasure the meeting gave him, and it was the secretary's privilege to induce him to stop over to the evening meeting by sharing his room with him. A few weeks later we were shocked to learn of his death, while of his life there were only the sweetest of thoughts. To his wife and family the members of our society join in extending heartfelt sympathy in their sorrow, while they rejoice in the noble, helpful life he led.

Mrs. Robinson has kindly sent the secretary the following sketch of her husband, and it so beautifully tells the story of his noble life that it is a great pleasure to publish it for the perusal of our members:

Henry A. Robinson, D. D. 'S., was born at Foxcroft, Maine, March 6, 1840. He received his education in the common schools, and at Foxcroft Academy; and taught his first term of school at the age of sixteen, continuing to teach in winter for several years, while in summer he assisted his father on the farm. He studied dentistry in the office of Dr. Henry Leavitt at Foxcroft, and afterward graduated from the Philadelphia Dental College in the class of 1867. He then established an office in Foxcroft, where he followed his profession for thirty-five years, taking great pride in doing first-class work.

The doctor's chief interest, outside of his office, centered about fruit-growing, and he was a life member of the Maine Pomological Society, whose sessions he greatly enjoyed whenever he was able to attend. It addition to a large apple orchard, he had, besides the more common kinds, a number of varieties of Russian pear-trees, some of which were large enough to produce

good preserving pears. He had also several varieties of plum trees, supplying fine large ones for the table and smaller kinds for preserves. For many years he raised strawberries in large quantities; also currants, of which his favorites were Fay's Prolific and the White Grape. Gooseberries, too, claimed his attention, and in recent years he cultivated successfully several new large varieties,—the Columbus, Triumph, etc. Grapevines, blackberries, red, yellow, and black raspberries, and many other fruits, were also to be found in his garden.

Each individual tree and bush received his careful attention, and he was never happier than when working among them. As his health failed, his interest in fruits seemed to increase. He was as eager to see and learn about a new variety as an astronomer to see a new star.

Flowers, both wild and cultivated, were his friends, and a small knot of them usually adorned his coat through the summer. Frequently when coming in from the field he would bring to the house some especially handsome specimen of clover or goldenrod, or the first wild rosebud of the season.

In 1860, Dr. Robinson married Miss Adriana M. Stacy of Foxcroft, who, with a son and a daughter, survives him.

For several years he suffered from a severe stomach trouble, which gradually reduced his strength, resulting in his death on January 24, 1902.

DR. THOMAS HENRY HOSKINS.

Dr. Thomas Henry Hoskins was born in Gardiner, Me., May 14, 1828, and died in Newport, Vt., June 26, 1902, being a little more than seventy-four years old. He leaves a widow and one daughter, the wife of Rev. J. B. Spiers of Conticook, N. H.

Dr. Hoskins was widely known as a horticulturist and his writings were widely disseminated through such mediums as the Vermont Watchman, of which he was the agricultural editor for many years: the Rural New Yorker, the Maine Farmer, the New England Homestead, the New England Farmer, the Garden and Forest and others, he being one of the few in his day, who were paid for contributions of that nature. His father, Henry Box Hoskins, a paper manufacturer, was one of Gardiner's most

highly respected citizens, repeatedly serving his city as treasurer, mayor and member of the legislature. Coming from a stock of sterling integrity and great mental ability on his father's side (his greatgrandfather was William Henry Hoskins, a merchant of Boston, and acting commissary in the Revolutionary War, whose remains now rest in the vaults of the historic Old South church of that city), his antecedents on his mother's side were no less worthy. She was Mary Green Jewett, and her father, Jesse Jewett, who owned a large farm in Windsor, Me., was for his day a scientific and progressive farmer, and was sheriff of his county to the day of his death at nearly 80 years of age.

It was on his grandfather's farm that Dr. Hoskins imbibed the love for the soil which he always retained. He early showed a fondness for newspaper work, owning, editing, and printing a little paper of his own at thirteen years of age. He received his academic education at the Gardiner lyceum. In 1849, at twenty-one years of age, he started for California in company with other young men of his city, but, not liking the manners of his companions, he left them and finally located in Louisville, Ky., where he remained nearly thirteen years. He engaged in the drug business, first as clerk, then as partner, and later studied medicine in the medical department of the University of Louisville, at the same time carrying on a market garden just outside the city.

Graduating at the head of a large class, he became assistant professor of anatomy, translated French and German works for the university, and practiced his profession until in 1861, just before the war, he removed to Boston. Here he remained several years, being surgeon to several institutions, one of the physicians of the Boston Dispensary for four years, also engaged as an editorial writer on the Boston Courier, and as a lecturer in Dio Lewis's school.

