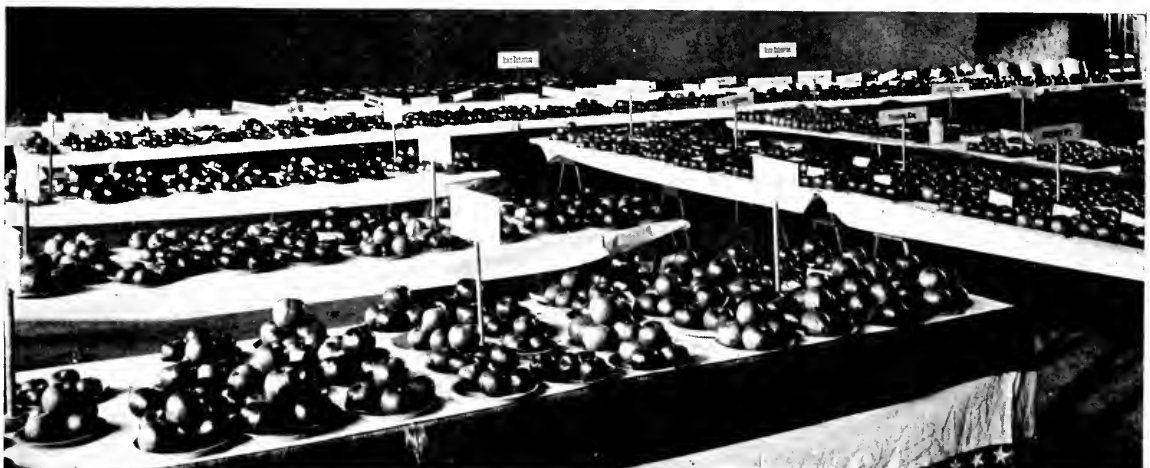
TRANSACTIONS

MAINE STATE POMOLOGICAL SOCIETY

1907



MAINE FARMER PRESS, AUGUSTA

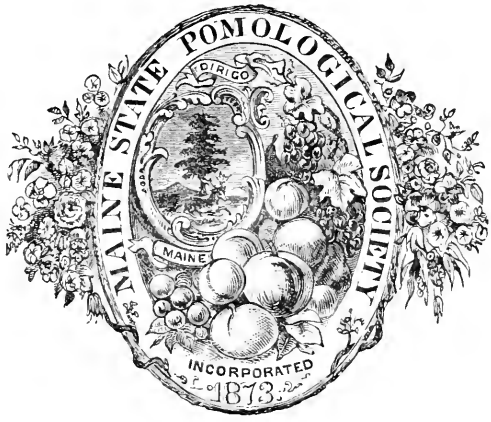
Exhibition tables at Gardiner Exhibition

TRANSACTIONS

OF THE

Maine State Pomological Society

FOR THE YEAR 1907.



EDITED BY THE SECRETARY,

D. H. KNOWLTON.

WATERVILLE
SENTINEL PUBLISHING CO.
1908

CONTENTS.

SECRETARY'S REPORT.

INJURED FRUIT TREES.

It might not seem necessary to mention the past winter in connection with fruit growing were it not for the fact that the winter is blamed by many for the injury suffered by our orchards. So far as your Secretary is concerned he does not "blame it all on the weather," while the injury is more serious than most of our fruit growers realize, there are other conditions that should be recognized. The Baldwin and Ben Davis suffered the most. Those varieties are both free bearers, and the growers look upon the tree hanging full of beautiful fruit and rejoice over the magnificent crop of fruit promised. I do not know of a fruit grower in Maine who has to any great extent felt it necessary to relieve the trees of the heavy burdens they were bearing. In one case the present season a prominent grower told me he had used over 1,500 stakes to prevent the trees from breaking down. In a canvass covering a large number of orchards this fall a conspicuous fact appears: the dead and injured trees are almost without exception trees that bore heavily the year before. In other words the trees have been so weakened by overbearing that they have not had the power to resist the cold. Many trees that have borne heavily this year I found seriously injured, and it will be strange if there are not many more dead trees next spring than the last. The Secretary suggests whether it would not be wiser to pick off some fruit and burn up the stakes. The extent of this injury was shown by speakers at our meeting, who have been investigating orchard conditions in the State. Yet notwithstanding this unfavorable condition, the New England Homestead reports the crop in Maine this year at 1,700,000 barrels, and in an editorial upon the fruit situation remarks that Maine has now come to be an

important factor in measuring up the apple situation in the United States. This is the largest crop thus far credited to Maine.

LARGER ORCHARDS AND BETTER CARE.

In going about among the fruit growers of the State several facts are noted. One is the increase in the size of the orchards. Twenty-five years ago a man with a thousand apple trees was called an "Apple King." Today there are many orchards in the State that contain many more trees than that, and quantities of farmers have five hundred or more trees. The extent of the industry is a genuine surprise to all, and it is very doubtful if more than one-half of the trees have come into bearing. This is indeed significant of what the future has in store for us.

Another fact to which attention was called in the last report of the Secretary is the better care the orchards are receiving. It is apparent in all parts of the State, that the trees are better fed, better pruned, and it will not be many years when our growers will not permit their trees to bear themselves to death.

OUTGROWN THE CAPACITY OF THE GROWERS.

Another interesting and astonishing fact is that the industry seems to have outgrown the capacity of the growers to handle the fruit economically. As a result of this one finds thousands of barrels of fruit unpicked and ruined by the cold. The cellars and store rooms are full of fruit and thousands of barrels of apples are today stored in open sheds and outbuildings, and the slump in the market to no small degree may be traced to the rush of the growers to get their apples into the market before they froze at home.

So far as conditions in fruit growing have improved in the State our society may justly claim a large share of credit. Ever since its organization the society has held up before the people of the State the possibilities of fruit culture that are being realized today. At the same time they have always urged a rational and kindly treatment of the apple tree.

They have advised against the planting of nursery freaks and steadily held up before the fruit growers the best and most reliable of varieties. Alas, in many cases the oily, polished words of the tree agent have overshadowed all this, and not a few growers have come to grief in consequence.

MEETINGS OF EXECUTIVE COMMITTEE.

Only two meetings of the committee were held during the year, both in Augusta. The President and Secretary were instructed to appear before the Agricultural Committee in fruit matters calling for legislation. The purchase of an experiment farm for fruit purposes for the Experiment Station was referred to the next legislature. It did not seem necessary for them to attend the hearing on the insect legislation, and it seemed inexpedient to ask for an increase in the stipend at this time.

FIELD MEETINGS.

Two field meetings were held, one in Monmouth and one in Wilton. At these meetings the general subject of spraying was presented. No extended report of these meetings appear, but in this connection attention is called to the letter of Mr. M. B. Waite of the Agricultural Department at Washington which appears in another part of the transactions. The meeting at Monmouth was held in Grange Hall and a model grange dinner was served by Monmouth Grange. It was largely attended. At Wilton the attendance was smaller, but good results have followed both meetings.

NEW ENGLAND HORTICULTURAL SOCIETIES COME TOGETHER.

The year the Canadian Fruit Marks Act became a law the Secretary called the attention of the society to the desirability of such a law for Maine fruit growers, and in one form or another the subject matter has been before the society since. At the Canton meeting in 1905, Dr. G. M. Twitchell was made a special committee to take up the matter of national legislation along the line of this act. The committee was continued in 1906 at Harrison and through Dr. Twitchell's influence a meeting of delegates from the New England Horticultural Societies was arranged for under the auspices of the Massachusetts Fruit Growers Association in Worcester. All the societies were represented and at the instance of President Gilbert I had the pleasure of attending the meeting. There was such a delightfully sympathetic feeling among the delegates, your Secretary felt that nothing but good could come from more similar meetings in the future. We are in close touch with one another geograph-

ically. We have the same markets, and climatic conditions are similar to a large extent. With the hope of bringing about more intimate relations, your Secretary invited the several societies represented to send delegates to our annual meeting. The proposition met with a cordial response, and as a result we had with us delegates from the several societies in New England.

It was an altogether pleasant and novel feature of the meeting, and it is a pleasure to note, as will be seen by the transactions, that the invitation of the Connecticut Pomological Society to meet with them at Hartford at their annual meeting in February was accepted.

THE ANNUAL MEETING.

The cordial reception given to the society and its visitors by the Gardiner Board of Trade and the citizens generally was the pleasantest feature of the meeting. It is pleasant and helpful in this work to be among one's friends. Appreciation and courtesy are great stimulants in all our efforts in this world, which is too often indifferent to the best things.

The papers and discussions were timely and helpful and it is with pleasure they are now submitted to the fruit growers of the State.

IN CONCLUSION.

The fruit growers of the State are expecting much from the society and it is right they should, for that is just what the society was organized for. There are thousands of fruit growers in the State, but since the organization only a handful, so to speak, of the most enthusiastic fruit growers have united with the society. Is there any good reason why so many for their own assistance should expect so much from so few enthusiasts? What the society now needs is the hearty support and active membership of the fruit growers of Maine. This would enable the society to do work that it has never before undertaken.

This report will close a long term of official life in connection with the society. While there has been an increasing amount of labor with each successive year, the service has been cheerfully given. The results have made a good showing for the society. Personally I wish to thank the members for their continued confidence in placing the duties of the office in my charge. I also wish especially to thank my official associates for their assistance

and cordial cooperation in conducting the affairs of the society, for this more than all besides has been the means upon which I have relied to carry on the work. They have freely given their time to the cause, and the value of their services should not be overlooked.

My interest in the work of the society will be no less as a member, and I shall esteem it a pleasure to assist in any way I may to carry on its work in the future.

D. H. KNOWLTON,
Secretary.

OFFICERS FOR 1907.

President.

Z. A. GILBERT, North Greene.

Vice Presidents.

D. P. TRUE, Leeds Center.

EDWARD L. WHITE, Bowdoinham.

Secretary.

D. H. KNOWLTON, Farmington.

Treasurer.

E. L. LINCOLN, Wayne.

Executive Committee.

The President and Secretary, *ex-officio;* Will E. Leland, East Sangerville; V. P. DeCoster, Buckfield; Charles E. Wheeler, Chesterville.

Trustees.

Androscoggin county, A. C. Day, South Turner.
Aroostook county, Edward Tarr, Mapleton.
Cumberland county, John W. True, New Gloucester.
Franklin county, E. E. Hardy, Farmington.
Hancock county, Chas. G. Atkins, Bucksport.
Kennebec county, E. R. Mayo, Hallowell.
Knox county, Alonzo Butler, Union.
Lincoln county, H. J. A. Simmons, Waldoboro.
Oxford county, F. H. Morse, Waterford.
Penobscot county, W. M. Munson, Orono.
Piscataquis county, C. C. Dunham, Foxcroft.
Sagadahoc county,————
Somerset county, Frank E. Nowell, Fairfield.
Waldo county, Fred Atwood, Winterport.
Washington county, D. W. Campbell, Cherryfield.
York county, J. Merrill Lord, Kezar Falls.

Member 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.

Allen, Wm. H.....Buckfield
Andrews, A. Emery.....Gardiner
Andrews, Charles E.....Auburn
Arnold, C. A.....Arnold
Atherton, Wm. P.....Hallowell
Atkins, Charles G.....Bucksport
Atwood, Fred.....Winterport
Averill, David C.....Temple
Bailey, W. G.....Freeport
Bennoch, John E.....Orono
Bickford, Lewis I.....Dixmont Center
Bisbee, George E.....Auburn
Blanchard, Mrs. E. M.....Lewiston
Blossom, L. H.....Turner Center
Boardman, Samuel L.....Bangor
Briggs, John.....Turner
Burr, John.....Freeport
Butler, Alonzo.....Union
Chadbourne, C. L.....North Bridgton
Chandler, Mrs. Lucy A.....Freeport
Chase, Henry M.,103 Federal St., Portland
Corbett, Herman.....Farmington
Craig, William.....Auburn
Crowell, Mrs. Ella H.....Skowhegan
Crowell, John H.....Farmington
Dana, Woodbury S.....Portland
Dawes, S. H.....Harrison
DeCoster, Virgil P.....Buckfield
Denison, Mrs. Cora M.....Harrison
DeRocher, Peter.....Bradentown, Fla.
Dirwanger, Joseph A.....Portland
Dunham, W. W.....North Paris
Dyer, Milton.....Cape Elizabeth
Emerson, Charles L.....South Turner
Farnsworth, B. B.....Portland
Frost, Oscar F.....Monmouth
Gardiner, Robert H.....Gardiner
George, C. H.....Hebron
Gilbert, Z. A.....North Greene
Goddard, Lewis C.....Woodfords
Grover, Franklin D.....Bean
Gulley, Alfred G.....Storrs, Conn.
Hackett, E. C.....West Gloucester
Hall, Mrs. H. A.....Brewer
Hanscom, John.....Saco
Hardy, E. E.....Farmington
Harris, William M.....Auburn
Hixon, A. A.....Worcester, Mass.
Hoyt, Mrs. Francis.....Winthrop
Jackson, F. A.....Winthrop
*Jones, J. H.....Mercer
Keene, Charles S.....Turner
Knowlton, D. H.....Farmington
Lapham, E. A.....Pittston
Leland, Will E.....East Sangerville
Lincoln, E. L.....Wayne
Litchfield, J. H.....Auburn
Litchfield, Mrs. L. K.....Lewiston
Lombard, Thurston M.....Auburn
Lord, J. Merrill.....Kezar Falls
Luce, Willis A.....Columbia Falls
Macaulay, T. B.....Montreal, Can.
McAllister, Zaccheus.....West Lovell
McCabe, George L.....North Bangor
McLaughlin, Henry.....Bangor
McManus, John.....Brunswick
Merrill, Oliver F.....Gardiner
Mitchell, Frederick H.....Turner
Moody, Charles H.....Turner
Moore, William G.....Monmouth
Moor, F. A.....Waterville
Morse, F. H.....Waterford
Morton, J. A.....Bethel
Munson, W. M.....Morgantown, W. Va.
Page, F. W.....Augusta
Palmer, George L.....South Livermore
Parsons, Howard G.....Turner Center
Pope, Charles S.....Manchester
Prince, Edward M.....West Farmington
Pulsifer, D. W.....Poland
Purington, E. F.....Farmington
Richards, John T.....Gardiner
Ricker, A. S.....Turner
Roak, George M.....Auburn
Sanborn, Miss G. P.....Augusta
Sawyer, Andrew S.....Cape Elizabeth
Seavy, Mrs. G. M.....Auburn
Simmons, H. J. A.....Waldoboro
Skillings, C. W.....North Auburn
Smith, Henry S.....Monmouth
Snow, Mary S.....Bangor
Stanley, H. O.....Winthrop
Staples,Geo.W.,904 Main St.,Hartford,Conn
Starrett, L. F.....Warren
Stetson, Henry.....Auburn
Stilphen, Asbury C.....Gardiner
Taylor, Miss L. L.....(Lakeside) Belgrade
Thomas, William W.....Portland
Thomas, D. S.....North Auburn
Thurston, Edwin.....West Farmington
Tilton, William S.....Boston, Mass.
Townsend, Mrs. B. T.....Freeport
True, Davis P.....Leeds Center
True, John W.....New Gloucester
Turner, E. P.....New Vineyard
Twitchell, Geo. M.....Auburn
Vickery, James.....Portland
Vickery, John.....Auburn

*Deceased.

LIFE MEMBERS—Concluded.

Wade, Patrick.....Portland
Walker, Charles S.....Peru
Walker, Elmer V.....Oxford
Waterman, Willard H.....East Auburn
Waugh, F. A.....Amherst, Mass.
Weston, Joseph.....Gardiner
Wheeler, Charles E.....Chesterville
White, Edward L.....Bowdoinham
Woods, Chas. D.....Orono
Yeaton, Samuel F.....West Farmington

ANNUAL MEMBERS, 1905.

Abbott, S. E.....Bethel
Bass, Mary A.....Wilton
Berry, W. F.....Canton
Briggs, Arthur B.....Canton
Bryant, C. A.....Livermore Center
Campbell, D. W.....Cherryfield
Chase, Solon.....Chase's Mills
Craig, William.....Auburn
DeCoster, Mrs. V. P.....Buckfield
Ellis, Mrs. Kate B.....Fairfield
Fairbanks, A. E.....North Monmouth
Goodale, G. C.....Winthrop
Greenleaf, A. C.....Farmington
Hardy, E. E.....Farmington
Hitchings, E. F.....Waterville
Leland, Will E.....East Sangerville
Lincoln, Mrs. E. L.....Wayne
Mayo, E. R.....Hallowell
McLatchey, R.E....46 Clinton St., Boston
Mendell, Mrs. C. E.....Hartford
Merchant, S. L.....Winthrop
Nowell, F. E.....Fairfield
Perley, F. B.....Vassalboro
Scales, Lilla M.....Temple
Shurtleff, S. G.....South Livermore
Smith, Mrs. F. A.....Canton
Spaulding, Stephen.....North Buckfield
Staples, George W.....Temple
Stetson, T. B. W.....Canton
Toothaker, L. P.....Etna
Tucker, Benjamin.....Norway
Virgin, G. H.....Canton
Virgin, Mrs. G. H.....Canton
Walker, Mrs. F. L.....Canton
Wallingford, John.....Auburn
Washburn, C. C.....Mechanic Falls
White, Edward L.....Bowdoinham
Whittemore, F. H.....Livermore Falls

ANNUAL MEMBERS, 1906.

Arnold, F. A.....Arnold
Bennett, Elizabeth A.....Harrison
Breed, W. O.....Harrison
Burnell, R. A.....West Baldwin
Chadbourne, J. A.....North Bridgton
Chadbourne, W. C.....North Bridgton
Cobb, W. F.....Turner Center
Craig, William.....Auburn
Dorsey, Maxwell J.....Orono
Dunham, C. C.....Foxcroft
Flint, Mrs. John B.....Harrison
Frost, H. F.....Wayne
Goodale, G. C. & W. E.....Winthrop
Greene, J. L.....Harrison
Guptill, Florence.....Topsham
Hobart, O. R.....Auburn
Leavitt, L. C.....Kezas Falls
Mayo, E. R.....Hallowell
Merchant, S. L.....Winthrop
Nowell, Frank E.....Fairfield
O'Neil, Joshua H.....Portland
Pike, Albert J.....Wayne
Pike, J. M.....Wayne
Shurtleff, S. G.....South Livermore
Tarr, Edward.....Mapleton
Thorpe, B. F. W.....Augusta
Tucker, Benjamin.....Norway
Warren, Jessie B.....Harrison
Washburn, C. C.....Mechanic Falls
Waterman, L. C.....Buckfield
Watson, Bernice.....Gardiner
Wilbur, Georgine V.....Phillips

ANNUAL MEMBERS, 1907.

Arnold, F. A.....Arnold
Beckenstrater, Herman.....Orono
Bird, L. M.....West Gardiner
Caldwess, Mrs. G. H.....Gardiner
Carter, Mrs. Wesley A...Gardiner, R. F. D.
Clarke, L. H.....Gardiner
Clements, D. S.....Winthrop
Cobb, W. F.....Turner Center
Cobb, Mrs. W. F.....Turner Center
Danforth, Geo. R.....Gardiner
Frost, H. T.....Wayne
Fuller, Winslow.....Livermore Falls
Guptill, F. B.....Cornish
Hitchings, E. F.....Waterville
Hurd, W. D.....Orono
Johnston, Mrs. Arthur E.....Washington
Jones, Fred R.....Mercer
King, John H.....Bowdoinham
Lancaster, Mrs. L. M.....Gardiner
Leavitt, L. C.....North Parsonsfield
Libbey, G. D.....Gardiner
Look, Mrs. J. W.....Gardiner
Lovely, Lillian.....Gardiner
Merchant, S. L.....Winthrop
Miller, William.....Bar Harbor
Morse, W. J.....Orono
Nowell, F. E.....Fairfield
Paine, Horace M.....Jay
Patch, Edith M.....Orono
*Perley, F. B.....Vassalboro
Pike, Albert J.....Wayne
Ricker, W. J.....Turner
Searles, Ida.....Gardiner, R. F. D.
Shaw, Silas A.....Auburn
Tarr, Edward.....Mapleton
Taylor, Frank.....Winthrop
Thorpe, B. F. W.....Augusta
Waterman, L. C.....Buckfield

ANNUAL MEMBERS, 1908.

Bowers, John W.,.....327 Congress St.,Portland

REPORT OF THE EXECUTIVE COMMITTEE.

A comprehensive view of the general work of the society for the past year may be gained by the reading of the reports of the officers and the numerous papers and discussions offered at the meetings held by the society.

Two meetings of the executive have been held during the year, the necessary business outside of these meetings being transacted when the officers were attending the general meetings of the society.

The results show that it has been a prosperous year for the society, though it is the regret of all that fruit growers in the State, while looking to the society for the promotion of the fruit industry in the State, are indifferent to our appeals to unite with and join hands in the work. This year we have received *seven* life members and *thirty-nine* annual members, and the larger part of these have been made members by way of premiums. There never was so much work for the society as at the present time, and never so much expected from it.

As to the finances of the society we are glad to report them in good condition. During the year we have purchased two $500 first mortgage bonds of the Stockton Springs Water Company, bearing 4½%, at a cost of $970.

We have examined the treasurer's accounts and find them vouched for and well kept. The summary following will show the purposes for which the money of the society has been expended and the present condition of its financial affairs.

RECEIPTS.

Cash in treasury January 1, 1907	$ 15
State stipend for 1907	1,000 00
Interest on permanent fund	64 07
Interest on deposit	4 72
Interest accrued on bonds	14 25
Cash from permanent fund withdrawn for bond purchase	970 00
Membership fees—life	70 00
Membership fees—annual	39 00
Overdrawn	80 87
	$2,243 06

EXPENDITURES.

Executive committee expense	$92 08
Treasurer's expense	6 00
Salary of secretary	150 00
Salary of treasurer	25 00
Speakers	21 40
Judges	15 75
Postage	28 98
Premiums for 1907	301 75
Local expenses annual meeting	41 24
Binding transactions	28 65
Printing and stationery	87 69
Hotel bills—officers	71 75
Hotel bills—speakers	55 40
Hotel bills—judges	22 00
Hotel bills—assistants	12 50
Stenographic report of the annual meeting	54 50
Freight, express and telephone	6 54
Badges	6 40
Sundries	12 18
Banquet tickets for guests	7 50
Sprayer at field meeting	6 00
Special committee	5 50
Bonds for permanent fund	970 00
Accrued interest on bonds	14 25
Permanent fund—life membership fees to date	200 00
	$2,243 06

RESOURCES.

Due from State for 1908	$1,000 00
Permanent fund	1,710 00
	$2,710 00

LIABILITIES.

Overdrawn	$80 87
Net resources	2,629 13
	$2,710 00

PERMANENT FUND.

National bank stock	$400 00
Bonds, Stockton Springs Water Co., at cost	970 00
On deposit	340 00
	$1,710 00

Respectfully submitted.

Z. A. GILBERT,
D. H. KNOWLTON,
WILL E. LELAND,
V. P. DeCOSTER,
CHAS. E. WHEELER,
Executive Committee.

REPORT OF TREASURER.

Ellis L. Lincoln, Treasurer, in account with the Maine State Pomological Society for the year 1907.

January 1,	To balance brought forward from 1906	$ 15
	To received from First Natl. Bank, Farmington, interest on stock	12 00
April 4,	Received from the Augusta Trust Co., Winthrop Branch. Cash withdrawn	54 00
20,	Received from State stipend	1,000 00
May 8,	Received from Augusta Trust Co., cash withdrawn	362 65
July 1,	Received from First Natl. Bank, Farmington, interest on stock	12 00
	Received from Stockton Springs Water Co., interest on bonds accrued	14 25
		8 25
October 28,	Received from H. T. Frost, Wayne, annual fee	1 00
November 8,	Received from the Livermore Falls Trust and Banking Co., interest of certificate of deposit	4 72
	Received from Albert J. Pike, Wayne, annual fee	1 00
December 9,	Received from Augusta Savings Bank, cash withdrawn	430 00
	Received from Augusta Savings Bank, interest	22 41
13,	Received from George W. Staples, Temple Life Member fee	10 00
14,	Received from F. A. Arnold, Carmel, annual fee	1 00
	Received from L. M. Bird, West Gardiner, annual fee	1 00
	Received from Mrs. G. H. Caldness, Gardiner, annual fee	1 00
	Received from Ida Searles, Chelsea, annual fee	1 00
	Received from L. H. Clark, Gardiner, annual fee	1 00
	Received from Mrs. Wesley A. Curtis, Gardiner, annual fee	1 00
	Received from Geo. R. Danforth, Gardiner, annual fee	1 00
	Received from Fred R. Jones, Mercer, annual fee	1 00
	Received from Mrs. L. M. Lancaster, Gardiner, annual fee	1 00
	Received from Mrs. J. W. Lash, Gardiner, annual fee	1 00
	Received from L. C. Leavitt, North Parsonsfield, annual fee	1 00
	Received from G. D. Libby, Gardiner, annual fee	1 00
	Received from Mrs. Lillian Loveley, Gardiner, annual fee	1 00
	Received from S. L. Merchant, Winthrop, annual fee	1 00
	Received from F. B. Perley, Vassalboro, annual fee	1 00
	Received from Edward Tarr, Mapleton, annual fee	1 00
	Received from L. C. Waterman, Buckfield, annual fee	1 00
	Received from D. H. Knowlton, the following life members:	
	Joseph Weston, Gardiner	10 00
	Oliver F. Merrill, Gardiner	10 00
	W. H. Allen, Buckfield	10 00
	A. A. Hixon, Worcester, Mass	10 00
	Chas. D. Woods, Orono	10 00
	Received from D.H. Knowlton, the following annual members:	
	F. B. Guptill, Cornish	1 00

December 14,	F. E. Merrill, Fairfield	1 00
	W. F. Cobb, Turner Center	1 00
	Mrs. W. F. Cobb, Turner Center	1 00
	W. J. Ricker, Turner	1 00
	Arthur E. Johnston, Washington	1 00
	John H. King, Bowdoinham	1 00
	B. F. W. Thorpe, Augusta	1 00
	W. J. Morse, Orono	1 00
	W. D. Hurd, Orono	1 00
	Winslow Fuller, Livermore Falls	1 00
	Herman Beckenstrater, Orono	1 00
	William Miller, Buckfield	1 00
	Horace M. Paine, Jay	1 00
	E. F. Hitchings, Waterville	1 00
	E. M. Patch, Orono	1 00
	Silas A. Shaw, Auburn	1 00
	D. S. Clement, Winthrop	1 00
	Frank Taylor, Winthrop	1 00
	To received from D. H. Knowlton in favor of Wm. Craig, life member fee	10 00
	To received cash	130 00
	To received interest on deposit	2 10
	To received interest on deposit	66
	To annual fee, J. D. Lincoln	1 00
	Balance due treasurer, Jan. 1, 1906	80 87
		$2,243 06

Cr.

1906.		
December 28,	By paid Chas. E. Wheeler, order No. 949, expense as executive committee	3 00
	By paid Cony House, Augusta, board of Executive Committee, order No. 948	12 50
April 8,	By paid D. H. Knowlton, expense as Secretary, etc., order No. 954	21 51
	By paid Cony House, Augusta, board of Executive Committee, order No. 953	12 00
	By paid Z. A. Gilbert, expense as President at Augusta, order No. 955	9 10
	By paid Will E. Leland, travel to Augusta, order No. 950	3 90
	By paid V. P. DeCoster, travel to Augusta, order No. 951	3 70
	By paid Chas. E. Wheeler, travel and expense at Augusta, No. 952	2 75
25,	By paid Mason & Merrill for Stockton Springs Water Company bonds, order No. 990	970 00
	By paid Mason & Merrill for interest on bond, 3 months, 24 days	14 25
May 10	By paid L. F. Dyke, for drawing spraying machine at Wilton, order No. 958	6 00
	By paid Royal D. Blaisdell, board of officers at Wilton, order No. 960	8 00
	By paid V. P. DeCoster, travel to and from Wilton Field Meeting, order No. 959	3 00
	By paid Z. A. Gilbert, travel and expense at Wilton, order No. 962	1 70
	By paid E. L. Lincoln, travel and expense at Wilton, No. 961	2 00
	By paid Will E. Leland, travel and expense at Monmouth, order No. 956	5 29
	By paid D. H. Knowlton, travel and cash paid for board at Field Meeting at Wilton and Monmouth, No. 957	15 21
	By paid D. H. Knowlton, for postage for future use, No. 963	10 00

September 28,	By paid D. H. Knowlton, for salary as Secretary in part for 1907, order No. 964	$50 00
November 29,	By paid Smith & Reid, binding Pomological Report, 1906, order No. 965	28 65
	By paid Whitehead & Hoag Co., No. 966	6 40
	By paid Hall & Cole for one box apples on exhibition at Gardiner, order No. 967	3 25
	By paid J. W. Carsley, for bill, order No. 968	5 60
	By paid G. M. Twitchell, expense attending meeting at Worcester, order No. 969	5 50
	By paid C. E. Robinson, expense at Gardiner, order No. 971	4 00
	By paid A. A. Hixon, expense at Gardiner, order No. 970	10 00
	By paid T. L. Kenney, for expense at Gardiner, order No. 972	21 40
	By paid Gardiner Publishing Co., order No 973	9 50
	By paid S. G. Shurtleff, for service as judging fruit at Gardiner, order No. 974	5 75
	By paid A. E. Andrews, for 15 complimentary tickets, order No. 975	7 50
December 14,	By paid Fred R. Jones, order No. 978	1 00
	By paid John W. Clark, order No. 988	11 00
	By paid E. L. Lincoln, Treasurer, premiums at Gardiner, order No. 989	301 75
	By paid V. P. DeCoster, order No. 984	3 65
	By paid E. L. Lincoln, for cash paid Janitor at Gardiner, order No. 985	4 50
	By paid C. H. Douglass, order No. 986	9 00
	By paid Z. A. Gilbert, expense at Gardiner, order No. 976	3 06
	By paid Will E. Leland, expense at Gardiner, order No. 977	4 55
	By paid D. H. Knowlton, order No. 978	15 13
	By paid D. H. Knowlton, order No. 979	15 05
	By paid Chas. E. Wheeler, expense at Gardiner, order No. 980	4 35
	By paid A. E. Andrews, order No. 981	32 74
	By paid C. H. Douglass, hotel expense, order No. 982	109 15
	By paid E. L. Lincoln, travel and expense at Gardiner	4 00
January 17,	By paid Knowlton & McLeary Co., order No. 991	76 07
	By paid E. L. Lincoln, Treas., order No. 992	25 00
	By paid D. H. Knowlton, Secretary, order No. 993	100 00
	By paid Miss L. B. Raynes, No. 944	54 50
	By paid D. H. Knowlton, order No. 995	4 78
	By paid V. P. DeCoster, order No. 996	2 32
	By paid E. L. Lincoln, Treas., transfer of Life Members from General Fund to Permanent Fund for the years 1905-06 and '07	200 00
		$2243 06

PERMANENT FUND FOR THE YEAR 1907.

December 31, By members as reported for the year 1906		$1,640 00
Fees received for the year 1907:		
Geo. W. Staples	$10 00	
Oliver F. Merrill	10 00	
Josh Weston	10 00	
W. H. Allen	10 00	
A. A. Hixon	10 00	
Chas. D. Woods	10 00	
Wm. Craig	10 00	
		$1,710 00
Permanent fund invested as follows:		
Four shares stock First National Bank of Farmington	$400 00	
Two bonds Stockton Springs Water Co., first mortgage at cost	970 00	
Deposit in Savings Banks	340 00	
		$1,710 00

Respectfully submitted,

ELLIS L. LINCOLN, Treasurer.

BUSINESS TRANSACTIONS.

MEETINGS OF EXECUTIVE COMMITTEE.

AUGUSTA, December 27, 1907.

Session to close up affairs for 1906 and lay out plans for 1907.

Commissioner A. W. Gilman and Prof. E. F. Hitchings appeared before the committee and informed the members of the situation with reference to the brown-tail and gypsy moths in the State. Later Capt. E. E. Philbrook of Portland and Mr. D. M. Rogers, the government agent for the suppression of the gypsy moth, came in and gave information concerning the work carried on by the general government.

The Secretary presented a letter from Mr. H. D. Eaton, president of the Board of Trade of Waterville, inviting the society to hold its next annual meeting in the city of Waterville. Mr. E. P. Mayo represented the Board of Trade and called attention to the attractions of Waterville as a place of meeting.

Voted, To refer the location of the next annual meeting to President Gilbert, and that he be asked to visit Waterville and look over the situation there.

Voted, To refer the time and location of holding a summer meeting to the Secretary.

As to the purchase of a farm by the State for experimental work,

Voted, That the President and Secretary be instructed to cooperate with representatives from other societies in presenting the matter to the legislature.

The matter of legislation providing for measures to suppress the brown-tail and gypsy moths and other injurious insects was considered and the following action taken:

Voted, That the President and Secretary of this society be instructed to ask the legislature for an appropriation of $10,000 for 1907 and $10,000 for 1908, for the purposes set forth in the resolution passed at the annual meeting, also to ask such additional legislation as the situation may call for.

As to asking the State for an increased appropriation for carrying forward the work of the society the following motion was passed:

Voted, That the President and Secretary be requested to ask the legislature for an additional appropriation of $500.

The treasurer presented his bond and it was approved.

AUGUSTA, March 28, 1907.

President Gilbert announced an invitation from the Gardiner Board of Trade and other organizations and citizens to hold the annual meeting in the city of Gardiner.

President Gilbert reported his visit to Waterville in connection with the invitation from the Board of Trade there.

President Gilbert, Mr. Wheeler and the Secretary visited Gardiner to look over the situation there, and on their report it was

Voted, To hold the annual meeting there on the week of November 11th.

The Secretary reported his visit to the meeting of delegates from the several New England Horticultural Societies held in Worcester under the auspices of the Massachusetts Fruit Growers Association.

Voted, That the Executive Committee assembled in Augusta this 28th day of March, 1907, approve the action of the society's representatives in inviting other New England Horticultural Societies to unite with them in holding a meeting for the consideration of matters of common interest to New England fruit growers, said meeting to be held in the city of Gardiner in November next as above stated.

The Secretary was designated as the delegate or representative of this society to attend such meeting.

Voted, That one of the officers be sent to one or more horticultural meetings in New England.

In view of the proposed investment of $1,000 of the permanent fund in water bonds and the temporary use of the money received from the State,

Voted, That the treasurer be authorized to withdraw the society's deposits from the Winthrop Branch of the Augusta Trust Company and the Augusta Trust Company, as needed, to meet current expenses.

Voted, That the Secretary be instructed to arrange for two summer or field meetings if satisfactory arrangements can be made.

Voted, That the President and Secretary provide judges for annual meeting.

April 30th the Treasurer reported the purchase of two $500 bonds, Nos. 31 and 32 of the Stockton Springs Water Company, for permanent fund.

FIELD MEETINGS.

In accordance with the vote of the Executive Committee the Secretary arranged for two field meetings, one with Monmouth Grange, Monmouth, and one at Wilton, May 8th and 10th respectively.

The general subject considered at these meetings was "Injurious Insects: How to Destroy Them." In detail the matter taken up was:

Orchard conditions with reference to insects and injurious fungi.

The remedies and known results from spraying.

The insecticides and the means of applying.

Aside from the officers of the society Prof. W. M. Munson of Orono and Miss Thompson of the Agricultural Department assisted.

Several manufacturers of sprayers and insecticides were represented at the meetings.

THE ANNUAL MEETING.

The annual meeting was held in the Johnson Opera House, Gardiner, November 12-14. There was in connection with the meeting a large and attractive exhibition of fruits. The program for the meeting follows:

Program.

Tuesday Evening, November 12—Opening session at 7.30. Invocation, Rev. L. H. Clarke, Gardiner; Address of Welcome, Mayor Will C. Atkins, Gardiner; Response, Wm. Craig of Auburn; Address of President, Z. A. Gilbert, North Greene; Reports of Officers: Secretary, Treasurer, Executive Committee; Member of Experiment Station Council, Chas. S. Pope, Manchester.

Wednesday Forenoon—Standing of the Insect Invasion and Condition of our Orchards, Prof. E. F. Hitchings, State Entomologist; Discussion; Non-Parasitic Diseases of Fruit Trees, Prof. W. J. Morse, Orono; Discussion.

Wednesday Afternoon—Fruit Growing at Oaklands, Robert H. Gardiner, Esq., Gardiner; Home Storage for Fruit, T. L. Kinney, South Hero, Vt.; Discussion; Maine Fruit as It Appears to Others, A. A. Hixon, Secretary Worcester County Hort. Society, Worcester, Mass.; Discussion.

Wednesday Evening—Banquet, A. O. U. W. Hall, opposite Johnson House, 8 o'clock.

Thursday Morning—Election of Officers; Reception Meeting; The State Agricultural Department, Hon. A. W. Gilman, Commissioner of Agriculture, Augusta; The Grange Co-operative Company, W. T. Guptill, Topsham, Treasurer. Others are expected to be present representing other horticultural societies and kindred organizations.

Round Table—The Size of the Apple Package: The Barrel, F. H. Morse, Waterford; Discussion opened by F. D. Cummings, Portland; The Box, Discussion opened by E. L. Lincoln, Wayne; A Maine Cranberry Bog, G. D. Libbey, Gardiner.

Thursday Afternoon—Delegates' Meeting; Resolve passed at the Annual Meeting in 1905:

That this Society, recognizing the substantial growth of our fruit industry and realizing the necessity for a more critical grading of the stock, for the protection of the grower, declares in favor of national legislation looking to a Fruit Marks Act, and authorizes the appointment of a committee whose duty it shall be to correspond with the officers of the Fruit Growers' Associations in the several states, and if a general sentiment is

found favoring such action to arrange a conference for the purpose of outlining national legislation, said committee to be authorized to expend a sum not to exceed fifty dollars for postage and necessary printing and expenses, a full report to be made at the next annual session of this Society.

Resolve passed at Annual Meeting in 1906:

That this Society recognizing the importance of the proposed measures looking to legislation which will insure more uniform sorting, grading and packing of our fruit crops, and the work of the special committee appointed last year, hereby declares in favor of continuing said committee another year in the hope that national legislation may be made certain.

Report of Committee on above Resolutions, Dr. Geo. M. Twitchell, Auburn, *Committee;* Discussion, Wilfrid Wheeler, Concord, Mass., Chairman, Committee on Fruits, Mass. Hort. Society; T. L. Kenney, South Hero, Vt., President of Vermont Horticultural Society; A. A. Hixon, Worcester, Mass., Secretary Worcester County Horticultural Society; Edwin H. Burlingame, Providence, R. I., representing R. I. Horticultural Society; John W. Clark, North Hadley, Mass., representing Mass. Fruit Growers Association.

THURSDAY EVENING—Music; Opportunities for Young People, Prof. Fred W. Card, Pennsylvania; Music; Insects, Birds and Fruits, Prin. W. L. Powers, Gardiner; Music.

The local committee representing the Board of Trade consisted of the following named gentlemen: Mayor Will C. Atkins, C. A. Knight, E. L. Bussell, F. E. Boston, R. H. Gardiner, Guy A. Hildreth.

Before the close of the opening session the following committees were appointed by the President:

On President's address and other papers: William Craig, Dr. E. P. Turner and R. H. Gardiner.

On resolutions: S. G. Shurtleff, Charles S. Pope and J. Merrill Lord.

At the annual business meeting the President appointed Charles S. Phinney, W. J. Ricker and Will E. Leland a committee to receive, assort and count the ballots for the several officers.

Balloted and made choice of the following officers for 1908: William Craig, Auburn, president; Edward L. White, Bowdoinham, and F. H. Morse, Waterford, vice-presidents; William J. Ricker, Turner, secretary; E. L. Lincoln, Wayne, treasurer; Will E. Leland, member of executive committee for three years.

TRUSTEES.

Androscoggin county—Silas A Shaw, Auburn.
Aroostook county—Edward Tarr, Mapleton.
Cumberland county—John W. True, New Gloucester.
Franklin county—E. E. Hardy, Farmington, R. F. D.
Hancock county—William H. Miller, Bar Harbor.
Kennebec county—E. R. Mayo, Hallowell.
Knox county—Alonzo Butler, Union.
Lincoln county—H. J. A. Simmons, Waldoboro.
Oxford county—W. H. Allen, Buckfield.
Penobscot county—Samuel L. Boardman, Bangor.
Piscataquis county—C. C. Dunham, Foxcroft.
Sagadahoc county—J. H. King, Bowdoinham.
Somerset county—Frank E. Nowell, Fairfield.
Waldo county—Fred Atwood, Winterport.
Washington county—D. W. Campbell, Cherryfield.
York county—J. Merrill Lord, Kezar Falls.

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

Voted, That our delegate to the coming conference be requested to ask the delegates to consider and agree if possible, upon an apple box of uniform style for the New England States.

NATIONAL APPLE DAY.

The following letter from Mr. James Handly, secretary of the Mississippi Valley Apple Growers Association was presented to the meeting and referred to the committee on President's address and other papers.

QUINCY, ILL., November 11, 1907.

To the Officers and Members of the Maine State Pomological Society:

GENTLEMEN:—As a representative of one of the largest and most prominent fruit growers' organization in the Middle West

I desire to waft my heartiest congratulations to your annual meeting and exhibition, hoping both will be highly successful, not only very profitable to all in attendance, but that the light of information gained on the occasion may be radiated to the advantage of fruit growers in all parts of your state.

It can not be claimed that I appear as a guest unbidden to your feast of good things, as through the courtesy of your secretary I received an invitation to the meeting, and have only the sincerest regrets that circumstances over which I have no control prevent my attendance. I beg your indulgence, however, in submitting a proposition by letter, which I am prevented from presenting in person, relating to my favorite topic National Apple Day. It has not been quite three years since this movement was placed before the people, but in that short while it has made its force felt in all of the apple producing regions in the country. California, which was inclined to make light of the measure at the start, having witnessed its good effect, has imitated the measure by starting a National Orange Day, to be observed on the 1st day of March each year.

The reception given to National Apple Day in the New England States has been most gratifying. There has been an intelligent spirit manifested towards the event there, which has made me feel quite proud of the honor of having been born in New England. My object in addressing you at the present time is to ascertain if you have taken formal action in placing it on record that you heartily approved of the third Tuesday in October to be observed annually and perpetually as National Apple Day.

So far as I have learned, all of the New England States, with perhaps the exception of Maine, have taken this formal action through their horticultural societies and kindred organizations, and possibly your state may have done so. If, perchance, you have not, we of the Middle West, and other parts of the Union, who have taken the stand referred to, would be greatly obliged if you would adopt a simple resolution of having the third Tuesday in October observed annually and perpetually as National Apple Day. It is to be hoped that during the coming year we can have the day placed on the calendar to be generally observed. It is not necessary to say that there is not the slightest intention of making a new holiday, the purpose being to have the day as an occasion for concentrated thought and action all over the

country in the promotion of the apple industry. It is to be hoped that such means will lighten the way to the preventing serious mistakes of the past, and for developing greater possibilities, than have yet been conceived, for the future.

May I ask your indulgence still further for calling your attention to the fact that there is a general movement now sweeping all over the country in favor of adopting the apple blossom as our national flower. We believe that this beautiful blossom would adorn the position as a national emblem, and would form a binding union wherever it would be recognized, in bringing a vast multitude of people together, who come in touch or contact in some of the diversified circles of the apple industry. The blossom as an emblem would represent not only the fruits of the orchard, but the fruits of our commerce, and the fruits of labor in diversified and far reaching spheres of industry.

Many national organizations have pronounced decidedly in favor of this choice for our national emblem, and many states, including your sister Connecticut, have heartily concurred in such expressions. Again expressing my best wishes for your society, I beg to remain,

Yours truly,

JAMES HANDLY, *Secretary.*

REPORTS OF COMMITTEES.

On President's Address and Other Papers.

First, that we endorse and emphasize the idea of cold storage so that the farmers may not be forced to sell their product before markets are in a satisfactory condition.

Second, the absolute necessity of more cultivation in order to produce a higher and superior class of fruit. We also sustain him in his assertion that more care be exercised in the selection of the highest grade of best flavored fruit, such as McIntosh rather than the Ben Davis.

We the undersigned comprising the committee on resolutions express our regret that Mr. James Handly, secretary Mississippi Valley Apple Growers Association, was unable to be with us at this meeting and take occasion to endorse his suggestion of having a National Apple Day in Maine. Not as a national holiday but as an occasion for concentrated thought and action all over

the country in the promotion of the apple industry. The idea also of substituting the apple blossom for the goldenrod we believe to be a good one and strongly advise an adoption to such a motion.

WM. CRAIG,
DR. E. P. TURNER,
R. H. GARDINER.
Committee.

On Resolutions.

Resolved, That the Maine Pomological Society desires to extend their thanks to the Gardiner Board of Trade for their cordial invitation to hold the present annual session in this city. This society in particular desires to express its appreciation of the services of Mr. A. E, Andrews for his indefatigable services in contributing in many ways to the success of this meeting; also to Mayor Atkins, to Mr. F. H. Goodrich, and the proprietor of the Johnson House for their efforts to make our stay in this place exceedingly pleasant.

Resolved, That this society, recognizing the life-long services of retiring President Z. A. Gilbert and retiring Secretary D. H. Knowlton both as individuals and officials, their devotion to our fruit interests and their labors for the advancement of those interests, desires to express in the most emphatic manner appreciation of their services, and that the society here and now would record its sense of obligation for the great good resulting from their devoted toil and sacrifice.

S. G. SHURTLEFF,
CHAS. S. POPE,
Committee.

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

INVOCATION.

Rev. L. H. Clarke, Gardiner.

Our Heavenly Father, we ask Thy blessing upon this gathering. As we come together bringing with us the first fruits of the fields may it be that these shall fill our minds with holy suggestions, may they be to us as a sweet song which awakens the highest emotions of the heart, by their perfection of beauty, sweetness of fragrance and richness of substance, teaching us of Thy unbounded resource of worth and glory, power and love. While we consider the principles and methods of agriculture may we feel Thy presence among us. We pray that this presence of Thine may inspire us to recognize the true place which the husbandman should occupy in society. May we feel that in this age of wonderful development agriculture is still as in the days gone by the basic pursuit of mankind and that it demands of men the highest degree of culture of mind, purity of heart and earnestness of endeavor to hold it in its enthroned position. May it be a call of God to the farmer not only to produce bountiful harvests but to discover the untold wealth of new harvests, to reveal new products, bringing out of God's treasure house things new as well as old. To this end may Thy blessing be upon the Pomological Society of the State. Quicken this organization that it may be Thy servant, that it may bless society, that it may make the husbandman a prince of God, a man not only endowed with the power to produce wealth but a man of highest moral and spiritual strength, one sufficient to sustain society with the sustaining harvests from the broad fields and vineyards, as well as one able to instill into the decaying elements

of society new life and vigor. Help us to know that if the call of husbandry is to be heard and heeded in this present time, as an occupation it must be adorned with becoming attractiveness, aye, with more becoming attractiveness than other occupations for the occupation is more than other occupations and means more to society. Let the farmer recognize his true privilege in society and thus worthily deport himself. Help him to feel, O, God, that he is a fellow worker with Thee, for the accomplishment of Thy purposes in the earth. Help him to feel that the country is the hearthstone of God and that here must be purity, culture, grace and strength. Help him to aspire to exert these virtues through society as a whole, so that the remotest regions may feel their quickening impulse.

May the avenues through which these virtues shall flow be those expressions of our common citizenship which elevate men and free them from oppression or handicap. May the busy marts of trade feel that the husbandman, strong, refined, intelligent and just insists upon equal rights for all. Bless to Thine own glorious ends the deliberations of this convention and Thine shall be the glory and the honor forever. Amen.

ADDRESS OF WELCOME.

By Mayor Will C. Atkins.

It is with great pleasure that I, as the chief executive of this city, greet the members and friends of this, the oldest society in existence. If history serves me right and my memory be not faulty, Adam and Eve were the original promoters of the parent organization, and the place of meeting was in the Garden of Eden. Those two people were much interested in the disposition if not the cultivation of fruits and while at that time the product of the trees might be bartered or sold, it could not be eaten. I understand that the ban against eating has been removed by this society, in fact that the society not only permits eating, but especially encourages it particularly when the crop is large. My mother being the daughter of a farmer and fruit grower, makes me a half pomologist by descent, so that I have a very kindly feeling for this society.

Possibly this may be the first visit of many of you to Gardiner, and that being the case, perhaps a few words of description may not be amiss. Gardiner was founded in the year 1754 by Dr. Sylvester Gardiner from whom the place takes its name. Direct descendants of the first family have lived with us ever since. The beautiful park or common as we call it, was given to us by Mr. Gardiner, and if you desire to see one of the finest estates in New England, I would advise you to catch a glimpse of the Gardiner Mansion, its orchards and grounds.

The city now has a population of about 6,000, is at the head of navigation on the Kennebec, and one of the busiest manufacturing places in the State. The principal industries are paper and shoe making and the manufacture of lumber. If any of you feel interested in either of these branches of business, I am sure the different concerns will feel honored with a visit and will see that you have opportunity to inspect the entire plants.

Gardiner has many churches, and they might all be worthy of inspection, but you ought not to go away until you have seen Christ Episcopal Church and the new Christian Science Church. The first should be observed on account of its construction, age and history, and the latter because it is the first Christian Science Church erected in this State.

The National Home at Togus is but twenty minutes ride from Randolph, across the bridge, and there will be seen between two and three thousand of the nation's former defenders. The governor of the Home is Gen. Richards, a citizen of Gardiner.

We have always been the legitimate rival to Augusta and while we do not equal her in population or wealth, we are somewhat like a little man out in New York state. In that state, when a woman signs a deed releasing her right of dower in real estate, she is taken into a room separate from her husband and there the magistrate asks her if she signs the deed of her own free will and accord and without fear of bodily harm from her husband. I happened to be in one of the offices of a lawyer there when in came a rather peculiar couple, evidently man and wife. The man weighed about 100 and the woman about 300. They made known their business, which was that of executing a deed, and after the man had signed, the magistrate took the wife into a side room but with the door open. He asked her if she signed the deed of her own free will and accord and without

fear of bodily harm from her husband, and she said, "What, that little cuss over there?" And that is pretty much our relation with the Capitol city.

We give you a hearty welcome to our city. We do not as in the time honored custom, give you the keys, but we have unlocked the doors and thrown the keys away. But one condition is attached to our hospitality, and that is, you must promise to come again.

Take a good look around and when you come again in three, five or ten years from now, as sure as large aches from little toe-corns grow, we will show you a greater and a grander Gardiner.

In closing, Mr. Chairman, I wish to express to you my regret that Mr. Patten, former president of the Board of Trade, and by whose invitation you are here, was taken from this life in September. He was most interested in your visit and would have enjoyed meeting you as I know you would have been glad to meet him. He was big hearted, generous, and endowed with the finest disposition imaginable. He would have tried to do much more for your entertainment than we have been able to do.

RESPONSE TO ADDRESS OF WELCOME.

By William Craig of Auburn.

I have had the wind knocked out of me by being asked to respond to this address of welcome. For a rustic farmer, who has been accustomed to milking cows and working on stone piles and doing manual labor, it is a pretty difficult thing, without warning, to be called upon to respond to an address of that kind.

I congratulate the city on possessing a mayor with such good looks, and who has given us such a warm welcome that we cannot help but feel at home and look forward to a profitable and interesting convention.

I commend the idea of opening a convention of this kind with prayer. And I would also suggest that we mix more sentiment in with our work along these horticultural lines. A man embued with a love for his calling, realizing the extreme delicacy of what we might call a real ball of cells, will handle fruit very carefully, instead of throwing it into the baskets as is usually done.

I would again thank the mayor for his welcome.

ANNUAL ADDRESS.

By Hon. Z. A. Gilbert, North Greene, President of Maine State Pomological Society.

The State Pomological Society was organized in 1873. A society of long standing, like a man of advanced years, can look back over the field of its activity, and pass in review the steps of progress in its pathway as the impressions have been left along the passing years of its labors. It was the privilege of your present executive head to be "in at the bornin'" of this society, and it has been his pleasure to keep in touch with every step of its work, and note every milestone of advancement it has set up along its way to the present time.

Great changes in the condition and standing of the fruit industry of our State have taken place in the years represented by the life of this society, in all of which the society has had a part. At the time of our organization the export outlet for fruit had just begun to attract the attention of fruit growers in York state. Our trade was chiefly confined to our own cities and occasional small shipments to Boston. A few individuals could see greater things for the fruit industry of our State. It is distinctly remembered that an optimistic member of the executive board of this society publicly expressed his belief that if the fruit production of the State could be quadrupled the demand for the same would be sharper than for the fruit then being grown, and in their deliberations the officers queried whether the business could ever become extensive enough to attract representatives of those foreign business houses engaged in the fruit trade to our own orchards. Such ideas, then only dreams, have come to be realities, so that now there is hardly a neighborhood of fruit growers in the State but is annually canvassed by agents from Liverpool and Glasgow in the interests of the foreign trade in our Maine grown fruit. These conditions fittingly represent the increase in fruit growing in our State since this society was organized in its aid, and in the development of which it has held an active part. Yes, and this society is clearly seeing the opportunity for a still greater development of the industry in the near future than has been its history in the past.

COLD STORAGE.

The orchards in our State have already outgrown the provisions for caring for and handling the fruit after grown. The crop of marketable apples just harvested in our State is estimated to exceed two million barrels. In a single town it exceeds fifty thousand barrels, a single county approximates a half million barrels, and individual orchards have reached the plural thousand. These quantities call for room after taken from the trees. Yet there is not a rental storage house in the State, and the private store-rooms constructed for this purpose can be numbered by the digits on one hand with the fingers uncounted. Thousands of barrels of this choice fruit was of necessity temporarily stored in barns, sheds and other outbuildings, and thousands hastened to market on reduced values, and still others frozen on the trees and lost, all for the want of provisions for quick and safe storage facilities. This must not continue if we would encourage the further planting of trees. What the business now first of all calls for is a cold storage warehouse at Portland to which fruit can be forwarded direct from the orchard, and held till called for by market demand. Possibly cold storage and shipping centers on the line of the railroads may meet the demand of the business, and it needs no argument to show that private facilities for temporary storage are a necessity on every fruit farm.

This is a matter calling for action rather than recommendation. This society can at this stage of conditions surrounding our fruit interest do no better service than to aid in establishing storage facilities adequate to the needs of the fruit crop. Fruit interests have reached a stage where something different is called for other than planting more trees.

CULTURE.

For several years this society has been doing valiant service to the fruit interests of the State through its urgent appeals for better care and culture of the trees. One has only to go through any fruit growing section of the State to find the evidence that this teaching has been heeded in goodly measure. Indeed no small measure of the bounty of the crop just harvested was due to the influence sent abroad through the agency of this society.

But the call for further work is still abroad. There are still more trees than fruit in the State. Your President has gained some lessons in the last three years that had he learned them earlier in life would have been greatly to his advantage. Others need these lessons. It is not the purpose at this time to discuss how this needed culture is best applied, but to urge continued attention to this important feature of successful fruit growing. In the past years good crops of fruit have been realized when nature got into a friendly mood and gave us the benefit of her good fellowship. In the late harvest note what the "tender" Baldwin has given, in return for intelligent care bestowed, in scores and hundreds of orchards, following one of the coldest winters on record; the fruit on a short acre of Northern Spy trees, sold on the trees for six hundred dollars; fail not to take into account the scores of other bountiful crops you will learn of at this gathering, and then remember we have but just begun to realize the opportunity open to us in our goodly State for continued successful fruit production. While we have made vast strides, as a society, the hand of possibilities is beckoning to us even more earnestly today than when we first took the responsibility into our hands to lead the way to the still greater achievements now plainly within our reach.

VARIETIES.

The question of varieties to plant will not down with the bidding so long as there are continuous enlistments of new recruits to the ranks of tree planters. This is today, as in the past, a matter of vital importance to the industry. Your President is on record in claiming that superior quality of the fruit is the leading factor of value and therefore never should be omitted from the calculation in deciding the question of variety to plant. We have had a Ben Davis lesson the past winter. Another chapter will be given at this meeting. The present system of selling trees has a possible trend toward misleading in this dominant factor of quality. The business of the tree salesman is to sell trees. It is as natural as breathing that a salesman will fall into line in recommending the kind that is selling freely. Usually this is a variety the genuine merits of which are little known. Thus it is that good, old fashioned varieties that have formerly proved their merits in our own State get overlooked,

MAINE FARMER PRESS, AUGUSTA

T. L. Kinney's orchard, South Hero, Vt.

and the new generation of buyers and planters know nothing of them. A grower in our State of the old and almost forgotten Williams Early has been selling them the past summer at three dollars the bushel box. Another grower has been selling the Gravenstein in quantity at two dollars and fifty cents a box. This society has yet a responsibility on its hands of disseminating information in regard to varieties of apples to grow. The influence of the tree agent is too prominent.

Thus it is seen there is work still opening to view as step after step we advance to higher standards of success in the chosen work we have in hand and as the light of knowledge points the way. Thus should it ever be, as advancing knowledge opens to the broader view a field of effort whose limit can never be compassed.

GREETING.

We are to have with us at this session representatives from kindred organizations throughout the New England group of states. Situated as are these sister states we are one in interest, and may well be a unit of effort in behalf of that common interest. This new movement cannot fail of a strong influence towards centering thought, awakening interest and arousing effort in a warmer love of nature as exemplified in fruits and flowers and will aid in embellishing country life with the useful and the beautiful so lavishly laid before all who have eyes cultured to see and the taste to enjoy the entrancing bounty. As co-workers in our chosen field of effort we extend the glad hand to the delegates and visitors from kindred societies from other states, and assure them a warm welcome to our deliberations.

Your President congratulates all associate fruit growers wherever located over the surprising bounty that has rewarded their efforts the past season.

NON-PARASITIC DISEASES OF FRUIT TREES.

By Prof. W. J. Morse, Orono.

Some time ago your secretary wrote me requesting that I come to this meeting prepared to speak on the diseases of trees. Since it seemed to me impossible to do justice to so general a topic in the time allotted, I suggested that the discussion be limited to the non-parasitic diseases of fruit trees. When I came to go over the matter in detail I felt the need of still greater limitation. Just at present our orchardists are much interested in winter killing of fruit trees, therefore, I think you will pardon me if I limit what I have to say largely to those diseases which are brought about by adverse weather conditions, and particularly to those due to extremes of heat and cold in winter.

Any condition which interferes with the normal activities of a plant and renders it partially or wholly incapable of responding to its environment is a disease. We should bear in mind that there is a sharp distinction between the cause of the disease and the disease itself. The fungus in plum pockets is not the disease, but its presence in the tissues of the host stimulates them to abnormal activities and the large bladdery "pockets" are produced in place of the normal fruit. Similarly the hired man is not a disease (though we sometimes look upon him as an affliction) but by carelessly driving his team in the orchard he may be responsible for a diseased condition resulting from barking and wounding the trees.

While some may object to my definition of a disease, if we accept it we see that diseases resulting from non-parasitic agencies are common. These are largely due to the action of the non-living environment, such as conditions of soil, moisture, atmosphere, heat, light, lightning, etc. I will briefly mention a few of these diseased conditions resulting from extremes of temperature.