In the winter of 1865-66 he received a severe spinal injury by a fall on the icy pavement, which incapacitated him for the further practice of his profession, and for many months, for any work whatsoever. At the instigation of his friends, he went to Newport, Vt., to recuperate his health. He became enamored of the locality and decided to remain and experiment in hardy fruits for the cold regions. He began a nursery at West Derby, Vt., about 1868, experimenting very carefully with many varieties. It required not only money, but courage, patience and

experience to solve, as he finally very largely did, the problem of tree fruits for northern New England and lower Canada. In the selection and introduction of ironclad Russian fruits, including apples, pears, plums and cherries, of various qualities and seasons, he was associated with Prof. J. L. Budd, professor of horticulture in Iowa university, and Charles Gibb of Montreal.

The latter made two trips to Russia in pursuit of new varieties, and shared his spoils with the doctor. He gave to the public the Yellow Transparent (Russian) and the Scott's Winter (native) varieties of apple, and in his seed business, which he conducted until 1899 as auxiliary to his nursery and market garden, he originated and propagated several varieties of vegetables.

In 1870 Dr. Hoskins started the Vermont Farmer at Newport, and after two years removed it to St. Johnsbury, where it was conducted for four years with himself as editor and Royal Cummings as publisher, reaching a circulation of 4,000. He then sold his interest to Mr. Cummings.

He was a popular member of the State Board of Agriculture, and for many years was in demand as a speaker at horticultural and agricultural meetings in Vermont, New Hampshire, Maine and Massachusetts. Always a public-spirited citizen wherever he resided, he was one of the founders of and first contributors to the Newport public library, and the first president of the library association. In politics he was a Jeffersonian Democrat; in religion, a believer in the doctrines of Swedenborg. Extremely versatile, he had poetic, artistic and histrionic talent, an extraordinary command of language and gift of expression, combined with a strong love of humanity. With all this he was possessed of great industry and a systematic and orderly disposition.

Few men have done more for the fruit grower and the fruit eater than Dr. Hoskins. He never forgot his native State, where he always found a most cordial welcome. He was present at the Norway meeting of our society held in the winter of 1890, and spoke upon the recent hardy fruits. He was in delicate health at that time, but we were all glad to meet him and to hear him speak. He is one of the immortals, for he lives in the valuable fruits and vegetables he introduced, some of which were almost his own creation. What better monument can be reared to a man's memory than these varieties of fruits and vegetables that will live on and on till time shall be no more?

PROF. E. S. GOFF.

Emmett Stull Goff, professor of horticulture in the University of Wisconsin, died in Madison, Wis., June 6, 1902. He was born in 1852 on a farm near Elmira, N. Y. His early training was on the farm and in the common schools. In 1869 he graduated from the Elmira Academy; appointed horticulturist at the agricultural station, Geneva, N. Y., in 1882; appointed professor of horticulture in the University of Wisconsin and horticulturist of the Wisconsin Experiment Station in 1889, which position he held at the time of his death, with great credit to himself and the institution.

At the time of his appointment the department of horticulture was well nigh its beginning, consisting of a limited plantation of small fruit and office room in Agricultural Hall. There were less than a dozen students in the horticultural department at this time. During the past year over three hundred students received instruction from Professor Goff in a splendid building devoted to horticulture, with the added advantages of field work and observation in several acres of nursery and fruit plantations, containing thousands of specimens and hundreds of varieties. This growth in a large measure is due to the enthusiasm of Professor Goff and his popularity as an instructor in horticulture. "Principles of Plant Culture" and "Lessons in Pomology" were the outgrowth of his experience in the class-room, the study and the field. The preparation of these volumes came in the midst of his class and other duties, when there was need of rest and recreation especially for a man of so little reserve force as Professor Goff.

As an investigator in horticulture he won the highest ranks. His first important work was a study of the apple scab fungus, and in connection with Professor Gallaway he conducted the first successful series of experiments with fungicides for the control of this disease. He was a pioneer in spraying, and invented the kerosene attachment to spray pumps, the original model of which is now in the horticultural building.

His bulletins, sent out from the station, are among the most valuable agricultural literature issued by any of the numerous stations in the United States. His recent investigations in

regard to the formation of flower buds have attracted world-wide attention. While ranking as a horticulturist, leading botanists recognized his ability and studied his experiments with care. He was a critical student, an accurate observer and a deep thinker, and all his great ability was given to the cause of horticulture that he loved so much. Maine fruit growers join with others in paying tribute to his memory.