Sun scald is a trouble which is apt to take place in mid-summer on the south of young, thin barked trees, and is due to over heating and drying out from bright sunlight. Also in late winter and early spring, when the rays of the sun on the south and southwest sides of the trees cause an alternate freezing and thawing, the tissues beneath the bark are killed in patches, the

bark sinks, dries out and finally separates from the wood giving much the same injury as in the summer sun scald. With some trees, especially cherries, we have a blistering and cracking of the bark. It is more common west than in New England and more apt to occur on high headed trees with exposed trunks. The remedy is to protect the trunks of susceptible trees by shading.

Low temperatures, or, rather more frequently, alternately freezing and thawing is responsible for more injuries to fruit trees than high temperature. Late frosts in the spring may produce a blistering of the leaves, and very frequently cause what is called "frost band" of apples and pears. This latter is very frequent in some parts of New England. A late frost catches the young fruit soon after it is set but does not injure it enough to cause it to fall. When the fruit enlarges there is a distinct and often very marked russeted band around it half way between the stem and blossom ends. Bordeaux mixture may also cause a russeting of the fruit but this occurs in blotches and patches, and not in well marked rings.

Frost cracks are more common on the trunks of certain forest trees than on fruit trees. Very low temperatures, especially if accompanied by a cold, dry wind causes the tissues of the wood to shrink. The wood and bark split in long cracks along the more exposed side. Once opened the crack may split open repeatedly, winter after winter, and yearly attempts to heal may result in a well defined ridge along the trunk, called a frost ridge.

Frost patches are very characteristic upon winter killed or winter injured trees, more especially on the larger and medium sized limbs. On badly frosted trees the bark on the smaller limbs is apt to be pretty generally killed. These frost patches on the larger limbs can be seen early in the season following the injury and are prominent all summer. There is a sharp line on the surface of the bark marking the junction of the dead and the living tissues. As the dead bark dries out the tissues contract and stick to the wood below. The bark very frequently is of a lighter color and may crack away slightly from the healthy portion. The patches are of various sizes but are generally elongated in shape. If the tree is not entirely killed, healing of the wound is started but instead of forming a callus with a thick

lip on the margin as in the case of canker or a mechanical wound the new living tissue is forced with thinned out edges between the wood and the dead bark. Patches like these offer an excellent opportunity for the entrance of fungi. In fact those formed last winter show today almost without exception more or less infection and if one has not followed the history of the case there is considerable chance of being misled as to the cause. The natural inference would be that the fungi are the original and only causes of the dead areas. However, if the fungi are allowed to develop they may eventually cause the final destruction of the trees, therefore, prompt remedial measures should be taken. As soon as the frost patches are apparent in the spring the bark should be cut away till the healthy margins are exposed and the wound covered with a coat of white lead or thin grafting wax. In an orchard where this has not been done I would now wait until just about the time growth begins in the spring and make a pretty thorough job of getting rid of all tissues which show signs of decay.

There is some difference of opinion as to how severe pruning we should do on badly injured trees. Personally I think I would prune rather sparingly the first season but during the next winter or early spring I would cut out all dead wood going well back on the living tissues, to be sure that all infesting fungi are removed. Of course, this dead wood should at once be burned to destroy the fungi contained therein. In many cases top grafting may be used to advantage.

In the history of Maine orcharding we probably have had no other single season in which so many fruit trees were killed as in the winter of 1906-7. This was due, as I shall attempt to show, to the severity of the weather and the abrupt fluctuation of temperature from extreme cold to thawing. However, we have good reason to believe that many trees were more susceptible on account of not having fully recovered from the freezing of 1903-4 and 1904-5, for I find the following statement from Professor Munson's pen: "The winters of 1903-4 and 1904-5 were exceptionally severe in Maine, and as a result many complaints were made that the apple orchards had suffered more than for the previous 20 years."

The injurious effects of a winter like that of 1906-7 are more easily understood if we know something of the structure of a

tree. If we should cut a thin section from a leaf, a stem or root and examine it with a microscope we would find that instead of being solid it presents a honeycombed appearance. We would at once see that the plant tissues are made up of different individual units of various shapes and sizes. Furthermore, in each separate organ, the shape, size, structure and arrangement of these units are modified to serve some special purpose. For example, in the leaf they have thin walls, are more nearly rectangular, and are arranged with open spaces like a loosely piled stone wall. In the stem of woody trees the different elements are arranged in a circle and many of them are thick walled, very long and tapering with the ends over-lapping and fitting tightly together, thus giving strength to the tree. Others have lost their end walls and form tubes or vessels to conduct liquids up through the stem to the leaves. These separate units are called cells and each cell of a plant is more or less dependent on other cells for its life and well being.

The simplest form of a vegetable cell has a wall made up of a substance known as cellulose. Chemically this is practically the same as starch but in structure it is in reality quite different, as will be seen when I tell you that the best filter paper used by chemists is nearly pure cellulose. It absorbs water very readily and readily allows water to pass through it. On the other hand, when wet, as it always is in the active cells, it retards the passage of air or gases unless in solution much the same way as we have all seen a wet sheet enclose and retain bubbles of air when in a wash tub.

The cell wall may be variously modified as the tree grows older, those of the trunk becoming very thick and woody. Those of the bark receive deposits of cork and the cells finally become minute, tight, thick-walled cork boxes, each containing a little bubble of air and forming an admirable non-conductor to protect the tissues below from extremes of temperature without. Lining the inside wall of all living vegetable cells is a thin layer of a semifluid, viscid substance called protoplasm and imbedded in it or suspended in the interior of the cell by strands of protoplasm is a body called the nucleus. The protoplasm is the seat life in the cell and the nucleus probably controls the vital activities of the protoplasm. The cell cavity within the film of protoplasm is filled with the watery cell sap, and bubbles

of gas or air. The gas content of the wood on some trees being as high as 20 to 25 per cent of its volume. The film of protoplasm, like the cell wall, allows water to pass through it but it can regulate in a great measure the passage of the soluble cell contents. If, however, this living matter is killed, for example by frost, the cell sap readily passes through it and escapes. This makes the tissues soft and flabby as is the case with frozen leaves of tender plants.

In a tree like the apple or pear, the living, active cells are largely confined to the outer layers of the wood and inner layers of the bark. Most of those in the interior contain no living protoplasm and are functionless except as they assist in supporting the trunk and in the transference of liquids. The region of growth in the tree, as we all know, is at the junction of the bark and wood. This is known as the cambium zone. During the growing season the cells of the cambium layer grow rapidly and are actively dividing, forming wood on one side and bark on the other. The wood formed in any one season from this division produces the well marked annual ring which we all recognize. If anything happens to destroy the living cells in the cambium zone, growth stops there, the bark dries down or sloughs off and we have an exposed surface or wound inviting the entrance of wood decaying fungi into the tissues below.

Before leaving the question of structure we should point out those elements which are concerned in the transference of food materials and foods in the tree, for this throws light upon certain phenomena observed with reference to frost injured trees Mineral food substances dissolved in water are absorbed by the fine hairs near the ends of the minute rootlets, then carried up through the roots to the stem where they pass upward through the vessels of the wood inside the cambium zone to the leaves. Here they mingle with the gases taken up from the air and are converted into starch and other food materials by the protoplasm of the leaf cells, acted upon by sunlight. Then these manufactured food materials are sent back down to furnish nourishment to the growing parts of the trees. But instead of going down through the wood they pass down through certain vessels in the inner part of what we commonly call the bark, next to the cambium. The downward course of the manufactured food materials is easily demonstrated, for every orchardist is familiar with the

effect produced by ringing or partially ringing the tree. Growth goes on above the ring but stops below for the food supply is entirely cut off.

Not all the manufactured food is used at once for growth but some of it is stored away in the tissues of the stem and root for future use. This is especially true toward fall when the wood is "ripening up," as we say for winter. Then the tree is actively storing up food material, largely in the form of starch to be used the following spring. In the early spring, the food materials begin to go into solution again, pass up through the vessels with the water current and are used in building up the young leaves till thy are ready to go into the food manufacturing business on their own account.

After a severe winter we are sure of a large number of bundles of apple twigs to examine during May and June. The owner in each case is very much alarmed, saying that some unknown contagious disease has appeared in his orchard and is sweeping through it like wildfire. In some cases the trees fail to put forth leaves at all. With these trees the orchardists readily recognize that they have winter killed. More often the leaves appear as usual and frequently blossoms are also put forth. In less severe cases the fruit sometimes sets. Suddenly the leaves begin to wither and fall off and the bark on many of the younger limbs and twigs withers and dries out. Bearing in mind what has just been said with reference to the structure of the tree and the storage and movements of food materials the explanation of the cause is now easy.

When the ground begins to warm up in the spring the sap current from the roots starts up through the vessels of the wood through the trunk, limbs and twigs to the buds. The dormant buds on the trees are quite well protected from frost and apparently can withstand greater variations in temperature than the smaller limbs. The stored food materials go into solution and are carried along with the water current, the buds swell and begin to put forth leaves as usual. If the frost injury is not severe the trees will have a sickly appearance for a season or two and may gradually recover unless another cold winter follows to finish them. More frequently the leaves fall as has already been described. Here we have stored food materials sufficient to start the young leaves, but this soon gives out. So many of

the living cells in the outer tissues of the young limbs have been killed that they cannot perform their proper function and death results, either to a part or a whole of the tree, depending on how many of the limbs are badly affected.

There is always an upper and a lower limit of temperature that a given species can withstand. Some tropical plants are killed at a temperature of from +35 degrees to +40 degrees F. while some arctic plants have been known to withstand —60 degrees to —70 degrees F. Our experience during the past season with apple trees shows us that this minimum limit varies with the variety and with the individuals of a given species or variety. When we get down to —30 degrees or —40 degrees F. we have come within the danger limit for most varieties of the apple. Last winter the records at Orono show that we reached this limit in January twice within a few days of each other.

When a tree freezes water is withdrawn from the cell walls and cell sap and forms in crystals in the intercellular spaces or in the interior of the vessels, hence the cell walls become much dryer, and the cell contents, even though they do not freeze themselves, become more concentrated,—a condition similar to drought. If now thawing gradually takes place the water is reabsorbed slowly and the vital functions of the cells are renewed. If on the other hand the frozen tissues are rapidly warmed and the water quickly liberated trouble is sure to follow, just the same as will be the case if the small boy thaws his frosted ears by the kitchen stove instead of using the time honored snowball.

Before attempting to fix just *how* and *when* our trees were killed last winter, let me quote three sentences from one and one from another of the best German authorities on this subject, the latter a specialist in the diseases of trees.

1. "Thawing is more dangerous than freezing, as, if it proceeds too rapidly, it kills more plants and plant parts than extreme cold."

2. "Those parts of plants that contain little water are particularly endowed with the power to withstand cold."

3. "Death from cold is undoubtedly in very many cases a result of want (withdrawal or loss) of water and not of low temperature."

4. "The injurious effects of repeated thawing and freezing. long continued frost, or strong drying winds are to be explained by the scarcity of water that results from the interrupted or at least reduced passage of water."

It may seem on first thought that the second statement is a direct contradiction to the third, but it will be seen that one means the absence of water before the frost while the other means the loss of water from the tissues resulting from freezing.

Now let us look to the weather record for January, 1907, as taken at Orono. Out of 23 days following January 8 there were only two in which the temperature rose above the freezing point. January 17 with a maximum of —3 degrees F. and a minimum of —40 degrees F. or 72 degrees below the freezing point and January 24 with a maximum of +9 degrees F. and a minimum of —35 degrees F. or 67 degrees below freezing furnish the extreme low temperature conditions. Think of the conditions of the cell with regard to moisture in the 7 days following the —35 degrees F. record on January 24. Not a maximum over +24 and a minimum varying from 0 degrees F. to —24 degrees F. or from 32 degrees to 56 degrees below the freezing point of water. By this time they must have been as dry as the proverbial bone. Nor is this the entire story. Let us look to the two exceptions in the period already noted, where the temperature did go above the freezing point. We find these to be together, exactly midway between the two lowest records, giving us the two highest and the two lowest records in the month occurring within eight days. From —40 degrees F on the 17th we jump 85 degrees to +45 degrees F. on the 20th. From +47 degrees F. on the 21st we drop 82 degrees to —35 degrees F. on the 24th, followed by the week of low temperature already mentioned. A little closer inspection of the change from severe cold to thawing weather shows that it was moreover quite abrupt. Since the daily observation is made at 2 P. M. the minimum record would ordinarily represent the preceding night, or most frequently just before sunrise on the day of the record. Starting with the 17th we have a minimum of —40 degrees F. and no time during the day did the temperature go above —3 degrees F. On the 18th the highest record was only +11 degrees F. Before the morning of the 19th the temperature dropped again to —13 degrees F. and only reached +20 degrees F. during the

day or still 12 degrees below freezing. Some time during the night it dropped off 2 degrees to +18 degrees F. and *by 2 o'clock on the afternoon of the 20th the temperature had risen to +45 degrees F. or 13 degrees on the thawing side. That night shows a drop of 35 degrees to +10 degrees F. Back it comes again 37 degrees to +47 degrees F. and thawing on the 21st and on the following night falling 60 degrees to —13 degrees F.* Thus we had the long continued low temperatures, the extreme low temperatures, the rapid thawing following a hard freeze, and the alternate freezing and thawing all in the month of January and the last three conditions occurring within 10 days. I need not tell the orchardists of Maine what this did to the fruit trees for they know that part of it too well, but I do believe that this record for January, 1907, shows when and how the damage was acomplished. When we remember that we have transferred the apple from the milder climate and lesser rainfall of southwestern Asia and southeastern Europe, is it strange that so many varieties succumb to the conditions I have just described? I am not so astonished because of the number killed as I am that so many survived.

But this does not explain why one variety is killed and another variety in the same orchard is not killed or why an individual is killed and another of the same variety standing beside it survives under exactly the same conditions. No doubt also some of you feel that our reasoning has been faulty for you have repeatedly seen the trees on an exposed hillside survive while those on the lower ground in the same orchard are killed. We cannot explain the difference in hardiness of varieties, or of individuals of the same variety, but I think we can explain in part, at least, why the trees in the more exposed localities stood the winter better than those on the lower ground. In the first place it is a fact well known that the cold air drains off into the valleys or pockets and that the hillsides, though more exposed, do not as a rule record so low temperatures as does the lower ground. This fact is almost always considered in locating peach orchards. The peach, as you know, being quite sensitive to frost. Secondly let me call your attention again to the sentence "Those parts of plants that contain little water are particularly endowed with the power of withstanding cold." I think we are justified from what has been said in going one step farther and

saying that the resistance of an individual plant to cold varies, within limits, with the amount of moisture it contains at the time of the freeze, although I do not recall any experimental evidence to prove the assertion. If this is granted the application to the case is as follows: Snow fell early in November, 1906, and remained on throughout the entire winter. You will also remember that when the snow came there was no frost in the ground and except in exposed localities the soil did not freeze. The roots of trees standing on lower lands where the soil was comparatively warm were not chilled and kept forcing moisture up into the trunk thus saturating the tissues with water. On the other hand the soil underneath and the roots of the trees on the exposed localities were chilled down quite early in the season. Hence it would seem that there would be less forcing of water into these trees, the moisture content would be less, and they would not suffer so much from frost injury as the trees on lower ground.

Now, what can we do to avoid repetition of this trouble? Unfortunately we cannot control the weather and must take the bitter with the sweet. It seems hard, when a man has the results of years of work swept away just as he is about to realize profitable returns, to tell him that the loss could not be avoided. However, the experiences of the past few years have their value if applied. We should plant only those varieties which withstood the freezing or withstood it to a marked degree. If others are used it *must* be with the understanding that chances are being taken in doing so. In selecting ground for orchards we should see that it is well drained, and avoid heavy soils, low valleys and pockets. If advantage cannot be taken of natural wind breaks an artificial one should be provided on the side of the prevailing cold winds. It goes without saying that the trees should be well fertilized and cared for. However, they should not be stimulated by late cultivation to too strong and late growth in the fall so that the wood will not mature before winter sets in. Professor Munson also notes, and your Secretary emphasizes this in his report, that trees which bore heavily the summer before are more likely to be injured and recommends thinning the fruit in summer on the heavily loaded trees.

STANDING OF THE INSECT INVASION AND CONDITION OF OUR ORCHARDS.

By Prof. E. F. HITCHINGS, State Entomologist.

As you all know, the year 1907 has been one of the most crawly years in the history of our State, or buggy, or whatever the term you might apply to it. We have had all sorts of specimens of insects sent in to the office, and I have heard them being complained of all over the State. Of course among them we find some old—shall we call them friends? no—we find insects that we have been familiar with from our childhood, lots of them, but never in such an abundance, and never have they done such damage probably in the history of the State as they have during the past year.

Now among the common insects that have infested your orchards, your shade trees, your garden, vegetables, etc., we will only refer to a few and call your attention to the exhibit here, which you can consult, and we will be glad to answer any questions in regard to these specimens here, or any others that you may wish to ask about.

We had in the spring our usual infestation of what we term the tent caterpillar. In some counties in the State that insect did a great deal of damage, especially so in York and Oxford counties. Some sections were almost free from any nests of the tent caterpillar. We had many complaints of our leaf rollers, bud moths, etc., those small, minute insects that perhaps many of you have never seen, or may not know that they have been in your orchards.

Then we had coming to us after haying caterpillars that strip young trees especially, kill them outright. I can show you one block of between three and four hundred trees dead from the effect of just the red-humped apple worm. Now the moth of this caterpillar hatches out late in the season. She lays her eggs while you are haying, or earlier than that—the caterpillars hatch while you are haying, and while you think your orchard is safe these little fellows begin their work, and by the time you get through haying, and by chance visit your young orchard, the damage has been done. I venture to say that if we could get full data from that one pest, it would be up into the thousands—

I know it would be up into the thousands of young trees destroyed during the past summer by this one insect alone. Then to take an associate, the yellow-necked caterpillar so-called, and there were all kinds of others, the different species of the woolly bear so-called, and many other insects that were abundant this fall.

Of the railroad worm, the trypeta, in certain sections hardly an orchard has been immune from this pest. An easy remedy of course would be the cleaning up of the fallen fruit. That is the only thing to do—cleaning up and feeding out, or pasturing sheep or hogs; because, as most of you who are acquainted with this insect know, the adult is a little fly not half as large as your common house fly, and the female punctures the skin of the apple and lays her egg underneath the skin. There is no way you can spray to do any good. Now that little fellow when it reaches maturity must go into the ground and remain over winter. Common sense would tell you then that if you keep your fruit picked up before this little fellow can go into the ground, why you destroy its future career. The codling worm is easily controlled by spraying. I shall be ready at any time to answer any questions regarding any of our insect pests, but I don't want to take the time at present to speak further on these insects that are so familiar to all of you.

We do have, though, two other insects our President referred to—the brown-tail and the gypsy. I think most of you are familiar with the winter nests of the brown-tail. You may never have seen the caterpillar to recognize it, or the adult, the perfect insect. They are shown here, the whole life and work, and they will be explained. But I want to say this much about the work of the brown-tail moth in the State. The law of last winter did not go into effect until about the first of March. We could not expect to enforce the law at that late date. We tried our best to institute the educational work as far as the department was concerned, but as to compelling the private individual or town to live up to the letter of that law, we could not do it for the want of time. This year we are in hopes that we won't have to do anything further in the way of compulsion. We hope and trust that every man, woman and child in the State has an interest in this matter and will see to it not only that their own trees —orchards and shade trees—are freed of these nests during

the coming months, but that the town officials are up to their duty in looking after the shade trees on the highways and removing these nests. In the short time last spring very effective work was done, both by the towns and by private individuals. We were very much pleased indeed to see the interest taken and the thoroughness of the work done. As a result, I think you will all agree with me that you do not find many brown-tail nests in towns where there were quite a few last spring. Of course throughout the thickly settled portion—that is, thickly settled as far as the nests were concerned, or have been for the past two or three years, that is the towns in York county especially—you could find them today by the thousands. but along our northern border, through this section and further south even till you get to Portland, I think you will find that more than fifty per cent have dropped out.

We have at present eight men in this work. The work is educational. We are scouting along the northern border to see that none have escaped us—stepped over the line. That of course has to be done, and done thoroughly, because we don't want them to get by us and start in somewhere where they will not be noticed perhaps. So much for the brown-tail work.

Now I am to touch upon a chapter that I trust is an introductory chapter, and I hope there will be but one chapter following, and that is this record of the gypsy moth in our State. It has reached now such a serious condition that it appeals to every living being in Maine. I have here two new mounts of gypsy material prepared in the office a day of two ago to be presented to the Governor and Council yesterday. Dr. Howard—I will go back a little—Dr. Howard and his field agent for this work visited our State and in company with my field agent and myself we went over the territory, showing him what we had done during the past year. He expressed himself as very much gratified indeed with the work done. Now understand, I don't want you or any one not employed in this special work to touch a gypsy egg cluster in the State, not a live one. It is not safe. Last winter we had them carried around on the bottoms of sleighs and pungs and scattered all through York county. We discovered the remains of these on the bottoms of sleighs and pungs with only a few eggs left. Well, now, with an egg cluster numbering five hundred eggs, and with a vitality shown by

experiment to be almost indestructible with common, natural means, where they have tested these eggs frozen and thawed out and frozen again up to six times in succession and then had the eggs hatch out, there is not much show for scattered eggs being killed by remaining under foot along the road, or where the horses travel, or anything of that nature. Now if you, or any other one, should go and attempt to remove an egg cluster, you might drop a half a dozen eggs easily. I would rather have a whole egg cluster of five hundred eggs than one scattered egg hatch. Why? If we had five hundred big caterpillars to look for, they would show their work; we would discover it, the infestation of the one nest possibly, while I would defy almost anybody to discover the one or two or half a dozen that had been left scattered.

Now in regard to the work of last summer, I will give you just one instance of the thoroughness of the work done. As most of you know, we have had men in the field since this law was passed last winter—the work on the gypsy confined wholly to the department—the brown-tail work, any one can cut a brown-tail nest and destroy it, and that is for you to do. But the gypsy must be handled by men trained for the work. And there is no comparison between the two. Why I have been asked many times, "Well, what is the difference between the gypsy and the brown-tail?" Now there is just as much difference as there is between the best citizen in this hall and the worst criminal down to Thomaston. That is the difference. Now these were discovered none too soon. We went to work none too soon. We have had now almost a year's experience with the gypsy here in Maine. They have been here five years or more, but we didn't know it. These men were trained in Massachusetts and then went into our work. We had the national government men first come and scout sections of the territory. One infestation was on a road which was being passed over morning and night by one of our men who was attending the burlaps at another place. He discovered by accident some caterpillars crawling across the road as he went by on his wheel. On investigation we found a very bad infestation that must have been there at least five years, estimated to number over a million full grown caterpillars, almost full grown when discovered; many of them were full grown. We at once put the

whole force onto that infestation, used seven barrels of kerosene to spray and then set them afire. There were no trees; it was low shrubbery, sweet fern and this ground hemlock and bayberry bushes in a pasture. A stone wall lined each side of the road. They were on both sides. Such effective work was done at that time that when Dr. Howard was here he made the remark that we were doing the best work that was being done. Later on we had one of the best spies or scouts in Massachusetts come down and scout that territory around this section that we had burned. The man said that if he could afford it he would give one hundred dollars in cash if he could find a number of the gypsy egg clusters, because he wanted to prove that we didn't do good work, or that it couldn't be done; and you can imagine that he did his duty in scouting with his men. They went over the territory and went into the woods beyond and all around it and hunted and hunted everywhere, with the result of only one egg cluster under a rock way back from the territory burned. Just one egg cluster out of one million almost full grown caterpillars that were destroyed.

Now by accident, only a short time ago, one of our best scouts in passing through a wooded section of three hundred acres of forest growth discovered the egg clusters of the gypsy in abundance. We had already discovered two or three new ones, but I will simply refer to this one. I am taking too much time, but I want you to realize the importance of this and the seriousness of it, and to use your influence in every way possible to see that the work is carried on by proper means, and that some arrangement can be made whereby our appropriation will not be cut short until the work is done.

As soon as this infestation was discovered the head field agent at Boston was notified and more help asked for. We had secured eleven scouts before that from the national government. The national government has a fund for this work of $150,000 and we are entitled to a part of it, so that we secured eleven men. I went right to Boston and asked for more men and I had the promise last week of twelve more men from the government. We took all of our men and put them in with the others. Now what is the result of that new find?—these nests that I have referred to on twelve different varieties of trees. As a result of this inspection so far we have taken 2,662 egg clusters in this

one woodland, and as near as we can judge there are two hundred acres out of three hundred acres infested. We have had nine men at work there one week. In one day they secured 865 egg clusters, and from one tree 251 egg clusters were taken.

Is that important or not? As a matter of insurance protection to our State we must stop this gypsy. There is no other way that we can do. We must do it. And we will do it if we can get the money and the men to do with. I have got to get some men and send them right to Massachusetts—have several in mind now—but we don't want any man in the work who is looking for the dollars and cents—not a man. We have had so many applications at the office from men who are no more competent to do this work than little children, and men that you could not depend upon, and yet we have had petition after petition come in, even one person going before the Governor and Council as a last resort, to get onto this work. I wouldn't have the man if the President of the United States should insist on it, if I could have anything to say about it. The first rule on my field note book says "No man addicted to intoxicating liquors shall be employed on the force." That is enough to rule out lots of the applicants. We don't intend to have a man, as I said, who is looking for the dollars and cents. We are all looking after them in one way, and it is right we should. But what I mean we don't want—there is a new word come in that is just being used and coming to the front a great deal—we hear it in connection with our pomological meetings—every man that has got an orchard uses that word sometimes, especially in the spring when he starts out with some scions in his hands. What does he do to his tree? Well, now, we don't want that word used in any connection with the gypsy or brown-tail work, and we don't intend it shall get there if we can help it. We have got to have honest work. We can't have a man on the force who will slyly put an egg cluster in his pocket and on his way home or somewhere else drop it. A man ought to be hung that will do it. And yet they do it and have done it. If you ever see a man on this force doing anything of that kind, please report. I will pay a bounty.

I will tell you our method; perhaps if I leave you just here you may think that we are up against an impossibility. Now I

assure you I have been familiar with the work ever since its first inception in Massachusetts under the old commission, and in fact have been in close touch enough all along to know something of its history, and have had a lot to do with insect invasions—enough to know something of what can be done with an insect. Now there is one great advantage that we have with this gypsy over all other insects—almost all other—and that is the inability of the female moth to fly. I have watched them by the thousands, and if we had a tree growing up one here and one within two or three feet of it, a moth could not fly from one trunk to the other—a female moth. I have watched them where they tried even to climb up the tree they were on, and almost invariably they would lose ground and get down to the bottom and have to crawl away somewhere to lay the eggs. Now there is the advantage.

And what is our system of work in a few words? I will explain it to you so I think you will see that there is hope. It only needs the requisite number of the right kind of men, men who are honest to the core and would not scatter an egg any more than they would cut the finger off from their right hand. Those egg clusters are laid in August, we will say. They remain in that condition till the next spring. When they hatch out, the little fellows are so small you couldn't see them as they crawled up the tree—very small indeed. But by using what we call tanglefoot, putting a strip around the tree of a sticky substance to intercept those little fellows, we can catch them by the thousands as they go up in their first journey. After a little they will begin to feed, only by night and hide away through the daytime. That characteristic is in our favor, for in the infested districts we burlap the trees; that is, take a band of burlap eight inches wide, put it around the tree, tie a string round the center, turn the upper fold down, and we have a double fold right round the tree. We will have to use burlap on every road in the town of Eliot, and every road in the towns of York and Kittery probably—what I mean every tree that comes near the sides of the road where teams would pass, or the possibility of their being conveyed by that means. Now as soon as the caterpillars come down the trees in the morning to hide away from the sunlight, as they reach the burlap they crawl up under and remain there through the day. A man is detailed for just as

many trees as he can handle through the day. That is his work. He has his note-book and keeps a tally of everything done, and he tends these burlaps and kills every caterpillar found through the season, until the caterpillars disappear and what we call the next stage, the pupæ, appear. We find many of them under the burlaps where the caterpillars come down, and which remain hanging there. The trees are scraped, the rough bark removed, and all places where they can hide covered—any holes in the trees, anything of that nature; and that is the work we do. So that it is simply the collecting, or the killing of the egg clusters now from August till the next spring; then the tanglefoot; then the burlap—and that the work we have to do.

Now in regard to this orchard business—I have just a summary of statistics from different counties, but we haven't time to go into detail, and in fact I sat up last night till after twelve o'clock and got up this morning at half past five, and then found that two or three note-books were coming by express at ten o'clock this morning. So you can imagine that there is some little work yet to be done and probably this will come out in a form that will be valuable for all of yon. I think it will be of considerable value to the orchard interests of the State. I will simply in a hasty way run through some of the counties, and we will take Oxford county first.

Of the number of orchards examined and reported here I have 140 orchards. That number of orchards contained 80,350 trees, the largest orchard numbering 4,000 trees and the smallest 50 trees. In this work of course we have had to get at it in short time, but what has been done we trust has been done thoroughly. Now out of that number what trees were damaged? In Oxford county we find that the Baldwins stand first, Ben Davis second, and a few Kings reported. But 95% of all trees examined that were supposed to be winter killed during this past year were Baldwins.

Next we will take, as showing a little different condition, Somerset county. Of the 84 orchards examined, containing 36,575 trees, we found the largest orchard numbered 2,400 trees and the smallest 30 trees. In that number there were twelve orchards of more than a thousand trees. With what result? We find Baldwins, Ben Davis, Kings, Wealthy, Spy, Stark,

different varieties of Russets, Gravenstein, Newtown Pippins, Greenings, Fallawater, Fameuse, Arctics and Alexanders, fourteen varieties.

Piscataquis county: In 93 orchards containing 22,830 trees, the largest orchard numbering 2,000 trees and the smallest 30, we find the following: Tolman Sweet, Fall Harvey, Fallawater, Pound Sweet, Nodhead, Yellow Transparent, Gano, Mildings, St. Lawrence, William's Favorite, Baldwins, Ben Davis, Starks, Red Russets, Greenings, Fameuse, Arctics, Kings, Northern Spy, Wolf River, Rolfe, Black Oxfords, Mann, Golden Russets, Peewaukee, and others, numbering twenty-five different varieties.

Now I wish I could give you the history of this work in Kennebec county. The work has been more thoroughly done in Kennebec than in any other county, but I haven't the data; all the note-books are not in, and each note-book should show about 100 orchards. But in hurriedly running over these books since ten o'clock, I find the varieties as follows: Baldwin, Ben Davis, Rhode Island Greening, Twenty Ounce, Kings, Hubbardston, Tolman, Astrachan, Bellflower, Spy, Sweet Bough, Maiden Blush, Porter, Gano, Nodhead, Wealthy, McIntosh Red, Russet, Roxbury Russet, Fallawater, Gravenstein, Grimes Golden, Fameuse, Pound Sweet, Fall Harvey, Wagener.

I have not the data for Cumberland county. The report is not in. Franklin county has not been completed. But I think I have given you enough to show the error in the statement that we have often heard made, that this winter killing, whatever it was, was confined to Baldwins. Now I know from personal examination, and from the reports in many cases I could point you to the total destruction of orchards. I know of one instance in which a whole orchard was wiped out entirely.

Now when you speak of the question of slope and cant, the natural position of the land, etc., I look upon a tree as very much like a human being, and the more you investigate the sooner I think you will come to the same opinion. We have orchards in the State that have been neglected for years, that this year have given a good crop—haven't had a plow—there hasn't been a hog in the orchard,—there hasn't been a limb pruned or anything done, and yet for some reason or other those men who owned the orchards have put in from 500 to 1,000 barrels of

apples that surprised them. Now you know that some people live to be eighty, ninety years old. Put the same person when they started in at thirty or forty under different environments and with a different method of living, they wouldn't have lived till they were fifty. So with our orchards, many of them. The result of high cultivation is another thing that has gone hard with some orchards—orchards killed that have been under a high state of cultivation. And that is natural. Many claim, you know, that the Jersey cow is crowded and fed high and is weak. You feed an orchard high, you make it grow and not let the wood mature in the fall,—of course you expect to lose. There is a happy medium. I don't mean to run down cultivation at all, or any of those things, and I don't care to discuss those—I think I have overrun the time now—but there are lots of these questions that will be brought out, and if there are any of them that I can answer I shall be glad to do so later on.

NEED OF SPRAYING.

Special interest attaches to the matter of spraying in Maine. This was made the general topic for discussion at the field meetings of the society. When apples were gathered to all appearances they were generally free from scab. After they had been stored for several weeks conditions seem to have changed somewhat, and in many cases scab developed rapidly and much fruit was ruined for market. Mr. Wheeler of the Executive Committee called the Secretary's attention to this condition and he was requested to go and examine the fruit and take samples and send to Washington and Orono. The fruit sent to Washington was referred to Mr. M. B. Waite, the pathologist in charge in the department, and in reply he wrote Mr. Wheeler as follows:

Your letter to Pomological Investigations, with accompanying box of diseased Baldwin apples, has been referred to me for attention by Col. Brackett, Pomologist.

I have made an examination of these diseased apples, and find that they are affected with two troubles. The original trouble is caused by the apple scab fungus and is the disease known as apple scab. This is the small brown or nearly black scabby spot that occurs so commonly over the samples. The scab fungus attacks the apples while growing in the orchard. The disease

begins to appear some seasons very early, even while the apples are in bud, and may come at various times during the season. The scabby spots on this fruit nearly all came after the fruit was quite well grown, perhaps larger than half size. This apple scab is thoroughly preventable by spraying with Bordeaux mixture.

We are sending you Farmers' Bulletin No. 243 on Fungicides and Their Use in Preventing Diseases of Fruits, which will give you the methods of making and applying this mixture. On page 18 * you will find a very brief discussion of the treatment for apple scab. The treatment there outlined is supposed to cover the disease when at its worst. Possibly you might be able to leave out some of the early treatments if you could count on the fungus behaving another year as it did the past season. I am not at all sure, however, that you will be safe in making that assumption.

Now these apples are also affected by a fungus rot which has come into the fruit after it was picked. The apples look as if they had been oveheated, either in the pile in a warm spell in October, or in the bins where stored, or possibly in the barrels; at any rate, a rot fungus purely secondary to the original trouble has entered the scab spots and is the principal cause at the present time of the rotten and demoralized condition of these apples. By examining the fruit again, you will see that some of the scab spots have no rot around them, and have remained straight apple scab; other scab spots have a brown rotten area

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* The formula here referred to is of a Bordeaux mixture made of the following ingredients and is known as the 5-5-50 formula:

Copper sulphate	pounds..	5
Lime	do....	5
Water to make	gallons..	50

The use of this formula is desirable where the purity of the lime is in doubt, as it makes certain, with lime of any reasonable quality, that all of the copper is properly neutralized. The danger of scorching or russeting the fruit is therefore less. Withholding 1 pound of copper sulphate also cheapens the mixture by a few cents. For these reasons the 5-5-50 formula has come to be quite generally used in orchard spraying. In fact, it has almost replaced the old standard Bordeaux mixture in spraying for the apple scab, bitter rot, pear and cherry leaf-blight, and similar diseases. In the central Mississippi valley the 4-5-50 formula has given good results, especially in dry years.

For scab, spray with either of the mixtures as follows:

First, when the cluster buds have opened and exposed the flower buds; second, just after the petals have fallen; third, a week or ten days later; and fourth, two weeks after the third spraying. In a rainy season this disease is rather difficult to control and may require five or six applications. In case of a dry spring, however, only three applications are usually repuired.

around them, or perhaps around a group of several spots. Of course in some cases the whole side of the apple has rotted with this secondary rot. The only remedy for this secondary rot consists in better handling of the fruit. Probably these apples would have mostly gone through this trying condition—whatever it may have been—had their skin not been injured by the apple scab fungus. The common rot fungi have used the injury by scab as an entrance point and thus have gained their start in the apple. The lesson to be learned from this fruit is:

First—Your orchard requires spraying for apple scab.

Secondly—The fruit requires more careful handling, along lines which you will probably understand, after it is picked and stored.

Ordinarily best results are secured by hurrying the apples into cold storage as soon as possible after they are picked. If this occurred in bins in your cellars, it indicates that the bins were too large or too closely covered or else that the cellars need more ventilation to avoid heating.

INSECTS, BIRDS, AND FRUITS.

By Prof. Wm. L. Powers, Gardiner.

In this day of codling moths, curculios, and trypetas success in orcharding is quite as likely to depend upon a knowledge of birds and insects, as upon skill in selecting and care in cultivating the best varieties of fruit. Ignorance of Nature's laws in the animal kingdom may and often does bring to naught the labor of him who sows, and trusts in God for the increase. He who studies those laws will soon learn that the main effort of individual life whether animal or vegetable is to reproduce its kind. So potent is this function that the natural increase of any one plant or animal, if unchecked by other plants or animals in the struggle for existence, would in a few years cover the entire land surface of the earth. In old countries which have long been inhabited by agricultural communities, the various species have had time to adjust themselves, and the balance of nature has become established.

The brown-tail moth has been known in Europe for three hundred years, and yet we do not hear of any such widespread devastation as now threatens our New England States. Its natural enemies, bird and insect, with the little that man does, are sufficient in the continental countries to hold this terrible pest in check.

The lands recently opened up to agriculture are the ones which suffer most severely. Here in the United States we are confronted by an irruption of vast hordes of injurious insects from two causes: First, our westward expansion has brought our growing crops into contact with native American insects, and these, finding their original food plants destroyed by the clearing of forests and the breaking up of the prairies, have turned to the more succulent crops of the farmer and have become terrible pests by migrating eastward and devouring the ever increasing food supply; such are the cutworms, chinch bugs, and Colorado potato beetle; secondly, injurious insects constantly being introduced from foreign lands find here a paradise in which to multiply. Having escaped their natural enemies they find abundance of food in a land where the insect eating birds and animals have been wantonly and wickedly destroyed by men.

So vast a number of insect-destroying birds have been removed, so extensive is the modern exchange between countries, and so carefully is every corner of the world being searched for new and hardy varieties of fruits, that we may expect at any time to be overrun by new insect pests from foreign lands; for every importation of stock is likely to have upon it another insect to destroy vegetation. Indeed we have in our State today two foreign species, the gypsy and brown-tail, either one of which seems possessed of potential ability to defoliate entirely every orchard and shade tree in New England.

So widespread is the fear of insect devastation, and so universal is the belief in the interdependence of the kindred sciences, entomology, ornithology, and botany, that the Biological Survey of the Department of Agriculture at Washington is co-operating with state governments, in endeavor to maintain a balance between the vegetable and animal kingdoms.

As a result of all this study, every effort is now being made to protect, encourage and foster the native bird population of the land; scientists are studying the life histories of plants and animals; Audubon societies and nature study clubs are collecting facts of great value, while the societies of national scope are scattering broadcast the results of intensive study along particular lines; the schools have taken up the work, and the President himself is not averse to throwing a club at the man he deems a nature fakir. The utility of birds in suppressing outbreaks of injurious insects, by massing in enormous numbers at the point of attack is beginning to be understood, and the wanton destruction of the species beneficial to man is now restricted in every state.

It is my purpose to recall something of the destruction caused by a few of the insects most injurious to the fruit industry, and then show the great work done by birds in keeping these insects in check.

San Jose scale, aphids, bark lice, currant worms, grape vine moths, chinch bugs! Where shall I begin? "The annual loss in the United States from the chinch bug alone," says Dr. Howard, "cannot be less than $20,000,000," and the total value of farm products ruined yearly by injurious insects is estimated at from $800,000,000 to $1,000,000,000 without reckoning the

vast amounts expended for insecticides and the labor of applying them.

The codling moth or apple worm, perhaps the most destructive insect in this country today, may well serve us for a beginner. This pest was early imported from Europe and is now at home wherever apples are grown in this country or Canada. It causes an annual loss of from 25 to 75% of the apple crop, as well as of many other fruits. The annual damage carefully worked out for three of our large fruit growing states is as follows: In Illinois, $2,375,000; in Nebraska, $2,000,000; in New York, $3,000,000.

Its life history is as follows. The eggs are laid singly upon the young apples, and from these eggs hatch the larvæ, which eat their way into and destroy the fruit. In three weeks the larvæ, the so called white "worms," eat their way out through the side of the apple and either crawl out on the branches or spin down to the ground. In either event they finally reach the trunk of the tree and pupate under the bark scales. About the middle of July the adult moths appear in vast numbers and a second brood of eggs is laid. Many of the larvæ from these are gathered in the fall with the apples, but enough escape in the windfalls and discarded fruit to re-infest every bark scale with another pupa. In the southern states two and even three broods are raised each season, but all pass the chrysalis stage in the crevices of the bark.

Now as these insects in the imago stage are night-flying and protectively colored, the adults for the most part escape the birds. Bats, indeed, destroy vast quantities of them, but as bats are not birds, they do not fall into the province of this paper.

I have said that the codling moth passes the third stage of its existence in the crevices of the bark upon the trunk of the tree. Now nature has fitted a whole series of birds for a tree-trunk life, and they cannot acquire their subsistence anywhere else. Such birds are the woodpeckers, nuthatches and tree creepers, while other birds like the sparrows, bluebirds, and chickadees also glean from the trunks.

The downy woodpecker, the avowed enemy of the codling moth, is with us all the year round. His whole life is given up to the destruction of insects that do injury to the trees. Whenever and wherever you see him, you will find him searching for

food in and under the bark. In a twenty-five year study of birds I never saw one on the ground or on the tips of the branches. His whole anatomy is adapted to the life he leads; toes four, two in front and two behind, long, strong, and flexible, and each armed with a strong curved claw; legs strong, and a tail fitted to serve as a fulcrum to give added strength to his blows; tongue, the most wonderful of nature's work in its adaptability to its uses, capable of being extended almost indefinitely, its point armed with a barbed spear-like tip for probing and bringing forth from the bottom of the opening cut by his chisel bill, any larva disclosed therein.

Search your orchard for samples of his work. Examine the bark scales he has pecked into. Remove them and find the empty cocoon beneath. If you find scales with living pupæ under them, you have not woodpeckers enough to take care of your trees. Carry home with you some of these bark scales that have been treated by the downy. Next May or June collect an equal number of adult moths and kill with cyanide or chloroform. Next summer lay beside the empty cocoons and dead moths an equal number of wormy apples cut open so as to show the ravages of the insect in its larval stage; if possible, put with them an equal number of small green apples each one with a flat, oval, scale-like egg upon it, and learn a lesson of "Insects, Birds, and Fruit," that will make you and your posterity the everlasting friends of the downy woodpecker. If you are not yet convinced of the utility of the downy, solve this simple problem in arithmetic. If a codling moth lays 80 eggs, (the average number is 85) on 80 apples, and half of these eggs develop females, and each of these lays 80 eggs, how many dollars worth of apples, at fifty cents per bushel, reckoning 150 apples in a bushel, will one codling moth and her progeny destroy in one season? When you have found the answer to be five and one-half dollars, just consider how much each downy is saving for you, provided he eats only one larva per day for only one month.

Were the codling moth the only injurious insect destroyed by this bird, we should owe him a debt of gratitude for this work alone. But there are other hidden enemies tunnelling in the wood itself such as the round-headed apple borers, wood-boring ants, wood-eating beetles, the birch borer, the maple borer, and

the pine weevil. All of these insects work serious damage to our forest growths, and if not held in check by their natural enemy, would soon become a serious proposition to owners of wild lands. Every one who raises fruit for home consumption or for market feels himself almost helpless when signs of the borers appear in his trees. Their method of work is so insidious that only the trained eye can detect evidences of their ravages before the trees are ruined. But the downy woodpecker is always on the lookout for these borers. Expert at auscultation and percussion he explores suspicious localities and quickly detects evidences of secret chambers within. Cheerful and industrious he gives utterance to his labor song, *pick, pick,* and suits his actions to his words by picking out the boring larva within.

During the summer months other tree-trunk inhabiting birds come up from the South to aid the downy in his work. Chief among these in his importance to the fruit grower is the black-and-white creeping warbler. This is a common bird in the orchards, and woodland, and may be called fairly abundant in the groves and smaller clumps of trees around New England villages. He is the particular favorite of the young naturalist being generally the first of the warbler family to be carefully studied. He is fitted for a life upon trunk and branch, but the tail is not used in climbing and his bill is too slender for cutting. He may be seen during the summer season creeping about over the tree trunks, often hanging head downward searching diligently here and there, over and back, in search of insect food. Like the woodpecker he sings at his work, and his song is the embodiment of his life's purpose, being a monotonous but not unmusical *I see, I see, I see.* And he does see every bark louse, canker worm, bark beetle, curculio, click beetle, caterpillar, resting moth, and hidden egg. He reaches for the larvæ that are spinning down from the branches, darts like a flycatcher for flying insects that have been startled from their hiding places by his approach, and when the trunk has been cleared, he often descends to the ground for cutworms. Hairy caterpillars are a favorite morsel, and he really enjoys eating the dreaded gypsy and brown-tail larvæ.

It may be well to digress for a moment to note the enormous amount of food required daily by nestling birds and the constant

care and tedious labor imposed upon the parents to procure it. It is a fact established by observation and experiment that growing birds will consume a daily ration of meat equal to their own weight. The stomach must be kept full of food during the day to insure the fledglings' health and comfort.

A young robin that fell from the nest was brought up by hand and fed on angleworms. The man who reared him found him always hungry, and to satisfy his curiosity resolved to fill up that robin once. The bird ate that day fourteen measured feet of fat, juicy, wriggling worms, and the next day was as hungry as ever. Chas. Nash, author of "Birds of Quebec and Ontario," fed 165 cutworms weighing together five and one-half ounces to a young robin weighing only three ounces. A man weighing 150 pounds and eating at this rate would require 275 pounds of beefsteak daily.

Birds are in some respects the most highly specialized of the animal kingdom. Their temperature is higher, and their respiration more rapid than in man. The young of many birds are born naked, yet under favorable conditions they develop as rapidly as the insects on which they feed. Two different broods of song sparrows were out of the nests in eight days. In this incredible short space of time they had developed from naked, blind, and helpless nestlings to full feathered, wide awake, and active investigators of the insect conditions in their immediate neighborhoods. Before they left the nests, each bird was requiring one hundred caterpillars daily, and as the broods each numbered five, one thousand caterpillars was the daily ration eaten by the young birds, besides what the four adults consumed. Consider for a moment the work done in one month by these birds; and when the second and third broods appeared, 90,000 caterpillars were deprived of ability to injure fruit trees during every period of thirty days. I do not wonder that Mr. Knowlton in assigning my subject put the insects first, the birds next, and the fruit last.

Our common yellow warbler is another bird which comes in numbers from the South and makes its home in our orchards and village streets. Almost entirely insectiverous, it feeds on the greatest pests that attack our orchards and small fruits. Caterpillars form two-thirds of its food, and while it is not primarily adapted to a tree-trunk life exclusively, it is always

on the alert for small bark beetles, boring beetles, and plant lice. Like the woodpecker and black-and-white creeper he sings at his work, and as he eats the young larvæ of the gypsy and brown-tail, its song *sweet-sweet-sweet-sweetity-sweet* would not seem inappropriate.

The American redstart is another trunk-loving gleaner whose fly-catching proclivities are so well developed that nothing escapes it. It delights in hairy caterpillars, moths, and beetles that would otherwise live to defoliate our orchards and destroy our fruit. It forages from ground to tree-top, holding its wings in readiness for instant attack upon every moving insect. It is one of our most beautiful and trusting birds and has a sweet and varied song. Chapman says that in Cuba where most of our warblers winter, they are known as "butterflies," but the redstart's flaming plumage has won for it the name of "candelita," the "little torch."

The black-throated green warbler is another frequenter of the trunks of trees, though most of its work is confined to the area covered by the branches. Its food consists of a variety of small insects including several injurious caterpillars, curculios, beetles, and bugs. The stomachs of five birds taken in Nebraska contained 220 insects, an average of 44 to each bird. Seventy per cent of the food of one Illinois specimen consisted of canker worms. Like the black-and-white creeper, the black-throated green is a species dear to the heart of the young naturalist, and its characteristic song is early learned. Bradford Torrey translates it as "Trees, trees, murmuring trees," but to me it seems to say, "Cheese, cheese, a little more cheese." I have never heard any wild bird sing an articulate word, and probably no two people hearing the same bird for the first time would write its song with the same words. But if suitable words can be found to interpret birds' notes, it is wonderful how it enables the listener to distinguish different species in a multitude of songs.

One of our best known bird songs is that of the white-throated sparrow, yet every author writes it differently. I was tempted to say one of our best known birds, but a long experience as a teacher of nature studies has convinced me that while nearly every one knows the song of the white-throat, very few persons really know the bird. The Indian name, says Wm. J. Long, is

killoleet, and a more appropriate name could not be found. The song is clear and very musical. Any one who plays can easily reproduce it on the piano. Various interpretations are *Old-Sam-Peabody-Peabody-Peabody, All-day-long-whittling-whittling-whittling, My-own-dear-Canada-Canada-Canada,* and *O-hear-killoleet-killoleet-killoleet.*

And what claim does this songster have upon growers of fruits, and why should he be protected and encouraged? If a bird that devours tent caterpillars, plant lice, tussock moths, and destructive beetles found on the trunks of our apple trees, does not deserve a place in our hearts as a protector of fruits, the fact that he also on occasions descends to the earth and searches for ground beetles may throw the balance in his favor.

The chipping sparrow, the companion of childhood, is a constant worker in the garden, yard, and orchard. It is sometimes called the hair bird from the long horse hairs used for lining its nest, which is placed in a tree or vines near the house that no time may be wasted in reaching its feeding ground. Next to the robin, it is the most familiar of all our birds and often picks up crumbs near our doors. Its song is a mere string of *chip-chip-chips* with no more of music in it than there is in the monotonous click click of a sewing machine. Its spring and early summer food consists of caterpillars. So persistent is this bird in its search for caterpillars that it interfered seriously with experiments that were being made upon gypsy moths under cover, by breaking through the net that inclosed them, and eating the larvæ. Such persistence should be encouraged. The chippy is no epicure in the matter of insect diet and devours the brown-tail, tent caterpillars, tussocks, codling moth, forest tent caterpillars, leaf eating beetles, cabbage worms, beet leaf grubs, and other beetles of various kinds. Mr. Kirkland saw it eat fifty-four canker worms for one meal.

These food lists are made up from two sources: First, the birds are carefully watched near enough at hand to render identification of the various articles of their diet positive; second, when the birds are so shy that their food cannot be made out by observation, they are shot and their stomachs examined. The stomachs of thirty-four thousand birds have been sent to the Biological Survey at Washington, which maintains a department solely for this work. I was in there one day to see Dr.

Beals, the head of this department, and he told me he had just received 134 Meadow larks for examination. These birds had been taken in Texas for the purpose of learning positively if they were eating the cotton boll weevil. I am sorry to say that I have not learned the result of his examination.

Another one of our birds that is valuable to the fruit grower is the Maryland yellow-throat. It is an easy bird to study for three reasons: First, it has a distinctive habitat; second, it has a distinctive song; and third, it has a distinctive coloration. Its throat is yellow; there is a black stripe across its forehead, eyes, and cheeks; its back is olive green. Its song is very characteristic. It is written—*whittity-whittity-whittity-whit,* and *witchery-witchery-witchery-witch.* I was lecturing on birds at the Newcastle Summer School one summer, when a woman asked: "What bird is it that says, '*Great Caesar-great Caesar-great Caesar?*'" I said, "I do not know, but if you will come out tomorrow morning with my bird class at five o'clock, I will tell you what it is, if we can find it." She lived five miles from the village, but at five o'clock the next morning she was on hand. My class had been studying the Maryland yellow throat for a week and every one in that class of forty-five had learned its song. We started on our walk, when all at once this woman exclaimed, "Oh, there's the great Cæsar bird." And there was our old friend, the Maryland yellow throat. I told this story at a teachers' meeting in Augusta the next winter. After the meeting a young lady came to me and said, "I have another story about your 'great Cæsar' bird. I went from that summer school down to the beach and the cook at the cottage where I staid said, 'Do you know anything about birds?' I said, 'Yes, I know anything.' 'Then please tell me what bird it is that every morning when I begin work, comes to the kitchen door and sings, *Gingerbread-gingerbread-gingerbread.*'" The yellow throat is a bird of the roadside and shrubbery wherever water is found. But it is a constant visitor to the orchard for caterpillars of all kinds.

The yellow billed cuckoo should be better known for it eats tent caterpillars from morning till night. Of 155 stomachs examined between May and October, only one contained fruit. In a five year study of the bird conditions in the State of Maine, covering various portions from north to south, stopping two

weeks in a place and teaching in a summer school, I never went out one morning with a class without finding the yellow billed cuckoo. It destroys thousands upon thousands of tent caterpillars that would otherwise live to damage the fruit crop. While some of our birds devour every smooth caterpillar they find, they have no taste for the hairy varieties, but the cuckoo prefers them. It eats tent caterpillars until its alimentary tract from throat to vent is lined with caterpillar hairs. Cut one of these birds open, and it looks as though he was lined with fur.

After our summer birds have gleaned all summer long from the trunks of our trees, they leave us, and it does not seem as if anything could be left of eggs and insects under the bark to support the army of insect eating birds that comes down to spend the winter with us. The chickadee nests here in small numbers, but during the winter months it comes down from the north in abundance. Think of the amount of food that is required to support the life of these warm blooded, active, and cheery companions of our winter walks. Last winter the thermometer here in Maine ran as low as 50° below zero, yet these hardy birds bent cheerfully to their task of saving these very apples we have seen at this meeting. Even in the terrible cold they sang at their work, *chick-a-dee-dee-dee.*

The white breasted nuthatch is another bird that nests here rarely. But soon as cold weather comes on, his numbers increase and he begins his search up and down the trunks. His song is *yank-yank-yank-yank,* and he too must search diligently for insect food that escaped the sharp eyes and ready bills of our summer residents.

Another winter bird is the brown creeper. Like the woodpeckers his tail feathers are fitted for support in climbing. His bill is long and slender and curved to facilitate investigations into insect conditions under bark scales. From early morn till dewy eve—no, there is no dew when he is here—but from early morn till dark he must search for insect food. His particular sphere of action, like the woodpecker's, is the tree trunk. His body is so small that it seems impossible for him to maintain an existence in the terrible cold. Starting at the bottom of the tree —he never crawls down—he begins and circles around the trunk, hunting, hunting; as soon as he gets to the branches, down he

goes to the botton of another tree. I have watched him half a day at a time, watched him work with that little narrow curved bill in the crevices of the bark, searching, searching, searching.

Does it seem as though there could be any insects left to develop next summer? Unfortunately there are. What is the reason? These birds were intended by nature to hold insects in check, but we have foolishly destroyed the birds.

Do you want your fruit trees better protected? Then stop the slaughter of birds about your orchards. Go home and kill your cat. She is the greatest pest that people who raise fruit have to contend with. I know of a cat owned by a man who claims that fifty birds are the average number killed by that cat every year. The cat does not stay in the house nights during the summer. She is a tree climber, and what she can't destroy during the daytime, she takes from the nest at night. Fifty birds for one cat in one family! I know another family that said their cat caught fifty-nine robins in one summer. Another man said his cat caught forty-eight—and those men were all trying to raise fruit! Those men were trying to raise fruit, yet they were keeping cats that were doing them thousands of dollars worth of damage every year. Review for a moment Mr. Nash's experiment in feeding young robins. One young bird weighing only three ounces ate 165 cutworms per day. Here were 157 robins put out of existence on three farms. The amount of insect food required per day by these 157 robins was 157 times 165, or the enormous number of 25,905 cutworms, or their equivalent in other forms of insect life. What terrible devastation these robins might have held in check had they been permitted to live.

Unfortunately for the orchard interests of Maine, many domestic cats are left by our summer visitors to resume once more their wild state. It is a pleasant thing to see puss about our summer cottages, for it adds to their home-like appearance; but when our visitors return to their city homes, the cats are often left behind with no means of subsistence unless they prey largely upon the birds. If well fed domestic tabbies will kill fifty robins, what terrible slaughter must be wrought by the hundreds of cats that return each year to a state of nature. If you hunt, shoot every cat you can find in the woods and fields. If you have a boy with the collecting craze, and his mind is set

upon birds' eggs—no, don't kill him, but—teach him better. If there is anything that has been unfortunate for the bird life of New England, it is the collecting craze of boys. Hundreds and hundreds of eggs have been collected in every town in our State, and not one in a thousand has ever contributed to the cause of science. No data have been kept of the conditions under which the eggs were taken, and not one collector in a thousand ever published the results of all his ill directed labor. The attic and waste heap are the final resting places of the shells once pregnant with celestial melody. If your boy must collect—most boys have the passion at some period of childhood—teach him to collect life histories of injurious insects. By such work he will add to the productiveness of your farm, increase the stock of human knowledge, and animate his old age with the vivacity of youth.

Kill your cat. Stop your boys from robbing nests. Study the part that birds and insects play in fruit culture, and bountiful harvests shall follow.

FRUIT GROWING AT OAKLANDS.

By Robert H. Gardiner, Esq., Gardiner.

The very kind words of your President simply make me feel more deeply than I had felt before—although it has been troubling me a good deal—that I haven't any right whatever to appear on this platform. He has been good enough to speak of my place. I have not made the place. My grandfather and my uncle and Mr. Merrill made the place and I have entered into their labors.

If I had been able to make this address a year ago, I should have done it without very much hesitation, because I had then at my right hand a man who I think it is no disrespect to anybody here to say was as good an orchardist as there was in the State. The great beauty of my place, the great value of my orchard, has come entirely through the indefatigable labors of Mr. Stephen T. Merrill, who was called hence last winter in the prime of his health and strength, and his years were not many. Mr. Merrill was really a remarkable man,—a man of the highest

personal character, of rare intelligence, and of as thorough and comprehensive a practical knowledge of farming and of anything connected with farming as any man that I ever met. He took my orchard when it was partly run down and he made a good orchard of it, and what I shall try this afternoon will be simply to repeat a few of the lessons that I learned from Mr. Merrill.

The gist of his success in orcharding is what must be the gist of every success in every pursuit of life—thoroughness. If he had anything to do with the orchard, he tried to do it thoroughly right down to the bottom. If we were talking, for instance, of setting out new trees, he would cultivate that field for two or three years before he set out a tree,—plow it and cultivate it and get it into thorough condition, get all the rocks out, get it smooth and the soil light and easily pervious to light and air,—get the field into thorough condition two or three years before he set out his trees.

We have always found it to our advantage to buy trees. Some fifty years ago, I think, they used to raise their trees and do their grafting. We find it very much better to buy trees. We get excellent stock and they are very cheap, and I guess it is a good deal better than it is to go to the trouble and expense of raising our own stock and trying to graft them.