APPLE BOXES.

The apple box has been under discussion in Maine for several years. Some years ago on the advice of buyers more or less fruit was sent abroad in boxes. There was an entire misapprehension on the part of the fruit growers, for they seem to have thought any fruit packed in a box would be jumped at by buyers at a fancy price. They were doomed to disappointment, but they learned that wrapping and packing did not make a number two apple a number one. Another thing that has been learned in more positive form is that the demand for boxed apples is only for the finest fruit for dessert, although the Ben Davis has sneaked in here, probably on account of its good looks. Like many other lessons in recent years, the west is teaching us how to pack fruit. In the winter of 1903 when apples in barrels found a very dull market and low prices, Spitzburghs and Newtown Pippins from Oregon travelled across the continent, packed in bushel boxes, and sold at \$3 to \$6 a box. To show our people what this meant, a bushel box of Spitzburghs were purchased in the New York market for \$4 and sent to Cornish where a meeting was held. The sides of the box were one-fourth inch material and the ends three-fourths inch. Each apple was wrapped in white paper with thick blue paper between the layers and on the top and bottom. It was an excellent object lesson. This box for apples will be still further considered by the society.

Some correspondence grew out of this box of apples, in which Maine growers will be interested. Mr. H. W. Collingwood of the *Rural New-Yorker* wrote:

"So far as I have been able to learn most of the experiments in selling boxed fruits have been very successful. In some cases packers put a poor quality of fruit into the boxes and lost money by doing so. As a rule, however, when they use good judgment and pack only the best fruit I think they are well satisfied."

Mr. Wm. M. Higgins of the same paper, through whose co-operation the fruit mentioned, was obtained, wrote:

This is a typical box of Oregon Spitz. There were larger ones earlier in the season, and I have seen smaller ones that sold for nearly as much. I opened the box on the side and looked at a few, which appeared to be all right, but did not disturb many as I want your people to see them just as they were packed. The cost was \$4. You will probably find the quality of these inferior to eastern grown fruit. I know that you can grow Spitz. larger and handsomer than many of these. The only reason that I can see for these high prices is the handy and attractive way in which they are put up. I am not yet ready to recommend the general use of boxes. Too many low grade eastern boxed apples have come here, so that dealers have become prejudiced and few will recommend the box. I have seen boxes made of old weatherbeaten timber, and wormy apples and culls mixed in. Such fruit will go better in barrels, as it falls flat by comparison with other boxed fruit. A man whom I worked for on the farm had a saying for people who jump at conclusions or sail in without investigation. It was "Go slow and study philosophy." That will apply to the boxed apple business. It is very well to experiment, but I would not advise anyone to sink much money in it until he sees how he is coming out, and what he has to compete with in the way of package packing and fruit. Your people can raise the apples and there is no reason why they should not have this high class trade, at least their share of it, if they feel their way along carefully. I have written this warning at some length to show that there are two sides to the matter and keep people from going astray. There are some western apples which we have not thus far been able to equal in appearance in the east. I have seen Newtown, Jonathan, Lawver and White Pearmans with most beautiful and delicate coloring. Such apples retail at almost any price, but there is no use in our bothering our heads about color shades in fruits that no one has been able to approach here in commercial

quantities. A thing for us to consider is that we can raise apples as fine or finer than the rank and file of those that come from the Pacific coast, and that at least part of this trade belongs to us in the east.

I send by mail one quite large Spitz. I could not get a solid box of these and doubt whether the exhibit would have been worth the cost, probably \$7 or more. These retail at fifteen cents each, or two for twenty-five cents. Of course the trade in them is limited. They being used largely for decorations. Earlier in the season I saw quite a good many of these overgrown western Spitz., some were considerably larger than this specimen.

Mr. John W. Clark of North Hadley, Mass., whom Maine people well remember for his excellent talks on orchard topics, wrote:

"Will say that I have never used the box for shipping apples, but think I shall try the box as I believe it is the coming package for choice fruit, although the commission men seem to discourage its use and want to hinder its general introduction. Still it is my opinion that they realize it has come to stay and will be used more and more."

SPECIAL CONDITIONS AFFECTING FRUIT OR FRUIT TREES.

Orrin McFadden, Cedar Grove, writes that scab has done much injury this year. Spraying does not seem to do any good. He sprayed three times for plum rot, black knot and scab on apples, which seem worse than ever before. Then he asks "What good is spraying?"