I don't think too much stress can be laid upon the importance of care in planting the trees. I think the first setting out of the tree has a great deal to do with the character of that tree for the rest of its life. If there are any of the roots that are torn in the slightest degree, we cut them off smooth, and separate the roots out so that the tree will get a good chance to set. A mistake that was made in my principal orchard when that was set out some fifty or sixty years ago was in starting the crown of the tree too low. They had an idea that by letting the branches start out pretty low down it would save trouble in picking. I think that has been a very great mistake. My trees are set out thirty feet apart, and I wish they had been thirty-five or forty now they have got full grown. We find on those lower branches which are easy to pick we are lucky if we get No. 2s. They are mostly cider apples. Our new trees we are starting out the head pretty high up, so that we shall not have any branches hanging down low. It is not only that these low branches raise

poor apples, small apples and badly colored apples, but it makes it troublesome about getting about to cultivate. And we are starting our new trees up a good deal higher, hoping that we shall get about them more easily to cultivate, and that we shall get more No. 1s and less No. 2s and No. 3s. There isn't any money, I believe, in raising anything except No. 1 apples. I don't believe it pays to raise cider apples or No. 2 apples.

And then when we get our orchards started, we prune the trees. As I look round, Mr. President, and see you and these other gentlemen here who have been orcharding before I was born, I feel a little bit like the young lawyer who argued his first case in court. He began telling the court a lot of things that are taught to a boy in the law school the first half hour of his first day there, and he noticed the court getting a little bit restive and he stopped his argument and said "Excuse me, your Honor, for dwelling so long on these very elementary points but it really would be such a great pity to have this case decided wrong." So I feel that I am dwelling on elementary points; but you have asked a man whose knowledge is limited and you have got to endure him if he dwells too long on these elementary points.

Then we believe very greatly in pruning—pruning to shape the tree, to get as much outside to the tree as possible, and pruning also to promote the fruitage of the tree. We try and make the tree all outside. We take out the inside of the tree so as to give just as much exposure of the tree to the light and sun as possible. It is the sun largely that makes the No. 1 apples. If an apple does not have good air and good sunlight it does not turn out a good color, and what we want to do is to get just as much outside to the tree as possible, and have just as little of the fruit inside where it doesn't get the light and air. Then, so far as my experience goes, I think pruning is a great incentive to fruitage.

We had rather an interesting example of that a number of years ago. There were two or three rows of trees which had been set out a number of years; they were badly handled after they were set out; within a year or two of the time they were set out, before they had time to establish themselves they were very heavily budded and it gave them a set-back which it took them years to get over. They never had borne very heavily. They were fairly good sized trees for their age—rather small for their

age, but they never had borne very heavily until a number of years ago. It was about Thanksgiving time, the leaves had stayed on the trees unusually late that year, and there came a very wet, heavy, clinging snow which stuck on these leaves and bent the trees, squashed them almost down to the ground. Well, we got out the next morning and beat off the snow as well as we could, but in spite of all our efforts those trees were very seriously damaged. There were a great many big branches torn out, and the trees were torn pretty badly. The next year those trees that had been badly torn were loaded with apples, and almost every apple on those trees, a very large percentage of the apples on those trees that had been most heavily damaged were No. 1 apples; we found very few No. 2 or cider apples on the trees that had been most heavily damaged. The other trees right alongside of them where we had been more successful in knocking the snow off had a smaller number of apples on them, and the apples they did raise were not very good ones. So that we have always found it to our advantage to prune pretty heavily. I think it promotes the growth of the tree. The tree seems to have what one might almost call an instinct, when it is damaged, to try to propagate itself by fruiting heavily to make up for its expected dissolution. It is almost as if the tree said "Here has something happened to me that is going to kill me pretty soon and it is my business to preserve my species, and I will raise all the apples I can next year, and the best apples I can, in order to keep up the growth of apples." I have been told —I have never tried the experiment—that if you damage a tree, drive some nails into a tree, hurt the tree, that the tree will in the same way give extra fruit the next year.

Then we cultivate pretty heavily. I think the plow is a pretty valuable part of an orchard, the plow and the harrow. We thought it was a great scheme to have sheep and we tried sheep one year in the orchard to eat up the wormy apples. It so happened that year that we had an unusually good crop in that sheep orchard, but I don't think it was altogether due to the sheep, and I don't think the sheep have seriously diminished the number of worms in that orchard. I think that enough worms or moths have come in from the other orchards to prevent that from being of any very great value. We are going to plow up that orchard now. We think the sod has got too hard, too solid,

and we have taken out the sheep and are going to plow up that orchard. I believe the plow and harrow are very valuable helps to the orchard. I think the ground ought to be kept loose and light so that the air can get down to the roots and so that the water can get down, and above all keep the top of the ground stirred constantly by the harrow so that the water down in the lower tiers of the soil won't all evaporate. I think once or twice we have saved our crop in dry summers when there was likely to be a drought—I think we have saved our crop by harrowing the surface, breaking up the top of the ground so as to prevent the evaporation through the ground.

Now I don't know that it was intended that I should speak about packing apples, but I think perhaps the most essential thing about growing apples is the way in which they are picked and packed. And I think one reason why these Pacific Coast apples sell for such high prices—those from California and Oregon and Colorado, for instance, that we hear so much about—is that they pay more attention to picking and packing than we do. When apples are picked and wrapped up in paper and packed away in a box, a man is apt to be more careful than when he is packing his apples away in a barrel. I rather think that taking the thing by and large, with a great many notable exceptions—I rather think that the Western apples are better packed than are our Eastern apples. I think more men out West take trouble in packing their apples than there are in the East. I don't say there are not a great many men here in the East who pack apples just as well as anybody in the whole country, but I think we are afflicted with more men here in the East who don't pack their apples well. Now if I send a barrel of apples up to the market that is badly packed, that is a great injury to you. Because there are very few purchasers of apples who know anything about it, almost everybody in the big cities, for instance, thinks one barrel of apples is exactly like another. They have been accustomed to buy their coal—they can't tell the difference between one lump of coal and another, one ton of coal and another, and they think it is the same way with apples. If I send to market a barrel of apples that is badly packed, bruised or poor fruit in the inside, and handled roughly, why the person that buys that barrel of apples is not going to content himself with saying "I will never get any apples from that man

Gardiner again," but he is very likely to say "I don't want any more of these Maine apples. I will buy my apples next time from Oregon, or California, or Colorado." We try and handle our apples—this is a common-place, you see it in almost every issue of every intelligent agricultural paper, but I don't think it can be said too often—we try and handle our apples exactly as if they were eggs. And it is not only for the sake of this year's crop, but of next year's crop. When a man takes an apple between his thumb and finger and presses it hard, he is pretty apt to make a bruise; and if he yanks it off, he probably yanks off next year's branch. It ought to be lifted properly where it will come off at the hinge which the Lord has provided for that apple. At the right place, if the apple is taken in the hand so there is no pressure of the fingers, and lifted, it will come off in the proper place and it will leave next year's bud in the place where it ought to be. I think most careful orchardists have pretty nearly eliminated the off year on apples, and I think it is very largely due to care in picking. I won't say mostly, but I think it very often happens that the reason why there is an off year in apples is because so many of the next year's buds have been pulled off in picking this year's apples.

Now the matter of bruises. We had a good lesson, I think, a number of years ago. We cultivated our trees with manure, thoroughly rotted manure with some soil mixed in it. It was almost as soft as a feather bed, just as soft as anything could be. We had a number of apples blown off in a gale and they fell down on this perfectly soft bed, just as if they had fallen on a feather bed, and we picked them up and we couldn't see that they had been damaged at all, and we wanted to sell them to the gentleman in Boston who was then buying my apples. I told him about it. We put them up in separate barrels and marked them. "Well," he said, "you can send them up if you want to, but they are not worth sending." "Well," I said, "we can't see any trouble with them." "Well," he said, "you send them up and I will keep them for you." We sent them up. He kept them, I don't know how long, some weeks, but sure enough at the end of those weeks, those apples on which we could not see any bruises whatever when we first packed them, in the course of weeks those apples developed bruises all over them. Finger mark bruises will develop in just the same way. A man can

very easily take an apple and pinch it in such a way he won't see any bruise at the time, but if it is a delicate apple that bruise will show up not very long afterwards. What we try to do is to pick the apple in the hand without squeezing it, and then place it in a basket. We don't drop it in the basket but we place it down in the bottom of the basket. When we come to sort we do it in the same way, take them up by hand from the basket and put them by hand down in the bottom of the barrel, place them. And don't allow one apple to drop on another. It takes a little bit more time and it takes a good deal more trouble, but it produces a satisfactory article, and produces an apple that will keep. Even the most delicate apple, if it is handled properly in that way, will keep in a way that a much harder variety won't keep if it is treated as if it were a lump of coal and dropped into a basket, and then rolled out of the basket into a pile.

Then my experience has been that in selling apples, it is a good plan to look up the character and the intelligence of my buyer pretty well. I not only look up his financial standing—I look that up to see if he ranks well in Bradstreet's—but what I want to find out most about the man is whether he knows the difference between a good apple and a bad apple. And when I go to a new buyer I always get him to take me into his storage houses and see if he knows the difference between a No. 1 and a cider apple. I don't believe in selling apples to those fellows who don't know the difference between a well packed barrel and a poorly packed barrel. I think a man who understands good fruit and good picking and good packing is a much more satisfactory man to deal with, if you have got a good article. If you have got a good article, then he knows enough to know it is a good thing, and he will treat you better, give you better prices for that fruit than a man that doesn't know anything about it. So I like to see my buyer out in the storage house, like to look over his fruit; and I like him to be a little careful and see whether I know the difference. I like to have him put me through an examination and see what I know about apples, see if I know the difference.

Then one other thing that I want to speak about is manuring. I don't think we can put too much dressing on our orchards. If we are going to get good apples we have got to put an everlast-

ing amount of dressing on them. It sometimes happens, I know, that an orchard that has been neglected for many years will suddenly turn about and produce a crop of very handsome apples. But that is an exception; it is not the rule. If we are going to expect to get good crops year after year for a long series of years, we have got to feed the trees, and we have got to keep the ground thoroughly and heavily dressed. I don't think we can put on too much dressing.

Now I am going to be just a little bit presumptuous, and although I have admitted what is perfectly true that I don't know very much about the subject, I am going to give my own experience in contradiction to something that was said this morning about the destruction of trees this last winter. In our experience the trees that were lost were Baldwins. I think every single Baldwin tree on the place was taken out. Most of the Baldwins we had were in an orchard by themselves, but there were a few trees scattered here and there through the other orchards. So far as I know, last winter went over my orchards and if it found a Baldwin tree over in that corner it killed it, if it found another one over here in this corner it killed it, and if it found one in another place it killed that. But as a rule it did not touch my Bellflowers, which have been the trees that we have cultivated most intensely and which we have pressed the hardest. My Bellflowers for a good many years have been pressed as hard as we knew how to press them. We have cultivated, pruned heavily, manured, forced them as hard as we knew how. My Bellflowers were not damaged as a rule. The principal damage to my Bellflowers was to the trees I was speaking of a few minutes ago, the trees which were mishandled when they were first set out—it must have been thirty-five years ago now—those trees were mishandled when they were first set out and never were healthy and vigorous trees, and a good many of them were killed this last year. My experience has been that last winter was disastrous to the worst trees. My Baldwins were almost all old trees that had been hurt some years ago when there was a general injury to Baldwin trees, and they had never really recovered. We hadn't forced them as we had the Bellflowers. The Bellflowers we had, as I say, forced the best we knew how, and as a whole there was very little damage among the Bellflowers. It destroyed my crop. I got almost the

smallest crop this year that I have ever had in quantity, and I guess on the whole the worst crop in quality that I have ever had. But it didn't kill the trees that had been most forced. It may be we shall find that a good many of them are dead next year, that they have just struggled through this year without showing any great sign of injury, and we shall find a good many of them won't live out next year. But our experience has been that it pays to force the tree,—to start them right and then after they get started to force them every way we know how, by cultivating, and by manuring, and by pruning,—make the tree grow just as fast as we can make it, and give the tree if possible a short life and a merry one, and when its short life is over, dig it up and start another one in the same way.

HOME STORAGE FOR FRUITS.

By T. L. Kinney, South Hero, Vermont.

I think the apple is the main fruit grown for market in Northern New England, and it is the market subject, very largely, that we are discussing as I see by the program today. The most important subject of any that we can consider at the present time in New England, in Northern New England especially, and in fact all over our country, is the legalizing of a standard for grading, for packing and marketing our fruit. It seems to me to be of the first importance.

The next perhaps most important question is the labor subject which is staring not only the fruit growers of our country in the face but everybody that is trying to do business, the manufacturers, the farmers, the agriculturists in any line.

The next subject which calls our attention more strongly I think than any other is home storage, especially here in Northern New England, Northern Vermont, and Northern New Hampshire, and the whole I think of Maine. The dairymen of the State of Maine and the state of Vermont have long since learned the importance of having a place for their cows, a dairy barn—and it can't be too good, it must be up-to-date—the cows must be cared for and the products cared for; the horseman never stops with the pasture in breeding a horse for market, but he

procures a barn and all the equipage to train that colt and bring that colt to the position where he will bring the best price, he has his barn and all the equipage and feeds him for whatever the colt is designed to be, that he may get for it the best price. Now on the apple question, the apple business, I have noticed in our part of New England that the farmer works for and wants to get an up-to-date orchard, fine apple orchard; he works the trees and the soil and he studies all the requirements of that orchard. The trees come into bearing in fine condition perhaps and the crop is grown and he works all the season to get a good growth to his apples and a good color to his apples, and to get them in the finest condition, and then what? Sell them. Sell them, is all he thinks of, is all the commercial interests of the country think of. Let the farmer sell them no matter whether those apples are grown by him for next February market or for today. Sell them! That is what the commercial interests of the country demand and it is what they want. They want the farmer to produce the apple and let the commission man or the fruit man, the commercial man, have the profits. We of New England have got tired of this. We want the profits ourselves. Let the commercial man have his profits after we have put those apples on the market at a time when they need them, when the market demands them. For instance the Snow apple is demanded on the market in October and November, through the holidays, sometimes lasts even till Christmas; then the King and Spitzenburg, those apples are displayed on the market during the holidays, and the Rhode Island Greening and that class of apples; in January and February the market demands the Spies and later on the Baldwin and the Russets. Now what farmer wants to put the Snow on the market in February and March? There is no demand for them. They may be well preserved in good storage but nobody wants them. The market isn't calling for them. It is no time to put them onto the market. Some dealers do hold a few for special customers, but no dealer ever was known to hold a whole storage of Snows for the February market. They don't demand them. They don't want them. Then why should we New England farmers place our Northern Spies and our Baldwins, such beautiful apples, such long keeping apples—such grand apples as you have on these tables here today,—put them on the market

now? Yes, six weeks before now. How many of the orchardists over in Vermont, and I presume in this State, made their sales weeks ago! The buyers knew there was a rush in the market, they knew there would be a call, and the quicker they bought them the surer they were to get them. And we are obliged to sell because we are not prepared with home storage. We may use cold storage, the commercial storage, if it is at our hand—it can be done, it is not positively necessary for a New England farmer to build his own storage. Because when we learn that we can ship our fruit to a cold storage in the city markets and hold it there just as well as the commercial dealers can, why then that will do. But very largely New England farmers don't like to do that. There are many reasons why we should not do it. The commercial storage is expensive. They hold their temperature by ice and by chemical conditions, but up here in Maine and Vermont we have a temperature that is just as well adapted for the holding of winter apples as it was during the summer to grow this beautiful fruit. There is no temperature in the world that can grow a better apple than the temperature of New England, the northern part of it. It is just adapted to the production of fine apples that have the keeping qualities. And so it is with the holding of this fruit until the time when it shall become matured.

Now then, how shall we manage to have a fruit house,—a home storage? I don't think it is important that we build an elaborate house, an expensive house, though we may if we choose. But whatever the conditions are that surround the farmer who wants a fruit house, a storage house, let him build according to that; but let him be just as particular in preparing that fruit house so that when a cold wave comes he is not fearful of the frost getting through it, as he was in preparing the soil for the trees and caring for them when they came to bearing. A fruit house needs simply to be air-tight. You have the cold air up here in New England to force into that building by large windows on sides where the circulation is most liable to go through. We can cool off a building to a considerable degree of coldness before apple picking time comes. We commence about the first of October to pick our winter fruit. Before that there are several cold waves that come with us from the west and northwest, and our west windows are opened and those cold

waves come and the wind sweeps through for one or two or three nights. Then if the building is closed up and it is air-tight, that only stays there until the next cold wave comes, perhaps a week later; then it is opened again and re-shut, and by the time we are ready to put our fruit in there, that building is cooled through and through, and if it is a large building it won't matter even if the doors are opened during a moderately warm spell. By cooling up our house in this way we have it sufficiently cool to put our winter-keeping apples in and hold them until spring. Then when the cold days of winter come, if our building is air-tight so that the cold can't get in, there is no danger of freezing, and when the warm days come if it is so tight that the warmth can't get in, the apples will remain all right. You know we don't manufacture anything in the holding of apples by cold storage, but we are holding what has already been built, we are holding the apple till the proper time comes for the market to consume it.

Now there are many considerations in holding this fruit that we want to think of and study as we go along. Some will say: How will you put these apples into the cold storage building? Well, the Rhode Island Greening and that class of apples that are inclined to scald, should always be put in as near to a condition like this as may be. Crates, perhaps bushel crates, with board ends, with lath on the three sides, making a genuine little crate—it is a storage crate—and these crates filled with Greenings and placed one above another take but very little room. There isn't the room consumed that there is with barrels, and the air comes in contact with every apple all the time while it is in storage. Some of you may say, Well, our building is air-tight, what matter whether it is in a barrel or a crate? But with the Rhode Island Greening it does matter; and those apples should not be where there will be any inclination to heating in the middle of the barrel—not a genuine heat but just a little heating which causes them to scald. The scald is all we fear in storing the Greenings. The Northern Spy, the Baldwin, the Ben Davis and that class of apples can be just as well held in great bins that will hold a few hundred barrels, if you will, as any other way.

This fall we commenced our harvesting of the apple crop and we were short of barrels, but we didn't care very much and

when we came to the Spies, instead of using barrels which we didn't have at our command, we built bins across the building, in the lower part of the building. These bins held—three of them—held eight hundred barrels and they were tiered right up the same as if bins were built across this room, one bin and then another. We had to make them not too wide because we couldn't get the apples in without jamming. Then, as the gentleman has told about, we had to be very careful in emptying in these apples—rolling down and filling the front of the bin first.

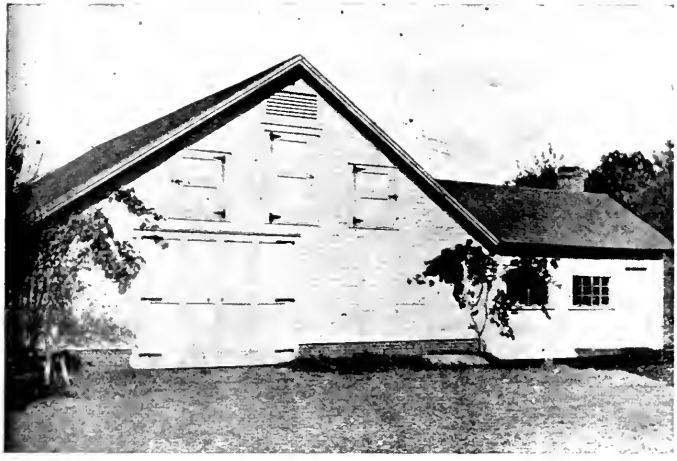
Now it seemed to me at one time when I first thought of storing this fruit, in fact we used to store in bins with partitions eighteen inches or two feet high, and then another bottom placed in the bin and then another, and so on. But it doesn't amount to anything; I don't care if it is ten feet high. You know you can fill a barrel of eggs and the egg in the lower part of the barrel is no more liable to break than on the top; the pressure of one against the other holds it. If there is no moving or giving of these sides to the bin so that there is a shaking back and forth, those apples on the bottom of the bin never will jam. Then hang a light right over the top of the bin and it makes the nicest place to grade and sort apples. In the fall all we had to do was to hustle and bustle to get help to pick the apples and get them in those bins. Now we are at leisure to come to Maine or anywhere else and let our apples rest there till the market demands them. This is a great convenience to any farmer. Some farmers may have a location especially adapted, where they can dig into the side of a bank, and in a position where they can get a circulation of cold air; otherwise you can use ice.

The matter of selling in the winter, shipping in the dead of winter comes in with the cold storage question. We think if we had a thousand or two thousand barrels of apples out here in the storehouse, we are fearful we would not be able to get them marketed without freezing, or that they would be frozen on the way or after they got there, or while we were getting them there. But we have learned that there is no more trouble in shipping apples in the dead of winter than there is in shipping butter or anything else of that nature. The apples are sorted and packed in this fruit house in the temperature which they are held there, and then they are hauled down to the station in a

sleigh perhaps, throw a canvas over your barrels so the wind won't strike the barrels very hard, and take them down to the car, load them into a refrigerator car, roll them right in, pack them up in there the same as you do in the fall or summer and tighten up your doors tight, and they won't freeze in going from here to Boston—they won't freeze in going from here to the Pacific coast, I don't believe. We never have had any trouble to amount to anything from freezing in transportation. We warm up the car with an oil stove before we put the fruit in most always, so that the inside of the car is comfortably warm, and we most always pack in with straw—and if you have the very best refrigerator cars this is not necessary; and this way we have with us, we have a car that goes to Boston and returns in our own service, in our own name, and when we have a good many apples as we have had this year to ship, we will have two or three cars a week. That keeps us constantly busy throughout the winter; saves us from getting into trouble; gives our hired help who don't need money very much but still do like to have it, plenty of work to do through the winter; and puts our apples on to the market at a date when the market demands them, when they want them.

I don't think that this is the most beneficial year for home storage that we ever have had in the way of getting high prices. It seems to me that the limit is pretty nearly reached in the prices that they are paying for apples this year. Yet it may be that we can double these prices this winter. Very often we double the prices from fall to winter.

Now I want to consider just a moment the commercial method of buying apples and handling them and putting them onto the market. A man from New York or Boston, or a firm—a millionaire firm generally, sends out agents all over the country, to the west and to the south and in New England, and they send even into Canada to look up apples and find where the locations are. And those agents appoint other agents, and those other agents hire men to pick their apples and pack them and grade them and ship them. They hire the same cars that we are hiring to ship them to some distant point to cold storage; they hold them until they wish to sell them. Now can those men manipulate that amount of management cheaper than the farmers of Maine? Can they pick those apples cheaper than you can?



Storage house of John W. Clark, North Hadley, Mass. (front view)

MAINE FARMER PRESS, AUGUSTA

Storage house of John W. Clark (rear view)

Can they grade them better than you can? Can they hold them better than you can? Now when the time comes for shipping, what do they do? When they want to take out a hundred barrels of Spies out of that cold storage, they go into the cold storage, and if they shake a little, they take one barrel, plug it a little, squeeze it down and it goes onto the train. Now a farmer up in Maine, with the kind of apples that the gentleman has spoken of, if he is dealing entirely with his own apples; he has them in his storehouse; he repacks them—or doesn't repack them, they never have been packed—he grades and packs them in February perhaps, or March, and the next week after they are packed they are being consumed in Boston or New York or some other market. There are no rotten apples down there squeezed in together to make the barrel appear tight. They are just what the market wants. And how long before—if this package is properly marked—how long before he has a reputation upon his apples in the market, whatever mark he uses?

Now take the conditions of the trade today, this year, when they want all the barrels of apples they can get, and what do they do? Are they particular, the buyers, to hold up the standard of Maine apples? I hope it is not in Maine as it is in Vermont, but I can illustrate by the actual facts in my own neighborhood. One of my neighbors sold his orchard for $600—it was a small orchard—just as it was; didn't have to touch them excepting to haul the barrels from the station and to haul the apples to the station—didn't make no difference whether No. 1s or No. 2s. Every barrel they had were No. 1s—almost all the barrels in that lot—they put in everything there was in the orchard,—windfalls, wormy apples, drops and everything. But they were faced with good apples, faced on both ends with good apples. Has it helped the reputation of that county to have such apples as that go to market? Customers know they came from the Champlain Valley, because they bring a bigger price because of the reputation of the Champlain Valley apples. Another man sold his orchard for $500 in the same way. Another sold his apples for $3 a barrel, and they did all the work and even hired the man that owned the apples to oversee the crew; and they put in everything into those barrels that

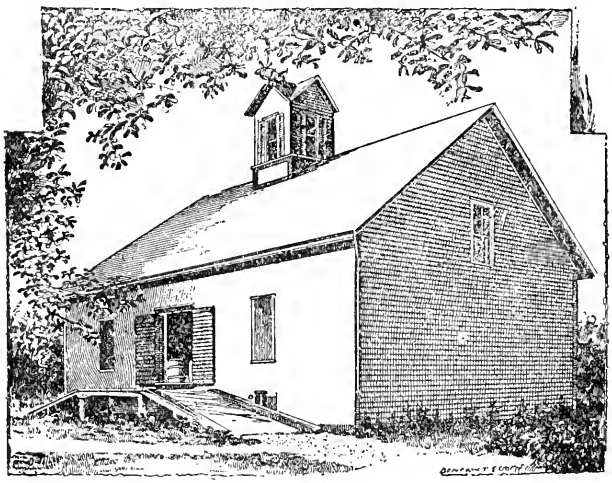
they could scrape because they wanted the number of barrels and weren't particular for quality.

Now here is the immediate point for the farmers of Maine. Protect your interests. Protect your market. Protect the quality of your fruit. Don't let that fruit displayed on these tables go to face a mess of slush for some speculator to get rich.

This neighbor I spoke of who sold his orchard for $500, said, "Yes, I made a pretty good sale, but not very good after all. Think how long I have been cultivating these trees." He has had crop after crop almost as good as that one. I said how many trees did you get these apples from? Small orchard, only part of it bearing. He said sixty trees. Less than an acre and a half of apple orchard and he got his $500 without lifting a finger. Look at the profit. But then look again and see what he is doing. He is killing the reputation of that farm and of his neighbors by sending that stuff into market as Champlain Valley apples. You farmers in Maine, it is just as important that you with this reputation you have got for your beautiful long-keeping apples, should handle that product yourselves. How can you do it? Here is the commission house. The gentleman has just told us of going to the commission house. Now those commission men all know what a good apple is. They can almost look through a barrel without taking of the cover. But tell them what you have got at home, let them know you have got an orchard up in Maine, and not you alone but fifty or twenty-five of your townsmen, and that when they want Snows you will send cars of Snows—if you can't yourself, you and your neighbors clubbing together. Co-operation is something that is hard to deal with in Maine and all New England among the farmers. It is not hard to handle in the great West but it is hard with us. I won't put my apples into a car if you are going to put yours into it, and another won't put his into a car that Kinney has anything to do with. But we have got to combine. You don't know what I get for my apples. My account is with the commission house, and he never divulges what I get or what you get. That is the way we do there. One man don't fill a car alone very often. One of us will see to the shipping. There are a dozen to fifteen home storages in our own little island, running from 2,000 down to 200 barrels in the storehouse, little houses made on purpose for storing apples, nothing else. When I get a

car ready to load, which this one or that one or the other one knows by our telephone service and in other ways that such a car or such a series of cars is going to commence shipping that day or that week, and they call up to know if they can put in ten barrels, another one twenty, another forty, and we make up a car load and in just two or three hours the car is all loaded and closed up. It gets to market; every man's apples are marked and every barrel is supposed to be marked Vermont apples—we are trying to advertise Vermont apples, not Maine or New Hampshire—and it seems to me every barrel ought to be marked that way, whether they are No. 1s or No. 2s. Each one gets his returns back and there is no trouble in this co-operation. Then think of the commission house. They want to know where these apples come from, and they want to know, if they get apples that will satisfy them this year that they will have the privilege of getting them next year. A man in Massachusetts has been sending to Hall & Cole for years; they just as much expect those apples—they are acquainted with the man—and they know just what they are doing, and he knows that they won't go back on him, because they think just as much of this side of the trade as they do of the other; they think just as much of the producer, provided he is honest and intelligent, as they do of the consumer. My case is perhaps a little different from most of you people. I have a son in the commission business, and you know if he cheats me why it is all in the family so it doesn't matter so much. But before he commenced business I had a great deal of experience with other commission houses, and I took great pains to get them to our island and to take them about our island, show them the different orchards, make them know we were in earnest in this subject of apple production and apple selling; and it was the greatest trouble for me when my son went into the commission business and I had to leave the other commission house and turn the goods over to my son, because family ties were stronger than this experience which was very satisfactory in commercial ways. He died, and now I have a son in Boston, and my goods are all going there. But you will have no trouble in selecting a commission house, providing you can satisfy their wants; it is just as simple as any other production.

Now about the building of the storehouse. How tight has it got to be? To build a fruit house, if you are going to build it of lumber, use studding as wide as you want your air-space, and it don't matter much whether two inches, one inch, or five or six. And the way mine is built is studding up and down, tight boarding outside, matched lumber, lathed and plastered inside—lath and plaster in the middle and leave an air space on the inside, and then seal up on the inside with tight boarding leaves another air space, a little paper and then sheathing completes that wall air-tight; and then paper and clapboards on the outside makes it double air-tight and there is no circulation of air; double windows and have shutters outside.



Storage House of T. L. Kinney, South Hero, Vt.

Now about the moisture, in keeping fruit in that fruit-house, it will get wonderfully moist in there. I have seen the ceiling in the upper room in that fruit house all covered, quite thick, perhaps an eighth of an inch of ice, just occasioned from the steam coming from the apples. It goes up there and freezes and gathers.

Now I don't think it is necessary to keep that atmosphere dry. I think it is better to have it moist. I think it is better to hold that moisture in. But that is a matter of ventilation which might aggravate a good deal of discussion on the ventilation of an apple storehouse. If a body of apples are wet, or very wet, I don't think it makes any difference in the keeping quality of

those apples. They don't want to be hit together wet and then become dry, they don't want to become cold and then warm. If those apples get so cold they freeze, it don't matter very much if they don't thaw out too quickly. An apple gets to be cold, very cold, freezes, and then if it goes back very gradually to very cold and to cold and don't go any further than simply cold, you never know that the apple has been frozen. So don't be afraid if your apples get touched on the outside around the walls with frost; it won't hurt them any if you don't handle them while they are frozen.

Now the next matter which comes up for a storehouse at home perhaps would be the convenience to the farmer at picking time, although this labor question is a hard one when a man has a thousand or two thousand barrels of apples to pick and no one to help him do it. And then when you get together, as I did this fall and have several falls, a lot of young men, it happened this year that the first lot of men I hired didn't one of them put in an appearance, and then when I hired another set, hired them from factories where they had been shut down a few days, those boys didn't have any more interest in the picking of those apples than they did in anything else. The question with me was, how can I get those apples secured the quickest. You know there was a terrible frost that scared us all to death pretty near—didn't seem to hurt the apples right in our locality, but it did in some parts of Vermont. How can we handle them the quickest, the safest and the best?—The best way I have found is to have a place where you can haul those apples from the tree right into their storage place. I haven't sorted or graded an apple that came from the trees—put the good, bad, all conditions, right into the bin and in the barrels. I don't like that way. I would rather partially sort those apples before they go in, but this year I couldn't do it, circumstances were such. This storehouse gives me an opportunity to handle my crop when I couldn't handle it otherwise. One man came to me who had fourteen hundred barrels of apples; he had them all graded, sorted and sold. He said: "If I had had a storehouse I could have waited two weeks longer before I picked an apple—if I had had a place to put them and then handle them later on—and I would have got more difference than the storehouse would have cost me in the value of those apples, because that is just the time that red

fruit was maturing and putting on its best color." Here in New England you want to leave your apples just as late as you can and have time enough to handle them. Now then if we have a storehouse that will help us along that line, it is worth considerable. One man who built a storehouse several years ago, Mr. Tracy, a neighbor of mine—the upper part of the building was built by a railroad construction company and they gave it to him when they got through and he built a cellar right under it—carried 800 barrels, and the first year he put his apples in there without grading or sorting, and the buyers went to buy them; no, he didn't want to sell but just as they were getting ready to go away, had closed up their deals, they offered him more than enough to have paid for the building of that storehouse, with that one crop—more than they would have paid him when they were buying apples. You see the importance of these things.

Now there is another matter which I want to call your attention to in having a storehouse. You know you think more of a good horse if you have a nice barn for him. You think more of a dairy cow, or a lot of them, or a herd, if you have nice stables, up-to-date, all sanitary, clean and nice. And so you feel about your apple orchards. Now you want to have all the interest in an apple orchard that you have in any other kind of operations that you have on your farm. If you are not interested in it, you won't be very successful; you better sell the first opportunity you get.

F. H. Morse. I have had a little experience in cold storage, and my experience corroborates every word Mr. Kinney has said in regard to the success of it. Mine is simply a dead-air space building, very cheaply constructed. We hired a carpenter for just a few days to put up the building and get the outside finish on. The inside of it we did wholly ourselves. We found that we could do it better; that is, that while we were not so used to carpentering, we were more sure of getting what we wanted doing it ourselves than we were to hire it. The building of it is simply a matter of thoroughness. The air spaces have got to be air-tight and that is all there is to it. And then this matter of convenience that Mr. Kinney has spoken of is a very great factor. As he said he did this year we have done for ten years; we have taken our apples right from the trees. Where we have to hire our work done, as I do, to depend on hired help, it is no

use to tell them to sort them as they pick them. And then very often it has been, as it was this year, nip and tuck to see which would get there first, the frost or we. And in that case you have got to do as you can and not according to theory. We have turned the old fashioned theories of picking apples upside down. When I began to raise apples twenty years ago, they said to always pick them when they were dry; don't put any leaves with them; never touch them when they are frozen. Well, we began by doing as they stated. That will do if you have got time enough. But we found that where we put them in this house a few leaves didn't do any harm. So I told the men to be careful not to pull off the stems but leave the leaves right on and put them in. Then we found we couldn't wait for them to get dry and we picked them in the wet, any time it was suitable for a man to work, whether the apples were wet or not. We picked them that way—took a little pains to set them where there would be a little draft afterwards, or in bins where a little air would draw through and dry them off; otherwise that is all we have done. When we packed them we didn't find any difference; they were just as good as when picked dry. This year we found it was a question of picking them when they were frozen or not getting them at all, and we picked them frozen. Monday morning we picked them with gloves on and put them in the barrels frozen. This was an experiment, we thought we would try both ways. We took a horse blanket which happened to be the only thing convenient, turned six or eight barrels on to that, Monday morning. They laid there until Friday noon and then we took them up and the frost wasn't all out in the middle of the pile then—so you see they were frozen pretty bad—apples all right—once in a while a little mark but nothing that harmed the apples at all. So I have no fears of picking apples when they are frozen. We put them into this storehouse, as I say, dry, frozen or any other way to get them there; and we pack them any time. Sometimes we hold them up to February or March and they have always come out in first-class condition. When the room is once cooled off there is no trouble in keeping it for weeks or even months. It is my opinion, although I have never had any experience with the cold storage in cities, that we can keep our own apples by putting them in there right from the

trees and have less waste than to ship them and have them stored in high-priced cold storage houses.

V. P. DeCoster. Have you had any experience with the apples sweating in cold storage?

Mr. Morse. No, we haven't. After they are once in there and dry they don't sweat, because the sweat, as I understand it, is being cold and then warm; the changing of the temperature is what makes them gather moisture. If the temperature is even I guess the apples will never sweat. I don't know as I am right, but that is my idea. I never have had any trouble in that way.

Question. I would like to ask the gentleman if he has any trouble with rats?

Mr. Morse. No, sir, never have seen a rat in the house; once in a while a few mice but never any rats. This storehouse is a mile and a half from my home. We can't care for it to as good advantage as if it were right at home where we could open it every cool night and shut it up every morning. But of course we get up there once in a while and leave it open through the night and shut it in the morning, but we have done it very few times.

Question. When you built it, you didn't put anything in to make it rat proof?

Mr. Morse. When you get it air-tight, it is pretty near rat proof; eight thicknesses of board and four thicknesses of paper clear round it, a rat has got to have pretty good courage if he gets in.

Question. Sill at the bottom?

Mr. Morse. Yes, sir.

C. S. Phinney. It seems to me it would be of advantage if we could know something about the cost of the storehouse.

Mr. Morse. I can't give you much of an idea as to that. The cost would be entirely different with different people according as they are situated. Of course if you were to build one now, and use lumber at a high price as it is, and hire a carpenter to do all the work, and put in eight thicknesses of board and four of paper, it would be very expensive. But I think it could be built with matched board, one thickness perhaps, just as well, or perhaps something else could be used. We built ours of cheap lumber except matched boards outside

and in; all the other is very cheap; and as we did it with our own help and at odd times, I can't tell you. Any one else could figure it up just as well what the cost would be, and a little better than I could. But since then—we are building now—we have got part of it now—a larger storage room in our barn. We had some room that we could spare without interfering seriously with our hay room. We had a silo in one part of the barn—and we took a space about forty feet from the silo to the end of the barn. We took and dug down to get six feet below the barn floor; laid up with stone and cement, and have a bulkhead in the end of it that opens outside. We have quite a room, high enough to set five barrels high, one above the other. In that way we are getting a place where we can store ten to twelve hundred barrels. When I built this first house it was built to hold 600 barrels in 1895. I didn't have an idea I should need anything else to hold my apples. But in just a few years we had outgrown that and this year we picked over 1,200; so at this rate we shall have to be looking out for another one pretty soon.

President Gilbert. Will Mr. Kinney give information in regard to cost and also inform us in regard to the holding of the temperature and securing it?

Mr. Kinney. The cost of the building of course cannot be determined until one knows what the conditions are that the person is building under. The building which we built in 1888 cost $1,500, slate roof, with 5 ft. wall, 2½ at the bottom; the cost of course would be $2,500 or more today. But any one can estimate the cost the same as they would estimate the cost of any other building to make it air-tight.

About the sweating of apples, apples will always sweat when they are moved from one condition of temperature to another, whether it is colder or warmer, but that doesn't affect the apples unless they are constantly changed.

Now just a word in regard to holding the temperature in such a room as this. If this room was filled with apples, perhaps 2,000 barrels, open, not headed, one barrel on top of the other, I don't believe they would freeze here in a cold night. The secret of this is that every apple is a holder of warmth or cold. Whatever the temperature is in the middle of one apple it will be at the outside of it too and there is from five to six hundred

apples in every barrel, and a thousand or two thousand barrels in a clump like that would have to get the whole body cold enough to freeze before they will freeze in the room, and the room will be held by that body of apples; even if it is not so very warm it will be held. If it goes down, if you leave the doors open until it gets really cold in there, so cold that apples will freeze by thermometer test, shut it up and in just a little while it will come right back to the old temperature, because every apple is a holder of a certain degree of temperature. There is nothing that will take the warm or the cold into itself like an apple, will allow the cold or warmth to go in. But it won't allow water to go in, or the juice of the apple to come out unless it is broken, and it holds it there. I think that is important for every one to remember in building a cold storage, that while a basket of apples would freeze, a whole bunch of apples would hold the temperature to such a condition that they wouldn't freeze.

Now there is another matter about picking apples. The gentleman has spoken about picking in cold or warm, or very cold. In a warm time in October sometimes, we didn't have it this year, cold and rainy and wet all the time—some years we will have two or three days—and I presume you will have more of them here—very sultry and warm. Apples, in my opinion, never should be picked at that time and put into any bulk, in a barrel, in a storehouse, or anywhere else, unless it is where they can cool off again. The man who owns an orchard wants to be careful that he don't pick in those hot, sultry days; putting a lot of apples into a bin when they are hot is like putting pork into a barrel before the animal heat is out of it, all the salt in the world don't keep it. And it is just so with apples. Get them cool, not necessarily so very cool, but get them cool before they are put in.

And about the picking of apples when they are frozen. If the picker picks without gloves—not many of them that will in these days—he will leave marks on the apples where he takes hold of the apple. If the hand is warm it will be very apt to leave a mark on that apple. If they are picked with gloves, I think the gentleman is right. But be very careful about those important points.

Question. I would like to ask about using cement in construction for a cold storage house, what the experience has been that way.

Mr. Kinney. We haven't any experience, that is, in cement buildings you mean? cement walls? But they must be good if you can hold them, keep them. I have never cemented the bottom of our storehouse because the atmospheric condition coming up from the ground we think is beneficial; perhaps it isn't. It would be very convenient if the bottom of the storehouse was all cemented in rolling the barrels and that kind of work, but we leave it in order to get surface on the ground; that we think helps us quite a good deal.

MAINE FRUIT AS IT APPEARS TO OTHERS.

By A. A. Hixon, Secretary Worcester County Horticultural Society, Worcester, Mass.

I won't trouble you many minutes. I always like to introduce myself before I begin to talk. Unfortunately I am secretary of a horticultural society—not a society that meets once a year, but a society that owns its building, has its own offices, an office that I occupy and occupy exactly the same as a lawyer or a doctor does—I go down early in the morning and I stay there until late at night. Always on deck, always ready to answer any question or questions, and as the librarian of a library always ready to see that people have the proper books that they would like to take out. And we are right in the center of a city of 145,000 inhabitants, exactly on the street where every electric car that comes in from out of town stops and deposits its passengers. We are only one floor up. We have twenty-six exhibitions a year. Every horticulturist and every agriculturist that goes through the city of Worcester and has time to stop generally comes in to see me. I have been there seventeen years in charge of that property, and its exhibitions. We have twenty-six exhibitions a year and for seventeen years I have had sole control of twenty-six exhibitions a year, and for the eleven years previous partial charge and clerk of the committee of arrangements; consequently somewhere from twenty-five to twenty-

seven years of my life I have held and handled twenty-six exhibitions a year. I hardly think there is another man in the United States that has such a reputation for exhibitions.

Now, I have been asked to say what we people outside of the State of Maine think about your fruit. Hardly any necessity to tell you anything about it. You know just as well as I do, and a little bit better. You know that the Kennebec Baldwin has had a national reputation for years and years and years as far back as the Revolutionary War. I think you had Baldwins, or you had apples on the Kennebec river that sometime later, or after the Baldwin came into existence was grafted into Baldwin apples, and the reputation of the Kennebec Baldwins is that they are the best Baldwins that are grown in the world. Now what more can I say than that? And you have a reputation for growing Northern Spies that equal the best Northern Spies, and perhaps better than ever came from the state of New York. What more can I say for that? And there are lots of other kinds of apples that come from the State of Maine that have that same reputation. You can grow a better Early William than we can in the vicinity of Boston, and you have lots of apples that originated in the State of Maine that came to Boston. I was in Boston last Saturday and I asked the question of a man whom I always go to see, who handles more of the Oregon and Washington and Colorado fruit than any other man in the city of Boston, and I said to him "How is fruit coming in?" "Well," he says, "pretty well. But," he says, "the great trouble is, and that is where the slump in the apple market comes, is that we get too much poor stuff. Come out on the sidewalk and see what we have got." And I went out there and I was surprised that there was hardly a respectable looking barrel of apples on the sidewalk. And I went the whole length up and down two or three times from one end of Boston market to the other, and for the benefit of our friend Kinney, I want to tell you a story on Vermont. He says "I received a letter from Northern Vermont a few days ago asking what we would pay for Tolman Sweets, and I wrote him if he had such Tolman Sweets as he said he had, we would give him $4 a barrel. Now," he said, "come out on the sidewalk and see what I have got." And they lie right on a plate right here on this table. He opened a barrel, and when he opened it, I said "Why, they are not full." "No,"

he said, "there hasn't been a barrel of them all come within five inches of being full." I put my hand down and took out seven apples, one of them slid back into the barrel, and I laid them on the box, and he said, "Here, you might as well have your whole handful, and I will give you the biggest apple there is on top of the barrel," and he did, and there are the seven apples on that plate there. Those are the Tolman Sweets that were sent to Boston as an extra lot of apples. He sold several barrels of those apples to a man for $1.50 a barrel without looking at them. The man sent them back to him and he was there while I was there, and he says, "You can sell those for anything you are a mind to, and you needn't pay me the difference between what I get and what I paid for them, because I would not like to have it said that I came down here and bought some apples and I sent them back and took the money you received from them." And he was offering them for a dollar a barrel.

A letter was received from the man in Vermont: "Dear Sir: There seems to be a big difference between what you told me you would pay for my apples and the check you sent me, and if you don't send me the difference between what you told me you would pay me and what you sent me there will be trouble." The gentleman in Boston says, "That is one of the things that we commission men have to deal with." There are two sides to the apple question. There are two sides to everything, and I wish that I dared tell friend Kinney who the man was, but I never give away such things.

Mr. Kinney. I don't think Maine has gotten up to that point where they can have their apples sold as many times as we Vermont people can.

Mr. Hixon. I haven't got to the Maine people yet. Yesterday some one sent me out to ride to see your beautiful city, and I want to say right here—I wish the mayor was here, I wish I could have said something to him last night after his talk—you have got a pretty city, you took me to a beautiful place out here below, one of the finest places, natural places—I am a believer in nature and not too much of the ordinary fixing up that we get—and that place of Mr. Gardiner's is a magnificent natural place, and you have got a magnificent little city here, magnificent views and scenery, and old-fashioned colonial houses, and new fashioned houses, and every one of them well kept, and your

streets well kept as such a hilly town can keep its streets—so much for your town. Now when I came back from there I felt a little chilly and my wife and I walked across the river up and down the streets, looking into your business places. A gentleman said to me last night, "Oh, ho, you think more of the business of a town than you do of the horticulture, do you?" I says, "No, sir, if you want to know the reason why I went out on the street, I will show you after supper." So I went to a store above here and said to the man "Give me a couple of quarts of those apples." He said "All right, sir." He sort of tried to apologize for the looks of the apples that he had in his store. The man was so ashamed that he said "As long as you are a delegate to this convention I won't charge you anything," and I says "I am going to give you ten cents." And I gave him ten cents for them. Along the other side I saw some pears as bad as those if not worse, and I had a good mind to buy some of those and bring them here today.

Now I am not saying these things to find fault or to be smart or anything of the kind. I simply want to show you that there is an everlasting lot of poor stuff that gets into the market, and it is the poor stuff that drives your good stuff out of the market. Now why do you suppose such apples as those Jonathan over there sell in Worcester, Boston and New York and every other large place? Suppose any one of you was going to have a little party, one of your children was going to have a party and you wanted a dozen bananas, a dozen oranges and a dozen apples to put on the table. You can get your bananas and your oranges and you can trust to your marketman to bring them up, but what will he bring you for apples? Now isn't that too bad to say, when we are in the best apple section in the world, the New England States? I want you to understand that I am in favor of fruit growing in Massachusetts, Vermont, New Hampshire and Maine, and if I was a young man today I would put every single cent of money I could into fruit growing. Last night I heard an old gentleman say here if he wasn't in the fruit business he wouldn't go into it, because it was the poorest part of agriculture. The old gentleman didn't know what he was talking about. Now if a man goes into the boot and shoe business or into the lumber business he puts some thought into the matter; he puts capital into it. He isn't a bit disconcerted if some-

body in New York doesn't pay a bill of two or three thousand dollars; he keeps right on with the shoe business, doesn't he? keeps on doing business—he puts every dollar that he can get into his business. What does the farmer do, or the fruit-grower? He buys a few trees and then he won't put another cent into it if he possibly can help it. Now if a man is going into the fruit business and set out acres and acres of trees, he wants to go into it understandingly; he wants to make up his mind that he is going to spray and dig and harrow and pack—and he has got to have the proper place to put that fruit. He mustn't go to work and raise a thousand barrels of apples and then when he gets ready to pick them have no place to put them. That is not business, not a bit of it; that is only one part of the business. He must have his cold storage plant and he must be in shape to take care of that fruit, and be in shape so as to go into the market, and put the fruit into the market when people want it, and not put it into the market when he picks it or have it spoil on his hands. That is not business, not a bit of it.

And let me tell you another thing. Here is another man got a boy or girl, three, four, five, six, seven years old up to ten, fifteen; he puts $25 in the bank for that child, so as to have a capital for it when it gets old enough to go to school, college, or somewhere else, or go into business. Why not take a five acre lot, the best you have got on the farm, and set it out to trees and let the young man or the woman have the trees, show them how to take care of them? Don't you think in ten years from now it would produce money enough, well, to put the child into school and perhaps carry them through school? I think it would. I think if the stories you told here last night about the two or three thousand dollars that you received from apples from a certain number of trees—I think if you had five or ten acres in Northern Spies or Baldwins or in some other variety, that you would have a real good bank account for that boy or girl. And that wouldn't be all, you would be teaching the boy and girl the very business that you ought to teach them to follow in your footsteps. If you expect the horticulture of this country to live, you have got to have somebody to follow after we old fellows are dead and buried. Let me tell you an incident. Attending a meeting like this, some one unfortunately sprung an educational sort of a question on the meeting and they got

to talking education, and they got to sort of throwing mud at their State College. It wasn't a pretty thing to do, and the President was smart enough to call them to order and asked me to take the floor, which belonged to me. And I said I very seldom dabbled in educational problems because I had a theory of my own, and it didn't work with other people's theories real well and so I very seldom had anything to say about it, but, I says, I want to ask you one or two questions right here. How many of you men have got boys in that agricultural college? Not a single one of them. How many of you women will be proud to see your daughter marry an agriculturist? Not a single person in the audience said yes to it. How under the sun do you expect an agricultural college to survive with such treatment as that? And why in thunder did those people find fault with that agricultural college when they didn't have one single interest in it? If there are any of you people like that in the State of Maine, keep it to yourself; don't say anything about it. Don't find any fault with your college if it isn't doing as you would like to have it do, if you haven't got a representative there. I was glad to find that you had a young lady there from our state, proved to be a relative of my wife and she didn't find it out till this morning, and it was kind of funny that she should drift from our state into the State of Maine to help you people out. She is connected with the insect department and I presume a good many of you know her.

Now two or three years ago a young man came in and he said, "Bro. Hixon, I want my boy to go to college for a short term in horticulture, and I have tried and I can't do anything up here with Amherst, I can't do anything at Rhode Island, I can't do anything in Connecticut, not as I would like to do, nor New Hampshire, and the only place left for me is the State of Maine, and he wrote down to Orono. And he came down here and went through the course in good shape, came back and went to work for a greenhouse man near by and is doing first rate. That all speaks a good word for your college over here. And I am sorry to say that until the agricultural colleges meet the farmers' boys half way and take off some of the educational restrictions, that they are not going to make as many farmers as they ought to make. I don't think a boy ought to graduate from the high school before he can start out to study and to

learn agriculture. There ought to be some way for him to get into that agricultural college without being obliged to go through college. When he gets through college he has got an idea in his head that he won't work for his living, and then he tries to see how near he can come to that and generally he fetches up on an electric car as a motor man.

Now about cold storage, I want to say this one thing. Cold storage from a professional standpoint is not always correct. They do carry it to such an extent that they fairly kill the life of the fruit and when it comes out it is no good. They get it just the least little bit too cold. But home storage, I never saw that trouble at all. Now I speak because I know. I have tried and taken home bushels and bushels of apples that have been through cold storage and they were just about as good as an old wooden ball—they were not good for anything. So if you ever try cold storage don't get it so far down that you kill the life of the fruit entirely. Give it an opportunity to sort of ripen up after you take it out of cold storage. Cold storage for fruit that is exactly in condition today is all right, as cold as you like to keep it, and you will have to use it immediately upon taking it out of cold storage. But fruit that you are keeping to sell and has got to be exposed in the market must not be in that condition when it is put in and it must not go so low down in the degrees of cold.

Something was said about varieties in my hearing yesterday. I am sorry to see you people going down in quality of fruit. Don't put in the Ben Davis even if the market will pay you for them. There is going to be a time that people will demand something better than Ben Davis or the Stark or such apples as that. You people have got a good reputation for Northern Spies, and stick to your Northern Spies. You can't do much better than Baldwin, provided it is hardy with you. You people must determine that for yourselves. I can't come from Massachusetts and give you any advice whatever in regard to the hardiness of your varieties. That you will have to test for yourselves. But because Friend Jones over here can't grow it, don't you think that you can't grow it. It doesn't take more than two or three hundred feet remove from one spot to another to get from a bad location to a good location. And when you

ask me what kinds you should grow, why take the kinds for the present that you can sell in the market, but all the time be trying to produce something that is a great deal better. Quality will pay in the end if it doesn't just at present.

Now in regard to varieties of fruit in the setting out of an orchard. I want to tell you something that I am very much interested in and something that is interesting lots of other people, and that is this. You want to know the reason why there is so much difference in the Baldwins, why there is so much difference in different kinds of apples. The original Baldwin originated in Essex county between Newburyport and Boston, and everything of the Baldwin kind came from that original tree. As nurseries developed in the Western States, the Baldwin was carried west and further west, and by and by you people in the states of Maine and Massachusetts and New Hampshire want Baldwin apples and you send out there and buy them, and they come back here a little different kind of Baldwin from the original Baldwin. Why? Because they have become acclimated out there. Let me say to you that the Roxbury Russet taken the other side of the Mississippi river will grow very large and will be a fine apple. Suppose some of you should be struck on that apple and should send out there for scions—do you think you are going to have the original Roxbury Russet? Not by a good deal. That is just the trouble with your Baldwin apples and every other kind of apples; you shift the location, and you bring them back, and you have got something else. Now I went down to Rhode Island to talk the fruit question one night. As I was talking along, using a man's orchard for an illustration of three different kinds of planting,—one before he was born, and another lot that he had set out thirty years before, and only set them twenty feet apart and they were so close together that a spear of grass wouldn't grow under them—he never was troubled with grass or weeds growing under those trees—then a new orchard that had been set out about seven years that was bearing about three barrels of apples to a tree,—and he stopped me right in the meeting and said "Friend Hixon,"—he is a Quaker—"It is all right for thee to talk the way thee is talking, but I would give more for the Baldwins and the Rhode Island Greenings on those old trees that I know to be eighty-five years old than I would all of these new trees I have got in these lower

orchards." I was glad to hear him say it because the old trees were grafted from the original trees in Massachusetts and the young trees came from the west. And we older people here never have seen a Rhode Island Greening as good as the old Rhode Island Greenings that we used to have on the old trees. Now if you know trees that are bearing the right kind of fruit—if you know the Gravenstein, if you know the McIntosh Red, the Wealthy or any others that are growing on trees that stay on as long as they ought to and you have an opportunity to pick them instead of picking them off the ground, you buy any kind of trees from an orchard that has got good roots, and let them grow one year, and then graft from these trees that you know to be satisfactory, that you know to be hardy, that produce the fruit that you would like to produce, and you will be all right. I have had that thing happen in the state of New Hampshire, clear way up to the foot of the mountains. and I have letters at home thanking me for the scions that I sent them, and stating that they had taken premiums at the state fair from trees that they had grafted from the scions that I sent them on the little seedlings that they picked up around on their farms, where the trees that they bought from the west had not produced an apple yet. Now conditions govern everything. Don't you think for a minute that the trees that they grafted in the state of New Hampshire produced fruit any quicker comparatively than the trees they bought in the west, because the seedling trees instead of being a year or two old, may have been five or six or seven or eight years old, you see. I always like for every single identical thing that I possibly can, when I am doing anything of this kind, to see that I am strictly correct. As A. A. Hixon I wouldn't care, but as secretary of the Worcester Horticultural Society, I am mighty careful that what I say will hold water. I pride myself that every single bit of information that I give has been thoroughly studied from one end to the other. And if you all would do that thing and not jump at conclusions you would be a great deal better off.

Now just a word, because there are so many ladies present—there are other things besides apples. I don't know what you can grow here but when I was a boy and lived in Bangor, I know they had peaches and plums and grapes and currants and other

things, and if your men folks are so bound up and so taken up that they can't grow anything but apples, and you love the other kinds of fruits, see that you and the boy and the girl have a piece of land near the house and that the men folks plow it up and put it in good shape for you, and that you have everything in the fruit line that you can grow in the State of Maine, and not only that, but encourage the children in fruit growing. Keep them out of doors. Give them an opportunity to learn what there is to be learned. Now is that advisable? And I speak because my heart is in that question, and those of you who know me know that the children do pretty near as I ask them to do. We have two exhibitions a year that we appropriate $50 each for, and Horticultural Hall is not big enough to take care of the exhibits of those children. I have been to Boston, the Massachusetts Society's exhibition, I have taken in every town and city that has requested me to take in their exhibitions, and to judge and to advise and talk to the children, and I do lots and lots of that kind of work. And I am going to say in conclusion that I have two grandsons, one three and a half years old and one five, that had a garden this year, and a garden last year, and this year the five year and a half boy took the second prize in Boston for the best collection of vegetables grown by a child under sixteen years of age, and his grandfather bossed the job so that he knows that it is as honest as anything can be in this world, and that the children did their own work excepting the plowing of the ground. I used to go out with them and sit down and see them do the work. When the little fellow was four years and a half old he says to me, "Grandpa, I want some of that nasty, stinking stuff that papa uses in his garden." And I said, "Well, young man, go and get your tin pail—a pail that would hold four quarts perhaps—and go down to the barn and get it." And he went down and got it. "Now," he says, "how will I use that." "Well," I says, "you have seen your grandmother and your mother make bread, and scatter flour on the board. Now you scatter that nasty, stinking stuff in that row just as you have seen your mother scatter the flour when she makes bread." He went and did it. I says "Do it over again, because you haven't got enough; rake it back and forth." After he shelled his corn, he said "What will I do?" I put my foot there, and then there, and so on,

and I says you put a few seed there and there and there. And when he got his corn planted, then I had him plant his beans and potatoes and tomatoes—no, not his cucumbers, but summer squash. And then he says to me "Ain't I going to have any cucumbers?" and I said "Why, yes, only I haven't any seed at home. When I come home I will bring you some." He kept track of it and when the proper time came that year at our own exhibition the little fellow got the first prize on butter beans and the second prize on green, and there were seventeen entries on the butter beans and eighteen entries on the green pod snap beans. He went out and got those beans and washed them and rinsed them and put them on towels to dry them and put them into a box, and when he got down to the hall and when he went to Boston, both years, he wouldn't allow a single person to help him. One old lady down to Boston, says "You dear little fellow, let me help you arrange your things." And he says "This is my exhibition, it ain't yours." That settled it. And the pictures of these children have been in almost every paper in the United States, in the Boston, Springfield, New York, Chicago and the Western papers, and I answered a postal card only a day or two ago for the little fellow from an ex-rebel soldier from the State of Washington, asking him how under the sun he managed to grow tomatoes.

One little story more about my grandson. The 10th of October our Society has an exhibition similar to this. It only lasts one day. At noon time we have dinner. Our old president, now deceased, was always partial to being hospitable and having a dinner to which he could invite his friends and have a little speaking after dinner. It would be very much such an affair probably as you are going to have tonight. At breakfast time I said to the little fellow, "Now Stanley, if you are a good boy you can come down with your mother and have dinner with grandpa at the hall today." He says "All right." A little while after I had gone away he said to his mother "I am going over in the garden and get some things to exhibit." Now it was too late to get anything. There was some little bits of beets that weren't larger than a quarter of a dollar, perhaps not as large as that. He pulled up a few of them. They were not worth pulling up. And he found a cucumber turned yellow, and he found some beans that the wet hadn't entirely spoiled.