H. J. A. Simmons, Waldoboro, writes that several varieties are badly mildewed and spotted. The codling moth and railroad worm have very badly affected summer and fall varieties. A large portion of our orchards are fertilized by poultry."

C. S. Phiney, Standish, "Very few are giving their orchards any special attention. Where any cultivation is done fruit shows better quality and more of it."

Jennie E. Litchfield of Winthrop, "Trees are looking healthy. I think we should cultivate our orchards more, and keep the ground stirred lightly on the surface in order to raise good fruit."

V. P. DeCoster, Buckfield, says: "Fruit is good this year, and that orchards have received better culture this year."

A. C. Day, South Turner, "Orchards not receiving the attention they ought. The trypeta has done little damage this year. No caterpillars, and trees have made a fine growth."

W. P. Atherton, Hallowell, "Top dressing and mulching are the cultivation given our orchards. Scab and trypeta are worst enemies, and we cannot beat them. Ravages are extending rapidly. What can we do?"

H. L. Leland, East Sangerville, "Apples badly scabbed. Some improvement in culture," and adds "Better care, better cultivation or no profit."

Another orchardist says, "There should be cultivation every season."

In Aroostook, John W. Dudley, Mapleton, writes: "Quality of fruit is poor, scabby and no color, except Dudley's Winter. Trees have grown fine. Orchards mostly seeded to grass. We have one of the best crops of Dudley's Winter we have ever raised, very large, smooth and well colored."

Will E. Leland, East Sangerville, "Quality of fruit poor. Scab. Orchards are receiving better care than for several years. Orchards in which a hoed crop has been grown for several seasons in succession are yielding a fair crop."

E. C. Hayford, Monmouth, "Some scab on the Fameuse. More plowing and dressing than ever before. I hear considerable talk of setting plum and peach trees next year."

R. Alden, Winthrop, "Quality of apples good. Ordinary culture. To make a success of orcharding trees should be cultivated or enriched by sheep or hogs and sprayed with the Bordeaux mixture."

A. S. Ricker, Turner, "Some apple scab and trypeta. Uses commercial fertilizers and hogs. No culture."

C. Fenderson, Wilton, "Trees have made a good growth this year. Orchards receive fair culture. More care will pay owners of orchards."

A. E. Andrews, Gardiner, "Some scab, but not bad in Bell-flowers. Fertilize with mulching and dressing."

W. H. Phillips, "Some scabby, but good culture is given."

W. M. Munson, Orono, "Apple scab is unusually bad, also codling moth. As a rule no culture is given but some troubles are met in cultivated orchards. The present season was very wet and favorable to the growth of fungous diseases. All rubbish should be destroyed and trees thoroughly destroyed and trees sprayed next spring."

G. J. Wyman, South China, "Many orchards need pruning." Roscoe Vaughan, Wilton, "We have a great many wormy apples, both trypeta and codling. Mulching and top dressing are the most practical. One reason for much inferior fruit is the fact that the tree-tops are allowed to become thick and bushy."

B. C. Torsey, Readfield, "The fruit trees suffer from moths. No great culture is given orchards. In this vicinity only a very few orchards have any desirable yield. Some mulch, dress and care for, but many give but slight attention. Greater care is necessary."

A Cherryfield grower writes: "That orchards about him receive all kinds of culture. Fruit and apples are about half a crop, but apples are large, well colored, and free from worms or spots."

A. A. Eastman, Dexter, "Some orchards receive more or less culture, while others receive none."

E. A. Lapham, Pittston, "Some varieties are badly scabbed this year. Dress with barn manure, spread and mulch most every year. Fruit trees must have good care; must be sprayed to get good fruit. They ought to be sprayed two or three times. Some years once will do. This year I sprayed but once and it ought to have been two or three times."

Chas. S. Pope, Manchester, "Trees are looking better. Leaf rollers have done immense damage for three or four years. Many are plowing their orchards or preparing to do so. Orchardists do not consider that the season is late and are picking too early before the apples are grown or well colored."

N. Harding, New Sharon, "Part of fruit wormy. Orchards are not receiving the care they ought to have. I think orchard-

ing the best part of farming and the crop should be more closely attended to."

Edward Tarr, Mapleton, "Some of the apples are scabby this year. Most orchards are in grass and receive top-dressing. Fruit growing is on the increase here. It is shipped by the car-load yearly."

A Winthrop fruit grower, "The best fruit is where the trees are cultivated. One thing I am convinced of is that we must give more time to cultivating our orchards to insure better quality."