He took them over to the house and told the other boys, the little fellows from one of the neigboring houses, that "you mustn't cut the beet tops off close because if you do they will bleed and all the sweet will come out of them." You see he had heard somebody say that. He fixed them up and put them in a box and brought them down town, and he says "Grandpa, here is my exhibit." And his mother said, "Don't bother grandpa with that." Why, I wouldn't have had that child set on for $50, because it isn't the proper way to do. If he shows any disposition to do anything, encourage him. And I allowed him to put them on a plate, and about that time dinner was announced so I had to go in. When we came down the little fellow noticed that his plate was still in the library on my table, and he said "Ain't I going to have that taken into the hall?" I says "Sure." He and I carried it in and he got a fifty cent gratuity on it. That is the proper way to use children and encourage them.

THE GRANGE CO-OPERATIVE COMPANY.

By W. T. Guptill, Topsham.

Now I prepared an article to read to you as I supposed the dignity of the Society would demand, but it would be much easier for me if you would lay your dignity aside and dip into me with pertinent questions or any other questions regarding our company, which is a co-operative company of the grange, and let me answer those questions as they come, and you would find in that way exactly what I know about it. What I have written is in regard to the need of a co-operative movement; it is the argument that brought us down in Sagadahoc county to study the question as you would a problem in mathematics. We had first a committee in Sagadahoc county, and afterwards a committee composed of the Pomona Granges, for two years. At the present time the company is a living reality—I mean to say its stock is subscribed for and at the present time we are exactly in the situation that the United States was after a treaty of peace was signed with England, before the constitution was adopted. We are not in a shape to do business at the present

time, because it is a temporary organization. It was formed with the intention and the purpose of being temporary. Our next annual meeting comes during the State Grange. We apprehend that the Granges are going to take hold of it. We want them to. It is open to every one at the present time to take hold, whether they belong to the Grange or not, but as long as the Grange was behind it we propose to submit it to them whether they will admit people who are not grangers or not. Now, if you will pardon me, I will read what I have prepared, and then you can take hold and ask me all sorts of questions; I don't care even if you consider them impertinent, I will be very much obliged for them and I will answer them civilly as I can and thank you for it.

When we begin to talk about co-operation it shows in itself that we are dissatisfied with the present methods of collection and distribution of the necessities of life, and that we are turning first to one thing and then another to get, if we can, a legal right to the dollars that we believe morally belong to us. All of us agree that we want nothing which is not ours by right, and what is ours by right we *will* have if any one can show us the way to get it without the use of force. Co-operation therefore resolves itself into a question of economics and enters the field of political economy, which works out beautifully in theory, but in practice trade is controlled fully as much by the habit of doing business in a certain place with a certain man in whom we have confidence, as by the extra dollars we receive. Of course trusts, which are comparatively a new element in political economy, eliminate all phases of trade except the dollar problem. The friendship of the buyer and seller and also all confidence which unrestricted trade demands are gone; you take the goods and pay your money, you can get them nowhere else. Now in all fairness I want to say what a heaven this must be to the man who has got absolute control of the source of supply. If we could control the entire output of apples in this country, or as nearly control it as the Standard Oil Company does the oil supply, why I would call off several old scores which I have been trying to pay for years. The fact is, no family uses one half as many dollars worth of oil in a year as they do of the various kinds of fruit, yet the Standard Oil Company has made

fortunes of immense size for dozens of men, and oil was not a commercial article more than forty or forty-five years ago.

But farmers produce something besides fruit, and there certainly ought to be a dollar somewhere for the producer or the vendor of all these staples. The Standard Oil Company can pay a fine of $29,000,000, the assessed amount of all the wild lands of Maine, and Rockefeller owns up that he is worth $300,000,000 made within one generation on one staple. Is it possible that in staples as little used as oil the foundations of such fortunes as this are laid? We can scarcely believe our ears. But if it is true, what ought to come out of the proper handling of the big staples like corn or wheat or potatoes or fruit?

You probably will ask if it is our intention to control the supply of food products, and in reply I am obliged to ask if there would be anything illegal about doing such a thing. For twenty-five years every conceivable kind of a combination has flourished and the only obstacles they have encountered have been here and there a pious exclamation from some good man. No legal obstacles have been raised. And the man who opens his eyes now upon present business transactions after his sleep of twenty years in the Catskills will be more disturbed and undone than was poor old Rip by the events of the Revolution.

Let us not make the mistake of apologizing for what has survived the destructive criticism of a quarter century. It has been pruned back and pruned back until the root and top are in the healthiest condition, and we may as well face the fact that the business problems of the future are the problems of controlling the supply.

We have organized this company however not on the gigantic scale. Until recent days the king of every farm was going to be the king pin of the whole country, and there is too much of this spirit yet to be absolutely certain that farmers will get down and pull together. So we have begun small and humble. We want —we are bound to win the farmers' confidence, to have him come to us for advice as to what to do with his stuff, and we are bound to give it.

We are bound to have sufficient capital to carry through any trade without loss to the man who sells to us or intrusts us with his wares. We hope with time thus to build up a confidence

and thereby enable us to form a larger and more powerful company.

Now it is almost impossible for a board of directors as a whole to take up the general line of products in the State of Maine, hay, fuel, butter, apples, potatoes, etc., and carry it through; consequently we have hit upon the scheme of appointing three men for directors, who will be virtually elected by the men who are interested in apples, to look after the apple interest, to be responsible for it; three directors who will be elected and probably recommended by the potato growers to look after that interest and be responsible for it; and three for general products; and the nine directors as a whole, as a body, will be the advisers of the president, the electors of the general manager, the overseers of the treasurer, and the general corporation, except at the annual meeting.

Now this company has incorporated itself for fifty thousand dollars, a small sum to do a large business with. It is enough. You understand this is an experiment—and it is not an experiment entirely either, but it is an experiment that everybody is trying. I see by the papers that even the milk producers around Boston are tackling the same proposition and tackling it in exactly the same way, only they don't intend to cover the same general field that we do. Of course we are not in the milk producing business. This is a general company, where a man can send a bushel of apples or a bushel of potatoes, and have it understood that it is in the hands of his friends, that it is going to a party that is absolutely reliable, that he will get fair usage. We have got to begin to do business somewhere. You understand we could not open an office in Portland unless we did it by a system of drumming as the commercial houses do and go out and buy a car load of apples or potatoes, and so on and so forth. And Aroostook county is very much alive to this proposition, and is up against propositions that we don't meet here, because buyers of potatoes down there are in league and won't pay only so much for potatoes anyhow, and they have notified the wholesale houses in Boston that if they receive potatoes from anybody except the shipping houses that the shipping houses will blacklist them and that they won't ship to them. Now such a case as that, you see we have got to have immense transactions

and we have got to have a perfect system. The system is worked out practically. Now I can't give the details to you, because it is too long and I must be brief. However I want you to get some idea and if you will kind of follow the thing along we will try to elucidate it to you in private or in public or any way. We have got to start, as I say, doing business in some particular place. For instance, if you buy potatoes, you have got to have a potato house. That means a responsibility. Now potato men are the men who really are in this, who happen to be sent by the Pomona Granges of the State to form the organization. We however don't propose to turn this over entirely into a potato corporation, because we see the apple men are meeting the same proposition and the same problems that we meet. Consequently I came up here very readily—although I find it is a good deal of a cross to me and if I live through this I don't think I will ever get in another such a scrape—to say to you that we would like to have you take hold of this proposition and handle it from your standpoint, that is, the apple side of it. I don't know anything about that. Of course I raise fifty or sixty bushels of apples and they don't turn me, well, twenty-five cents I suppose would be a good price for what my apples turn me. Sometimes I sell a few bushels, sometimes give them to my hogs. That is about the way my apple crop goes. If there was a company I could send them to and knew I would get fair usage, why I would do it at once and take what I got and put it in my pocket and call it a present. But as I say, we were potato growers, most of us up in Aroostook county—this man, that man and the other man, when we got together we found we were potato growers instead of apple growers. We decided that in order to start business, and we don't expect a great deal of capital at first, perhaps not more than a thousand or two dollars, that it was necessary for us to start doing business in some place where we could do a business that would pay these men that were engaged in that business the same as if it were a private corporation, that is, as though it were not intended to be a general corporation. Consequently we are going to try to begin to do business up in Aroostook county, and the president of the company at the present time—it is only a temporary organization and there is no probability that he will be re-elected—is

Columbus Hayford. The directors are composed of the directors sent by the different Pomonas at our meeting in Augusta in September. We hope by State Grange time to have the thing thoroughly digested so that we can ask certain men to act in this capacity and that they will be efficient and satisfactory men.

Now when we get it so that it will work in one town in Aroostook county, we will make it so that it will work in any other. What will work in one place will work in another. After we have solved the problem of the unit we have solved the problem of the whole. Some people say to me that are interested in this, that have listened to it and followed it along, "Well, what is the first thing you are going to do?" Well, I know definitely what is the first thing we are going to do if you leave it to me. Of course there are other people to be considered, but if you were to leave it to me, I know definitely what I would do, just the same as though I were a young man and had studied law and was going out to practice law. What is the first thing you would do in such a case as that? Why, I would go and hang out my shingle and engage a room. That is the first thing I would do. The next thing I would do, I would join the Masons and the Odd Fellows and the Knights of Pythias, and I would go round and I would try and convey the impression that I was decent and respectable, and I would go to some business man and say "If you have got some case that don't amount to much, that your regular attorney can't attend to, I would be much obliged to you if you should turn it over to me," and the old fellow would look me over and say probably it will help the fellow out some and I will do it, and he would give me some little collecting to do; and I would try and be efficient and win his confidence, and in that case perhaps he would turn another over to me and before I knew it I would get money enough to pay my board. Now that is an essential thing. After I had done that I would work along and by and by before I knew it the old gentleman would be coming up to my office sometime when his regular attorney would be out of town, and he would have some important case on hand, and he would say "Can you handle this?" I would tell him I could, and if I couldn't handle it myself I would go and get somebody to inform me. That is what I would do if I were studying law. What would you do

if you was going into this business? Wouldn't you start out and build up a business of taking in and putting out products? It is the confidence we are after. We haven't any historic past. We have had a couple of years just simply a meeting of a lot of men from all over the State for an hour or two at a time to discuss a problem which it needs days and months and years to study out. As I suggested when I began—I would be very much obliged to you if you would fire questions at me, and I don't care how impertinent they are, nor how much to the point they are, if you want to know anything about this company that I have not said, or what we intend to do, or how we are trying to work, or anything of the sort, and I will try and answer your questions and show you whether we have studied it out or whether we are making a bluff at it.

Question. Do you sell stock, and what is the price, and how much does a man have to buy, to get in?

Mr. Guptill. I am much obliged to you. I ought to have told that. The price of the stock is $10 a share, and so as to have it go around we will limit it perhaps to fifty shares—that would allow a man to have $500 invested in the company; perhaps he wouldn't want only ten. But if he subscribes for $10 it makes him a voting member of stock, and if he has $20 it makes him a double voting member, and if he has thirty he has three votes, and $100 he has ten votes. Of course such things are determined by law. The shares are $10 apiece. I want to say just, a word further. If there is anybody that wants to invest, the certificates of stock are not yet issued but Mr. A. E. Rogers is the secretary of the company and if you will give him $10 he will give you a receipt for it, which is exchangeable at the time the certificates of stock are issued for a certificate of stock. As soon as you pay your $10 you will be eligible to vote and will be a member of the society at the State Grange.

W. D. Hurd, Dean of College of Agriculture, University of Maine.

It is perhaps fitting that your State College, the University of Maine, and especially the College of Agriculture, a part of that institution, should be represented at this time. The president and secretary of the Association last night told you of the great

progress that had been made in horticultural lines, and I think if you were to look over the factors that have contributed to that great progress, you would find that progress was due largely to the State Colleges, the Experiment Stations, the Farmers' Institutes, the United States Department of Agriculture, the State Departments of Agriculture throughout the United States and the agricultural press. I only wish that Dr. Fellows, the distinguished president of the University, was here to bring you greetings from that institution. But I will say that I bring you the greetings of the institution and with it a number of students that I am sure will be a surprise to most of you. There will be in the catalogue that is now in the hands of the printer 788 students this year in that institution. And what is more, I would like to say before you representative men and women that 90 of those students are catalogued in the College of Agriculture, a somewhat larger number than was there a few years ago. I don't know whether Mr. Hixon is here or not, but if he is I would like to say to him, and I would like to say to all of you that we who are laboring along agricultural educational lines are glad to have men from other states come to recognize our work as Mr. Hixon did yesterday, and if Mr. Hixon had asked for a show of hands in this audience as to whether there were men who had sons in that institution studying agriculture, he would have seen more than one hand raised. If he had asked of the ladies if there were any here who had daughters, he would have seen at least one hand raised, for I know the mother of one young lady who is taking agriculture was here yesterday. I think that is a good indication.

I don't know that I could do anything better in speaking for the College of Agriculture of the University of Maine, than to tell you very briefly what we are doing or trying to do at the present time to directly help the farmer. The main idea in our agricultural education used to be to teach courses of different lengths in the colleges. That idea has changed somewhat. President Gibbs of the New Hampshire Agricultural College last spring in a conference in progress in Boston, said that the greatest problem of the agricultural college today was how to help the farmers. Now we at the University of Maine recognize the duty we owe to the farmers of the State as well as to the

students who come there for instruction, and I will briefly mention some of the things that we are now doing to help the farmers of the State. I will not say anything of the Experiment Station. Dr. Woods has already mentioned that work, and you all know of the worth of it. I am simply speaking for the College of Agriculture now. We have, of course, our four year course in agriculture, in which we are teaching scientific agriculture. There never was a time when there was the call there is today for trained men in these lines, and I would not agree with Mr. Hixon in the four years' course that we meet the boys half way, but we must keep that course up to the standard in the medical courses, law, and all other professions. Now I would agree with Mr. Hixon that we should meet the boy half way in other courses; and to meet the boy half way, the boy who is not fitted for a college education, or university education and a graded four years' course, we have a two years' course to which any boy can come who has had even a common school education and we will give him a good practical education that will make a better farmer out of him. So much for what we are giving at the University.

Now our extension work, carrying the work all over the State. We have recently established a department just for the benefit of farmers, beginning January 7th next, which covers the general lines of fruit growing and general farm products, and dairying and animal breeding and feeding. Following that course we shall have our second annual farmers' week. The first one was held last March and we were much gratified to know that 116 men and women representing fourteen counties in the State, came at that time. They asked us to give another one next March, and the 7th of next March we will have another farmers' week, and we hope the number will be trebled, or four or five times as large. We are making preparations to keep every one who comes if we have to go to Bangor for accommodations. Besides that there is a poultry course. In the extension work last summer we tried another experiment. We offered to send men who carry apparatus with them all over this State, right to the farmers, to give demonstrations. The fertilizer question, the question of testing milk, the question of pruning and grafting, the question of spraying, are important enough so that they

ought to be taught all over the State, and we sent men with pieces of apparatus to sixty different localities in this State last summer, and held sixty of these meetings. They have proven very helpful. They have proven valuable and we are going to develop this work further. We are going to put our whole force into this work next summer. You can reach the farmers better on their own land than anywhere else.

Now beside that I shall have to mention some other things. At the present time we are sending lecturers all over the State, simply asking that their travelling expenses be paid. We have to have that. We couldn't keep five or six men travelling all over the State with our present funds, and we think our lectures and talks are certainly worth the expenses of the lecturers.

And for those who can't come to the University at all, even for the one week, we are giving correspondence courses. We have over 100 now taking this work by correspondence, absolutely free, don't even charge you for postage. All you have to do is to send in your name and we will send you a circular describing this course. How far this work is going to be a success depends largely on the farmers. We believe it is the duty of the State University to help the farmer; we are willing to do it and, as I say, the success of it depends largely on how much the farmers of the State want it. I am sure the trustees and the president of the institution, if necessary, will hire any number of men to carry on this work through the State as it develops. So I hope you will all come for this extension work and ask for more of it than you have had in the past. I thank you.

THE SIZE OF THE APPLE PACKAGE—THE BARREL.

F. H. MORSE, Waterford.

I realize that at this time my subject is rather a dry one to bring up after having so many subjects and so many good speakers.

Perhaps some of you who attended two years ago remember my speaking of the difference in size I found in measuring different barrels. I afterward received two letters from Mr. F. D. Cummings, the apple buyer of Portland, to whom I had sold our apples for two or three years, and who had been at our house. He wrote to me, saying that he wished I would use my influence with the State Pomological Society to induce the legislature to pass a law placing a standard size upon the apple barrel; that there was nothing in his opinion that would so help the sale of our apples in foreign markets as to have a standard, uniform size of barrels.

Before I go into the barrel question any further, here is a letter which he wrote to Mr. Knowlton in answer to his writing to him and asking him up here at this meeting:—

Inclosed find a short paper on the question of apple barrels. The matter is of great importance to the whole State and I trust will receive the attention which it deserves.

Yours truly,

F. D. CUMMINGS.

I regret exceedingly my inability to be present with you and to render what assistance I could in the discussion of a question of importance to one of the industries of the State.

The apple industry of Maine is a very important industry, and is capable of vast increase in importance and profit over what it is at the present time.

In no place in the world can better Baldwin apples be grown, with proper fertilization, spraying, pruning and care, than can be grown among our New England hills.

Did the subject for discussion permit, I should be pleased to say more in this line of thought, but we are invited to discuss, not apples, but barrels.

MAINE FARMER PRESS, AUGUSTA

Specimen tree from nine-year-old orchard of
Horace M. Paine of Jay

Have been closely connected with the apple business in this State, both as a buyer and exporter, for more than 20 years, I am able to speak from a good amount of practical experience.

Take any product you please and tell me if the package which contains it has not a great deal to do with your being attracted or repelled in the consideration of its purchase.

If the package is old, or broken, or dirty, you want one that is not old or broken or dirty. If they vary in size, you want to be sure as to which size you are to get.

There are three qualities which an apple barrel should possess: namely, neatness, strength and uniformity.

If you consider my experience and judgment of any value, I ask you to consider that these three things are essentials. That the statement is not merely an academic or theoretical notion, but hard, stubborn fact, that means dollars as well as pride and satisfaction.

New England is the only place where apples are packed in old flour barrels.

Maine seems to be the only State where the barrel maker has made anything he pleased for an apple barrel. Made it of any size and out of any sort of material. Hooped it with ash, with elm, with gray birch, or with hay wire, and called it an "apple barrel." Happily the worst of this has passed away; but there is still room for improvement. Some Maine barrel makers are making very good barrels. Others are not.

What competition does Maine have to meet in the disposition of her apples?

She has to meet the competition of the world! What, then, are the essentials from a practical business point of view, that we may be able to meet that competition with success?

The fruit must be of as good quality, must be as well handled, and must be put upon the market in as attractive form.

Situated at the seaboard Maine naturally seeks a foreign market for her apples. In that market Canada is our great competitor. Canada does not, and can not, grow better Baldwin apples than can be grown in Maine. Her fruit sells higher than our own in British markets. Why is it?

There are two reasons. The first is that peculiar quality of the British mind which causes it to pay more for anything grown

or produced under the British flag, and the second reason is because our barrels are not equal to the Canadian barrel.

The latter objection we can easily overcome if we will wake up and get out of the rut, and by using the same sort of a package and shipping fruit of equal reliability, we can do much to overcome the former reason.

What are the steps to be taken to bring about the use of a suitable and uniform barrel for apples in this State?

First, a law to fix the dimensions of an apple barrel. It is just as righteous, just as proper, and just as fair, to fix the size of an apple barrel as it is to fix the size of a quart of milk or a gallon of molasses. Just as proper as it is to fix the size of any measure, whether it be a quart, a peck, a bushel or a barrel.

Then must the Maine Pomological Society, with the co-operation of the Grange, regulate the material to be used.

There must be no more rough-sawed and unplaned staves, no more soft wood heads.

The barrel makers will gladly conform to any such regulations which their patrons may adopt and require. Co-operation will soon make it possible to establish mills for cutting staves and making hoops, or placing large orders for such material with those in a position to furnish what is required.

Co-operation in production or purchase, means economy as well as uniformity.

A barrel maker, guaranteed the sale of 15,000 barrels at a given price, can make the price lower than he otherwise could, as he can arrange for material at a favorable time of year.

Then, when this happy day for the Maine apple industry has arrived, the prospective purchaser in distant lands will not ask "What sort of a barrel will you use?" or, if he does, you can proudly say: "We Use the Standard Apple Barrel of the State of Maine."

Thanking you for your invitation to address you and assuring you of my deep and sincere interest in the welfare of the Maine apple business, I remain,

Yours truly,

F. D. CUMMINGS.

I will just add a few words to this for the information of those who have never taken interest enough to measure the

different sizes of barrels which are at the present time being used in the State. When I first began to sell apples, we at that time used wholly old barrels, and as many of you know in buying those we got a good many of what we call small sugar barrels. Well, I thought they looked pretty large and I took time to measure one of them one day and I found they held so much that it was like throwing money away to buy them. So I gave that up. So two years ago they asked me pretty high for new barrels, and knowing that they had the same size of heads and the same length of stave I supposed they held the same as flour barrels, and having an opportunity to buy two or three hundred flour barrels at a good deal lower price, I purchased them. But when I came to get the new barrels home and place them side by side with the old ones, I thought I would take the trouble to measure them, as I raised a quantity of yellow-eyed beans. I filled the new barrel full of beans; then I turned them into a Washburn & Crosby barrel—a good many of you know what those are, a short thick-set barrel—and it took about three quarts to fill it. Then we took some shaved hoop barrels such as the all round flour comes in, and it took about seven quarts to fill that if I remember rightly. Then we took another barrel and it only took fourteen quarts more than the new barrel to fill that. Now that don't seem a great deal on a barrel of apples, but I took time the other day to figure it out to see what difference it would make on this year's crop of apples whether I sold them in these new barrels, and it made the sum of $300, about that—whether I packed them in the new barrel or the larger size of old barrels. So you see though it is a sort of dry subject, it is really a subject of a good deal of interest to us when it comes to dollars and cents, and of course it is not only of interest to us but of interest to the one who buys the apples. They get considerably more for the money with a large barrel than with a small one.

Now, if it is in order, I should like to make a motion that a committee be appointed to look this matter up more fully. Of course we can do nothing about a law this coming winter, until after we have another meeting a year from now, and it seems to me it would be a good plan if there could be a committee appointed to look up the matter. As perhaps some of you

know, the Canadians have adopted a different style of barrel from what we use here. They use a 30 inch stave and a little smaller head, holds 96 quarts, I think. It seems to me that a committee could look this matter up and report at our next meeting, and then there would be time for a committee to take the matter before the legislature if it was thought worth while at that time.

President Gilbert. The chair would inquire of the speaker if we haven't a legal standard of a barrel already? It was the impression of the chair that we had. If I am incorrect I would like to be corrected in the matter.

Mr. Morse. As far as I am concerned I don't know anything about it. I never took pains to look that up.

President Gilbert. Has Mr. Pope any knowledge in regard to that?

Mr. Pope. I couldn't say.

Dr. Woods. I think the only legal barrel is for the potato.

THE BOX.

By E. L. Lincoln of Wayne.

The committee has no report to make at present on the box question. I did not know that I was to be called upon to say anything on this matter until I received the program. Although it being a short notice, I will make a few remarks concerning the box question.

The box question will be settled when co-operative principles are adopted by the fruit growers. There is no doubt but what with a different system in buying and packing, that the box under co-operation would come into general use. When I was picking my Spies this season, there were two city ladies observing them as I was hauling them in. One of them remarked "Aren't those nice! and where do all the good apples go to? It is almost impossible to get a good apple in the city. They are all poor and bruised." Well, I knew the reason why. It was not in the growing of the fruit but in the packing and handling of it. I would rather have a No. 2 apple packed in a box as they now pack them in some sections of the country, than to

have a barrel of No. 1 fancy apples packed by some one unskilled, with a hammer and nails in hand and a barrel header. He commences to press or screw them down which jams them—that would be a good way to make cider, but it is a poor way to pack apples. Apples should be packed so that when they arrive at their destination they will be sound. The better order the fruit is in when offered for sale, the larger quantity will be consumed. Who wants to buy bruised or decayed fruit? All this is detrimental to the grower, especially when caused by packing. Honest packing and knowing how are what pay the grower. By organization you can accomplish the end, but an individual cannot get the price that an association can by its expert packers, and that is what pays the growers. An individual will use a barrel to get them off his hands, while an organization would use a box with their expert workmen. If we want to have standard or uniform packages, we must have local associations.

What we want to do is to organize in the several localities, and then we can bring about the desired results. The box will come into general use when co-operative principles are adopted. Now perhaps it does not make so much difference about the shape or form of the box or package. The shape may be like this box or that one, but it is the results of the system that we want.

What would be the outcome if the exhibitors who bring fruit here should put it into a barrel, round the barrel up at the top, then take a barrel header and press the apples down? What would be the decision of the committee on fruit, beside the other exhibitors? The same view is taken by the consumer when such apples are placed before him for sale, and the grower is the loser.

My first desire in purchasing fruit is to have it perfect and sound, whether it be bananas, oranges, peaches or apples. Quality is second thought. What is quality with a half-decayed peach or apple? Now it is up to the Society to help bring about this end. This is a real matter to decide. The President has told you what Oregon apples sell for in boxes, last evening in his paper. Mr. Pope can tell you what he gets in boxes, for apples in the Boston market.

Mr. Pope. My experience in packing has only been for a few years—a short time, but I must acknowledge that from the

experience I have had with fancy fruit, that is, good table apples, will bring from fifty cents to two and three dollars more per barrel packed in boxes than they will in barrels. There are several reasons, of course. One is the consumer in our cities as a rule, apples being worth from five to eight dollars a barrel, would not care to take three bushels of those fancy apples home at one time; they prefer to take one bushel. Secondly, they arrive there in so much better shape, less bruised. And for these reasons alone, of course, if properly handled they would bring more money. Our No. 1 Gravensteins this year packed in bushel boxes sold for $2.75. We should have been obliged to get $8.25 per barrel to be equal to the price in the boxes. The barrel apples were selling at that time for about $5 to $5.50. So you can see that it pays if it is done correctly. But at the same time you find that very few parties are willing to take the pains to put them into boxes and put them in in shape, because of the extra trouble. It is more trouble and you must get more in boxes, because, in the first place, they must be faced, every box must be faced the same as the barrel is. Nail the cover on, turn the box over and face the apples, and you come to face three boxes instead of one barrel and there is extra work. Then when we come to fill up and level up there can be no pressing as there is in the barrel. There would be a little give to the apples, and the large distance down from the barrel you can press a little and the apples will give way. But in the box there will be only three or four layers of apples. And are we ready? —very few of us, I think, are ready as yet to sort our apples the way Oregon people do and have every apple in the box the same size, or almost. Then what are we going to do with our balance. We can make up two boxes perhaps, but we are hardly yet ready to go to the pains they do in their large orchards. their large packing houses. You will notice, you go into the market, and you see the Oregon fruit, you will find that the whole box, like the Southern oranges are sorted to a size and packed, certain boxes taking so many apples, the large apples, the next grade taking an apple of the same size but just enough to put it in in layers. Our apples, as we are packing now, must be put in loose from the face and then it is—and well, I sometimes told the boys that were with me when I was levelling up, that it

required a great deal of skill and perhaps they had better not have their ears open for fear I might say some large words when I was levelling up the boxes of apples. Nevertheless I could afford to take considerable pains with them when I could sell Gravensteins for $2.75 a box, which would probably have brought me about $1.50 in the barrel.

Question. How much more does it cost to pack in a box than in a barrel?

Mr. Pope. I never kept any run of it at all, but I know you put a green hand levelling those boxes up, and well you might want to put cotton in your ears before they got through, but in a short time a person will get expert, and they will set an apple up edgewise if you want to take up a little more room and bring it nearer. You only want a quarter of an inch above the box, give it that slight pressure, because it won't do to press them. Another place you may have to take a large apple out and put in one a little smaller to bring it right. An expert may perhaps do it in five minutes, where it would take a green hand a half an hour trying to level it up. It requires that skill that comes from experience.

Question. Do you sell to commission merchants?

Mr. Pope. Yes.

Question. They have no objection to the box?

Mr. Pope. When we first began, they made objection, they didn't like to handle them, but lately I notice they say "there is a call for boxed apples this week, good fancy apples, send them along."

Question. What is the first cost of the box and the barrel, how do they compare?

Mr. Pope. A trifle more for boxes. You buy your boxes in shooks, do your own nailing, and the shooks will cost a trifle more than the barrels—three boxes equal to a barrel.

Mr. Cobb. Do you use any better grade of apples in the box than in No. 1 barrel?

Mr. Pope. No, we calculate to make a No. 1 fancy table apple, suitable for any gentleman to put on the table. We don't propose to put No. 2 apples in as No. 1 apples, whether it is a barrel or a box.

Mr. Lincoln. There is where organization comes in. A farmer who had small amounts of apples could haul them in and

have them packed by an expert. Where they do that they have got the apples all uniform. They haven't got to take small apples and big, but take apples one size and fill the box.

Mr. Craig. I am interested in this discussion of the box and the barrel. I think we are not just in a position here in Maine to adopt boxes, although I admire the system, and it is what we would call a higher class of horticulture to use boxes. To get down to the bottom of this thing, we have to learn yet, many of us in the apple business, that horticulture is really the highest branch of agriculture, and until we can learn to handle our apples in the orchard in better shape than is being done at the present time, the box is not what we need—simply because the apple, we have not realized yet that that beautiful fruit is simply a ball of cells covered by a thin coating, and when that is dropped the length of itself into a basket or a barrel, or shaken off the tree as is done, it is injured and it never can be a fancy article, whether wrapped in tissue paper in a box or not. Now that is one reason why we in Maine can't get fancy prices as they are getting elsewhere. We are running this apple business on the basis of potatoes and turnips—I can't express it in any other way. And until we learn to respect the apple and handle it as we would eggs,—and grade them, put our fancy apples in boxes, put our 2s if we have them in barrels, and grade them and mark them; then our men from the old country come over here and buy our apples without seeing them, if we establish a grade and a trade such as they have in other places.