H. D. B. Ayer, Vassalboro, "Rust affects the trees some. Orchards are receiving fair culture."

C. W. Adams, East Wilton, "Leaf rollers have troubled some orchards. Apple scab is worse than usual this year. The orchards in most cases receive very little culture."

J. H. Barton, West Windsor, "Orchards are receiving little or no culture."

W. W. Rollins, East Dixfield, "Borers are working on the trees. No orchards are receiving attention. Less varieties would pay better."

Hallowell grower: "More or less fruit was damaged from freezing before it was gathered. Orchards are given no culture to speak of. Top dressing with ashes and manure and mulching. Good winter stock will be wanted abroad and in the west before spring, but those who expect or hold for extreme high prices will get left."

S. H. Dawes, Harrison, "More scab than usual. Orchards are not given much of any culture."

NOTICE TO TRANSPORTATION COMPANIES AND FRUIT GROWERS IN MAINE.

In recent years great damage has been wrought among the fruit growers of several states by the introduction of the San Jose Scale and other dangerous insects and contagious plant diseases. As a result of this devastation and injury to the trees, shrubs and vines producing fruit, a very large part of the fruit growing states have enacted laws to prevent the introduction of noxious insects and plant diseases so far as possible, as well as to destroy the same wherever they have been introduced. So far as known the State thus far has been exempt from the San Jose Scale and many other dangerous insects and plant diseases that in one way or another have found their way into orchards, nurseries and private grounds in other states, and it is the desire of all to keep them out of Maine and to get at them at once should they perchance make their appearance here.

This condition of fruit affairs led to the enactment of the present law, a copy of which forms a part of this notice. In extending this notice, the officers of the Maine State Pomological Society earnestly invite the co-operation of the officers and employees of all transportation companies and fruit growers generally in the State to join with them in aiding the commissioner of agriculture to impartially execute the law, and to that extent exclude and destroy these dangerous enemies to fruit culture in the State.

Special attention is called to section 3 of the law, which calls for notice wherever any of these insects or diseases make their appearance in the State in order that remedies may be at once applied for their destruction. This provision is of the utmost importance, and it is hoped it will be generally complied with by all.

All of which is most respectfully submitted to those whom it concerns.

D. H. KNOWLTON,

Secretary Maine State Pomological Society.

FARMINGTON, ME., March, 1903.

AN ACT to provide for the protection of trees and shrubs from injurious insects and disease.

Be it enacted by the Senate and House of Representatives in Legislature assembled, as follows :

Section 1. All nursery stock shipped into this state from any other state, country or province shall bear on each box or package a certificate that the contents of said box or package have been inspected by a duly authorized inspecting officer, and that said contents appear to be free from all dangerous insects or diseases. In case nursery stock is brought into the state without such a certificate the consignee shall return it to the consignor at the expense of the latter ; provided, however, that any box or package bearing a certificate of fumigation, which shall be an affidavit made before a justice of the peace, that all stock sold by the consignor has been fumigated in a manner approved by the state nursery inspector of the state from which said nursery stock is shipped, the same may be accepted as though bearing a proper certificate of inspection.

Sect. 2. Any transportation company that shall bring into this state any nursery stock such as trees, shrubs, vines, cuttings or buds, and any transportation company, owner or owners of nursery stock, or persons selling nursery stock as thus defined, who shall transport such stock or cause it to be transported within the state, the same not having attached to each box or package an unexpired official certificate of inspection or an affidavit of fumigation, which shall meet the requirements specified in section one of this act, shall be guilty of a misdemeanor, and on conviction thereof be subject to a fine not exceeding one hundred dollars for each offense.

Sect. 3. Should any person in the State suspect the presence of San Jose Scale or other injurious insects or diseases preying upon trees, shrubs or vines in his possession or within his knowledge he shall forthwith notify the commissioner of agriculture to that effect ; and it shall be the duty of said commissioner of agriculture to cause the said trees, shrubs or vines to be inspected by a competent entomologist, who shall forthwith make a report of the results of his inspection and file the same with the commis-

sioner of agriculture at Augusta. If dangerous insects or injurious diseases are found by the entomologist the commissioner of agriculture shall publish the report of the same, and see that the best known treatment is applied to such trees, shrubs or vines for the destruction of the insects or diseases with which the same may be infested. And for the above purposes the commissioner of agriculture or his employes shall have authority to enter private or public grounds and treat any trees, shrubs or vines that may be infested with dangerous insects or injurious diseases.

Section 4. In case of violations of this act it shall be the duty of the commissioner of agriculture to enforce the penalties set down in section 2 of this act.

Sect 5. This act shall take effect when approved.

Approved March 18, 1903.

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