A MAINE CRANBERRY BOG.

By G. D. LIBBEY, Gardiner.

It may be of interest to know that the cranberry is one of our native American fruits, which has been cultivated and improved until now it is an important commercial product. While Massachusetts raises a large portion of the berries now used there are many grown in New Jersey, Wisconsin, Michigan, Indiana, and some in Maine. In fact they can be raised in any of the Northern states, where nature has provided conditions suitable for their cultivation. The things necessary for the successful cultivation of cranberries is a level peat bog. One where native berries grow is said on good authority nearly always proves successful. Good clean sand near by an ample supply of water controlled by a dam and available at all times.

I will tell you something about the bog owned by the Kennebec Cranberry Co., which I am interested in. It is located about seven miles from Gardiner near Togus. It is what at one time was the bed of Mud Mill pond, so called. Mr. Wellman of whom we purchased the property started the culture of cranberries there over 25 years ago, in the first place cultivating berries he found growing wild. From this start he increased and extended the work until he had ten acres under cultivation, and has raised as high as 500 barrels in a single year. He has shipped them to New York and Boston markets getting good prices and very complimentary letters regarding the color, flavor and keeping qualities. We have been interested in this work only three years. The first year we had a very small crop, owing I presume to a frost in June. Last year there was a fair yield. This year about 300 barrels which I should say is a good average crop for this locality. I understand this to be a small yield for Massachusetts. We are now laying out new beds the width of the bog which is about 60 rods wide. In the first place we put a ditch around the whole piece with enough cross ditches to take the water from the beds with dispatch for it is of utmost importance that it be arranged so this can be done when we have to flow for frosts and pick the next day. After this work is done the whole surface is turfed, that is all of the grass roots

and bushes are taken off and the beds made perfectly level, after this the whole surface has to be sanded from three to four inches deep. Now we are ready to put out the plants which we are very particular in selecting. The larger portion we shall use are those raised on the bog known as the Wellman cherry cranberry, although we have some early blacks which mature earlier and are ready for market about two weeks earlier than the others. They do not keep as well, and bring a less price in the market. We use cuttings for setting out a new bog, using the sprouts from 12 to 15 inches long of good vigorous plants, placing them in rows 18 inches wide, about 10 inches apart. It takes about three years to get a bog to bearing, but once properly made it is good for many years.

Harvesting the crop begins about the 10th of September, and takes from 10 to 15 days. We use pickers secured from the maker on Cape Cod and like them very much. This can be done on old established vines but new vines have to be picked by hand as the pickers would do more or less damage to the roots. The berries are put into ventilated crates made of slats and placed in a house built for the purpose. These crates are packed in so there is a circulation of air around them all the time. When we are ready to ship them they are run through a separator which takes out all of the dirt and many of the poor berries. After this they go over a sorting table and any that are not perfect taken out by hand.

I don't want to give the impression that this is all that has got to be done to make the growing of cranberries a success, for many nights without sleep is the lot of the man looking after a bog. A frost in June may destroy a large portion of the crop, and the early frosts in the fall are sure to do damage unless someone is there to watch and be ready to turn on the water when the thermometer goes to freezing. Besides this there are insects of various kinds that destroy the berries and vines so it requires constant care and attention to successfully grow cranberries in Maine at least. But I am satisfied that under proper conditions that this crop can be grown profitably.

Hon. A. W. GILMAN, Commissioner of Agriculture, Augusta, Maine.

I just want to say to the people that I am very glad to meet with you here this morning. The first time that I learned that I was to have an address for this occasion, it came from my friend Mr. Boardman of Bangor. He wrote me that he wanted a synopsis of the address that I was to deliver here this morning. The Department of Agriculture is very much interested in the State Pomological Society. We have a man with us well trained in this part of the great farm work.

The apple is the king of fruit and it reigns supreme the year round. That is the beauty about the apple. It is not a fruit that is for a little while, a short time, but it is year-round.

I have with me today on my force a gentleman who is well versed in this line of work, Prof. Card, and I told your President sometime ago that if he would let us know when this meeting was to occur, that we would suspend the Farmer's Institute and I would bring my forces down here and we would take you by storm. We are here this morning. I am not going to deliver an address along the line of fruits, but I am going to say this, that the Department of Agriculture through Prof. Hitchings has done much this year towards this special line of work. You know that news came to us that a larger per cent of our apple trees this year were destroyed than any previous year, and the professor set himself—after consulting with the officers of the Pomological Society about it—he set himself to work, by employing men, to see if he could investigate and learn what was the cause, and to prevent it in the coming years if possible. Just how far the professor has got along with this, I don't know. I haven't seen him for some time. I assure you the Department of Agriculture is with you in this work. At any time and under all circumstances you will have the entire support of the whole department.

I thank you for the opportunity of saying this, and I was very glad of the opportunity when you asked my people to come down. We have got some bright men on our force doing institute work, and they will be here at your service during the day and the evening; and I especially want some of you people to know what this man from across the line says about their fruit

and how they are doing over there. Prof. Card has been telling the farmers just how to do this work for the last three weeks, he has an address that he delivers at our institute along this line and I presume it will afford him pleasure to talk with him on this matter. Mr. President, I thank you again for your kindness.

GRADING AND PACKING OF FRUIT.

[Conducted by the delegates of New England Horticultural Societies in attendance at the annual meeting.]

REPORT OF SPECIAL COMMITTEE ON GRADING, PACKING, AND BRANDING, WITH RECOMMENDATIONS FOR FUTURE ACTION.

Dr. G. M. Twitchell, Auburn, Maine.

At the session of this State Pomological Society November, 1905, after a full discussion of the subject of grading, packing, and branding fruit for market and the importance of action to secure official inspection and protect both grower and consumer, it was voted that,

"This Society, recognizing the substantial growth of our fruit industry and realizing the necessity for a more critical grading of the stock, for the protection of the grower, declares in favor of national legislation looking to a Fruit Marks Act, and authorizes the appointment of a committee whose duty it shall be to correspond with the officers of the Fruit Growers' Associations in the several states, and if a general sentiment is found favoring such action to arrange a conference for the purpose of outlining national legislation."

In the wisdom of the members it was decided to create a committee of one to whom the sole subject should be referred and the speaker was selected. No one at that time dreamed that within two years a conference of all the New England States upon this specific subject would be possible yet such was the interest manifested and so hearty the co-operation, that, in March, 1907, delegates were present from each of these states

at the sessions of the Massachusetts Fruit Growers' Association at Worcester. This association freely set apart one session and to further the interest provided the leading speaker, Prof. Craig of New York. The result of the discussion was to intensify interest in the subject, while urging conservative action. The importance of more critical grading, packing and branding and of such legal enactments as will insure this was freely admitted, yet everyone felt that the one thing to do was to make haste slowly, to be certain that when legislation is attempted it will be such as will claim the earnest support of individual growers all over New England and insure lasting benefits. If there was fear of impulsive action on the part of any, it was dispelled at once and complete unanimity of sentiment characterized the deliberations of the entire session. The consciousness that this coming together of delegates from different societies had in it possibilities, far reaching in effect to our fruit interests, was apparent from the first and before the hour of closing the wish was expressed that these conferences might be continued. Sec. Knowlton grasping the situation cordially invited the societies represented to send delegates to this meeting of our State Pomological Society and the invitation was most heartily accepted.

I desire here to express my personal obligations to the officers of the Massachusetts Fruit Growers' Association for assistance in arranging for the first conference and for setting apart so much of their valuable time to its deliberations. Without this the work of your representative would necessarily have been greatly delayed.

As the consciousness of the possibilities resulting from yearly meeting together and discussing subjects vital to the interests of all has grown in my mind, the significance of the step inaugurated by this Society assumes larger proportions. Wisely fostered these gatherings may be made of great practical value to every man in New England who is turning his attention to fruit growing. While Maine produces the larger crop of apples each and every State is directly interested in the permanent success of the purpose of this conference, and while years may elapse before legislation is attempted these gatherings may be made the means of stimulating a deeper interest in fruit subjects all over New England in kindling enthusiasm for insight into the mysteries which envelope the industry in arousing

ambition to master the difficulties and multiply the orchards, and in concentrating efforts to produce only the best fruit possible in each locality. The problems hinted at are so profound and far reaching that they may well claim our united effort and in the results obtained there will surely follow clearer vision touching the fundamental purpose at the conception of this conference. Well may we of Maine rejoice in this gathering of the students and workers of New England. Our welcome is cordial for our obligations are fully recognized. This Society is honored in this Conference of fruit interests and the industry in Maine must receive a decided impetus from the presence and counsels of these representative leaders from other States. This is indeed a happy hour for your representative who finds his most profound hopes realized in this coming together. It is for us devoted to the advance of the fruit industry in Maine to drink deep draughts of inspiration at this session and carry to our homes the valuable lessons these gentlemen will present for our consideration. We as a Society, have taken a step far reaching in its significance to New England fruit interests and it behooves us to set ourselves in line to realize all that is possible today, and in the future, as the result of this union of forces for specific results.

Asked by our Secretary to present recommendations for future work, my first will be one looking to a permanent organization of New England workers for the specific purpose of holding yearly conferences upon fruit and kindred topics; for the closer acquaintance of each others' methods and for the consideration of questions vital to the best progress of rural New England. Set off in a measure by ourselves it is peculiarly fortunate that we may thus unite and so wield an influence not possible for either State alone.

Time is presenting great questions for our thoughtful consideration. Rural conditions are changing rapidly and grave problems rise before the student of rural progress. The multiplicity of helps pouring in must be intelligently directed to the good of the greatest number or they will lead to a paucity of ideas upon subjects which must ever supply the mainspring of action in rural life. Before satisfactory results can follow legislation there must be public sentiment in its favor and the next step for the friend of the apple is to help create a demand

for choicer fruit. That spirit of commercialism which is satisfied with present returns must yield to that which seeks only a permanent standing in the market. To insure this it must be established that the contents of every barrel are true to name and the brand of grade absolutely correct. The lack of uniformity among packers works injury to the industry. Responsibility for relief rests with the grower. Shipping over one million barrels this year Maine loses hundreds of thousands of dollars for want of this guarantee of uniformity in grading. The legal right to inspect would be an incentive to truer grading. The reputation for a uniform standard of grading, packing and branding would insure millions to New England growers in advance over present receipts. Education can do much but legislation alone can finally insure protection. That legislation must be either State or National. The union of the six New England States covering a law to be passed by the legislatures of these States is, in my mind, the step indicated and to arouse to the necessity and benefit of such legislation our present duty. This problem will never be settled until it is settled right and right includes the highest price possible for the grower and the absolute guarantee of straight grading, packing and branding to the consumer. To this we must bring the industry and agitation will accomplish the result.

Well will it be if we set ourselves to this task. Important and necessary are the lessons which centre in fertilization, selection of varieties, protection from myriad forms of insect pests, growing, picking, grading, storing and marekting fruit, but these are steps to one end and that end must also claim our thoughtful attention, else nothing permanent is likely to be gained.

The transcendant demand upon us is to promote rural progress by kindling desire in every man to know himself, his capabilities, and his limitations, that knowing these he may find the life which will be attuned to the diviner harmonies. Co-operation and brotherhood are the watch words of the hour but these may both be used as efficiently to foster vice as virtue, to work violence as to build the walls of honor about the citadel of the home. If the city is to be made safe the country must build the defences. If the standard of moral rectitude is to be advanced the conservative rural population must fix the princi-

ples of honor, virtue and sobriety in the hearts and brains of the coming generation. Not alone good fruit and a well established reputation but better men and women must be the product of these gatherings else the spirit of commercialism will bury us under the crust of selfishness and greed. Looking to the future for the growth of our orchards the increase of product therein, the better price through improvement of the same and the certainty of justice in the market we must also be directing our gaze intently upon questions of civic righteousness that when the fruits of the harvest are gathered we may enjoy them in peace. Every agency set to the betterment of financial conditions is called to direct its critical attention upon questions of civic duties that the name of sentimentalism apparent everywhere which finds expression in indulgence, may give way to the restraining influence of love and the building of self centered, well poised characters. Shame be upon us if seeking so earnestly for quality in our fruit we neglect to toil as patiently for quality in life.

To build ourselves into full, free manhood is the true mission of all toil and he who conquers most may see most of what that life embraces. Devoted to a study of agriculture and pomology we must be conscious that there is imperative need of such reorganization of systems and methods as will inspire in the young the will to know more of natural things. The education of the past has been to make men cultured, that of the future must be to make them efficient. Efficiency is the cry everywhere coming up from every mill and factory, from every farm and shop, and this can never be gained until the gray matter of the brain has been trained to see, the heart to feel and know and the hands to do. Machines can do much but back of these there must be thinkers and they come only as they reach after the knowledge of constructive work. The past has had to do with the heads, the present and future must recognize the hands and the hearts. Combinations of labor and capital, conditions underlying manufacturing and the unduly fostered desire to become a wage earner without training have closed the door to all opportunity for learning a trade and so mastering an industry. If we would build a self centered citizenship throughout rural New England more attention must be given the steps leading thereto by those who recognize the value of industrial train-

ing. Our civilization must rest upon the intelligence of the rural population and that must be gauged by the ability to think promptly, consecutively and understandingly. The whole problem centers in education and therefore it behooves us as devoted friends of rural life to unite our forces for such study of the problems of rural progress as will most rapidly develop knowledge of the industry and the duties and obligations of citizenship. While we consider details let us not forget to reach out after larger control of all questions centering in rural life that the results of our combined efforts may promote zeal, interest, enthusiasm, and desire for industrial vocations certain that this will lead to a safer, more stable, more patriotic American citizenship. The time is ripe for us to organize and concentrate upon subjects facing not only the orchards and fields but the homes and streets of every country town and village. Interwoven are these problems and not to be separated without danger to each.

There are great possibilities for New England fruit growers. They far surpass our widest conceptions. There is wealth in all these hillsides and we, or those who come after us, may pluck it from the trees, but these possibilities will come to you and me only as we reach after the full measure of well balanced manhood and womanhood, alive to the call of the trees and also the call of the street, never forgetting that life only is secure where moral rectitude and civic righteousness are reflected in the lives of the men and women of the community.

Away down on Cape Cod there is a high, steel tower with wires running from the ground converging to a common centre. Did you ever toss a pebble into a pond and try to follow the first ripple as it extended farther and farther its circle until the whole lake had been reached? So goes the message flashed out from those wires on that tower and if three thousand miles away a receiving instrument is attuned to the same vibrations, it will take and record the story whispered across the Atlantic over silent waves of air. Only a Marconi could have dreamed of such power but it was there and had been since the day when first the morning stars sang together. So, all about us, over our heads, under our feet, in our orchards and among our

animals are hidden possibilities to be uncovered and utilized by man for man. Only he who knows best the story Mother Earth would tell can unlock its hidden treasures, only he who best knows himself can measure the heights towards the Infinite. Only he who has been trained in hand and head and heart can fathom the depths and make plain the path for others to walk to greater success.

WILFRID WHEELER, Concord, Mass., Chairman Committee on Fruits, Massachusetts Horticultural Society.

It gives me a great deal of pleasure to be down here at one of these meetings of the Society which is doing so much for the promotion of horticulture in New England, and I feel especially honored at this time to be able to represent a society in Massachusetts which is working along similar lines. We are striving to bring forth the quality of not only fruit, but vegetables and flowers in the State, where that industry has been more or less neglected in the last twenty-five years. It seems to me that the possibilities for fruit growing in Maine are not confined to the apple but that the subject of small fruits ought to be more prominently brought forth in a community of this sort. You have a wonderful state here for the growing of all kinds of fruits—not only the apple which is discussed at length here and seems to be the prominent topic of this Convention, but for small fruits, that ought to be grown on your farms, and ought to be distributed throughout your cities and through your rural communities to a greater extent. Principal among these is the strawberry which is by far the leading small fruit in this country. It is a fruit that lends itself to any climate, to any situation, to almost any soil, and it is a fruit that can be shipped great distances; it can be used at home, it can be used in preserving, and in many other ways, and it seems to me that the Maine farmers and the Maine horticulturists ought to consider this question very seriously. The growing of small fruits is practically a simple matter if taken up systematically. A strawberry can be planted in one year and a liberal crop reaped the next, which you cannot do with apples or any of the tree fruits. And it can be grown among your orchards. For

instance, if you are starting an apple orchard this year, plant three or four rows of strawberries between and keep the ground worked up well. In that way you will get a return from your land long before your apples will be in condition to pick. Then again, a point that I want you to consider well is the matter of shipping strawberries south. You can grow strawberries at least two or three weeks later than we can in Boston. Here is Nova Scotia shipping thousands of crates to Boston after our fruit is gone and realizing prices that we never can get from our own native fruit. Why can't Maine do this same thing? Here is a country north of us that ought to grow the finest kind of strawberries and ship them down to Boston and the Massachusetts cities and realize a profit from them far greater than you can from dairying, potato raising or any of those other hard labor occupations. That is a question that Maine ought to consider well. I know you are up against the problem of labor for picking that crop; but if you were to take it in time, plant and take care of your bed so you will produce only good fruit, the question is very small, and you can ship those berries and get them into the market in Boston a great deal quicker than they do from the South, which takes anywhere from forty-eight to sixty hours to get varieties from Norfolk, Va., into the Boston market. You can get varieties from Maine into the Boston markets in twelve hours and they will wholesale anywhere from fifteen to twenty cents a quart. It seems to me that point ought to be strongly brought out, and some of this land that is now lying idle, or being more or less farmed, would produce that strawberry crop and supply our markets.

Currants, gooseberries and those other small fruits can also be grown in this country just as well. The idea of using currants is becoming more strong in our cities every year. They are being used largely for preserving, I think, jelly making. It seems to me an industry of that sort should be worked up on the farms. I just happened to look in your report of last year and I saw recommendations of home work for women on the farm, among them jelly making and all that sort of thing. Right here the small fruit comes in and fills a place that nothing else can. I feel that the small fruit question is hardly known here in New England as yet. We produce strawberries around Boston by the acre in great quantities but we over-supply the

market and we have to ship sometimes into Maine and into New Hampshire and into Vermont. But, at the same time, the market is not used in the right way. We are apt to ship into a market at short notice and get the varieties in there and there is a glut in the market perhaps—no way of storing the way there is for apples. So the market has got to be studied from a great many points, and it can be looked into carefully by the Maine growers. I think they will find that they have got a fine opportunity for growing these small fruits and shipping them south after our crops are gone.

Then this question of co-operation among societies—I feel that this is going to be one of the greatest outcomes of these meetings: We are going to get together and give each other ideas along lines that we can all work together on, and we are going to get mutual benefit from these meetings. Among other things, there is one thing that we want to consider well, and that is keeping the young men home on the farms. You know the rural communities supply the cities with all the mechanics, clerks, and all the young men that practically work the machinery of a large city, and the farms of New England are suffering on that account. We are running our farms largely with old men, the last generation. The younger people are not true to the farms, or if they are they don't go out and study methods. I know the agricultural colleges are doing a great deal of good in that line, but at the same time if that isn't tried at home you never get the benefit from it that the agricultural colleges should give. That is a point we all want to get together on and devise means of keeping the young men at home on the farm. The most important asset that a New England farm can have is a son growing up ready to take his father's business and carry it on. Farming, agriculture and horticulture in New England should be treated as a business and have business methods applied to it the same as any business in a large city is run. And I believe that a larger per cent. of money and a larger per cent. of health can be gained from the New England farm than from any other business or occupation that this country knows at present.

And a word on the apples. while I am speaking of the horticultural interests of New England. What we want particularly in our large cities is not so much quantity—we are getting

quantity, we are going to get quantity, and we are going to get it in abundance from the West in the next ten years, we are going to be filled with apples from the Western States, apples of very questionable quality,—good in appearance, look fine, sell well, but when the buyers come along and know that they can get good apples and get quality in New England, I believe they are going to stick to New England. At present we are buying in Boston apples such as Jonathan, Ben Davis and that sort of apple, which looks well, appears well on the table—certainly a fine apple to make up a center piece on a dinner table or anything of that sort, but they have not the quality. Now we can grow in New England apples, and grow them within a few miles of the large cities, apples that have got quality, and they have got the appearance, and that is what we want to keep at in New England here. We want to grow quality. Of course there are chances to grow at the same time a quantity of other fruit that we can ship greater distances, but another thing is we want to grow more early apples. Here is a market in Boston for early apples. Williams were selling in the Boston market this year for three to four dollars a barrel, other apples in proportion, whereas later apples never would bring those large prices when grown in New England. I believe the reason why early apples have been neglected in New England is because we can't grow them, and haven't grown them fancy. We have got to spray, we have got to prune; this matter of spraying has got to be brought out more forcibly here in Maine than anywhere else. You are going to have all the gypsy moths, brown-tails, scales and everything else we have in Massachusetts, and you will find the sooner you begin to spray and take care of your orchards the better profit they will pay you. Spraying may seem a lot of work, but it has got to come. All the big orchardists in the West, South and Middle States spray just as systematically as they are picked, and they are pruned and thinned just as systematically. And we have got to spray our small fruits just the same, strawberries, currants and gooseberries, just the same as we would larger fruits. And those methods applied here in New England will increase our profits and our quality. What we want to look after is quality and not quantity, so that New England will get a name for quality unsurpassed in the country. I have here a few apples that I bought, grown in

Massachusetts. And chief among them I want to show you an apple here—of course you all know it—the McIntosh—which attains in Massachusetts with good care, spraying and thinning, a remarkable size and will sell in our markets at home from the first of October, or the 10th about they begin to come in the market, from the 10th on until this time they will sell at $4 a barrel. That apple, I believe is the highest type of quality that is grown in this country. It cannot be shipped to England, or from California or Oregon to Boston or New York. But it can be grown here in New England and it can be grown by spraying and thinning and pruning, without a bit of scab, just as clean as that apple. I have seen hundreds of bushels grown in the orchard this came from, and not an apple with a scab on it, and it is done by spraying, thinning and pruning. You can't let the tree overgrow, you can't let the tree overbear in order to get a quality like that.

Then again here in New England is a great chance, particularly around Boston and the southern part of Maine and New Hampshire,—I think there is a great chance in pear culture today. There are pear orchards that were planted at the time of Marshall P. Wilder and those old horticulturists. But there is hardly a pear orchard round Boston that is worthy the name today. The pears in the Boston market either come from Delaware or some of the Southern states and are generally the Keifer pear, which is miserable in quality, only fit for preserving. But today I believe Massachusetts and certain parts of Maine, particularly along the seacoast, southern New Hampshire and Rhode Island and possibly in Connecticut, that pear growing can be made one of the most profitable industries that we know of as yet. And this variety of pear [showing pear] can be grown in localities where no other pear will grow—that is, a russet coat will grow where a thin skinned Bartlett pear, or the type of the Bartlett, will be sure to spot even with the best spraying. This is the Beurre Bosc pear, and attains the usual size in the immediate vicinity of Boston. Those pears this year, in that size, were put into cold storage by the buyers, and they are oftentimes sold as Western pears, as they have a name in New York and Boston as being the only pears that are sold that have the quality. But this pear grown right here in Massachusetts has the quality and the flavor of the best pears that are

grown in this country. I don't think there is any section outside of Boston that can equal it.

The question of spraying ought to be more prominently brought up here at this time, I think, and more forcibly impressed on you than I can do it. But at the same time I think you are alive to the ravages, to the danger from the ravages of the gypsy moth and the scale and from the brown-tail moth. We in Massachusetts have had a test of that and it has cost us heavily. The legislature has appropriated something like $500,000 to be used this coming year for the suppression of the gypsy and brown-tail moth. I hope you will never have to come to that because it is certain to cost you dear in the end, even if you only keep it in suppression for a while. It is one of those things that is sure in the end, I think, to adjust itself. There are parasites being introduced into the country which are sure to find their level, and the parasite working on the gypsy moth and the brown-tail will be sure to keep it in check. But in the mean time we cannot let our orchards and our forests and our other trees go, so we are expending this immense amount of money to keep it in partial suppression so that it won't spread to the other states. The government has taken some interest in the matter and has given us an appropriation, and it is to keep that pest confined in Massachusetts where it is at present that the government is striving to do. But we have to keep up a large appropriation in order to get the government money to carry on the work. I hope you won't get the gypsy moth. The brown-tail isn't so bad. I think the gypsy is not as bad as the scale in a fruit orchard, and you are bound to get that more or less, trees bought from nurseries, bound to get in even if you think the trees haven't the scale or are fumigated before they come.

The question of the growing of quality in apples I think ought to interest us a great deal. I have here an apple grown in Massachusetts, to some extent following the Granvenstein, called the Bay State apple. I don't know whether it would do well in Maine but it is a very pretty apple as grown in Massachusetts. It is of about the same quality as the Gravenstein, comes in a little later, just at the time before the McIntosh is ripe. It is considered one of our best table apples in Massachusetts. I don't know as it would ever become popular in

Maine. I don't know enough about the hardiness of the tree here; but in Massachusetts it is very hardy, it stands well, and is going to be planted more extensively. Many orchards are being grafted to it, in the western part of the state particularly.

The question of small fruits ought to occupy more of this convention; I believe that the subject has been very lightly touched upon by these conferences as a rule. We in Massachusetts of course are interested in it largely from a commercial point, but I think the householders ought to be interested in it more. You ought to interest people who own a small amount of ground in the growing of these fruits. You can grow all kinds in a small amount of ground if you only have the ideas of general management in mind. You can take strawberries, raspberries, blackberries, currants and gooseberries and grow them in connection with your larger fruit orchards, in a small garden. And it is near the large cities that people ought to be interested in this work of growing their own fruit gardens. You can get a variety in your own home garden on the farm that will give you fruit from June until the following June. In that way you increase your life, you increase the pleasures of country life. I want to quote a little passage from one of the ex-presidents of our Horticultural Society, who said at one of our meetings: "Plant for the people of the distant cities; plant for future generations; plant for yourselves; so that all may enjoy earth's great blessing without stint or measure." Thank you for your attention.

Prof. Hitchings. Just a word in reply to one article in the paper just presented. I want the brother from Massachusetts to know that Maine appreciates small fruit culture and that there is being some of it done in the State, especially along the strawberry line. And if the apple is the king of our fruit, the strawberry is surely the queen. We have men in the State producing or cultivating anywhere from two to six acres of strawberries and those men are getting a yield of from eight to thirteen thousand quarts on the acre of the best berries ever raised, a better quality than we can raise in Massachusetts, and the net price in Boston markets is between ten and eleven cents a quart, the average yield being about 8,000 quarts to the acre. So you can figure the profit in strawberry raising in Maine.

Mr. Wheeler. Isn't that done mostly near Portland, or south?

Prof. Hitchings. We have them as far east as Hancock, over almost to Washington county.

Mr. Wheeler. It was my intention to apply my remarks more to the northern part of the State, growing them later and shipping them south to us. Your berries in the southern part of the State are good but come in conflict with our Massachusetts berries, therefore flooding the market at a time when the prices are low and the quality of the berries in coming that distance might not be able to compete with the nearby strawberries. I had more the idea of bringing the matter home to the northern part of the State where you would be able to reach Boston within fifteen hours of shipment possibly, and then being later would be able to supply the market after our own fruit was gone.

JOHN W. CLARK, North Hadley, Mass., representing Massachusetts Fruit Growers' Association.

I am glad to be here to represent the fruit growers of Massachusetts, and as I understand it the question before this meeting, before the delegates from the different societies is in regard to a national law being passed to control the packing and grading of our fruits, the apple especially, and to get the views of the different organizations.

Now the importance of this question no one disputes. How it shall be done, and when it shall be done, may be a question. But it is an important question, and whenever anything is done about it, I think we should carefully consider what we are doing because it is easier to go slow, you will get there quicker to go slow and not do a thing that you will wish you had not done and have to take it back.

Now this is a very important question. The origin of this, I suppose, is the Canadian Fruit Marks Act. That as I understand it, I am sorry that I cannot give you all the details, and if any one here knows just what the act is I wish they would correct me, because I would like to know exactly—provides that a No. 1 Baldwin (I take the Baldwin for that is our chief apple) shall be not less than two and one-half inches in diameter and free from defects. If apples different from that are put into a barrel marked "No. 1 Baldwins" inspectors are appointed to

inspect each and every barrel, if they see fit, and where they see it comes below that standard to condemn it. Now let me ask you one question. Does Maine today want to grade their No. 1 Baldwin apples two and one-half inches, free from defects? If so, what proportion of your apples will be No. 1? I don't believe one-third of them would be this year. Now are you willing that a law should be passed that says you shall not put in a barrel of apples an apple less than two and one-half inches in diameter and free from defects and send it to market as a good apple? I am afraid when you think it over carefully you will say "Go slow." Now I don't think—and I speak from the point of a man who makes his living growing fruit—I am not here simply to talk theory—it is what affects my pocket, and it is my fruit that fills my pocket if I get anything in it, and it is for my interest to fill it as full as I can. Now you take this year, the dry weather and the heavy crops have made your apples small, under size. Now in grading my apples my rule is this, grade my apples according to their general style, of the whole crop,—if my apples run large throughout, to make them run large; if they run medium, to make them medium grade, and if they run small to put in smaller apples than I would if they were medium or large, provided that apple is perfect. Because I would rather have in a barrel of No. 1 apples an apple two inches in diameter that is perfect, well colored, not wormy, not a defect on it, but a smooth, solid, bright colored apple, perfect in form and free from defects,—I would rather have that than an apple three inches through that is wormy or has hard knots in it. It will give better satisfaction. And if your apples run even, they won't find fault with them either, if there are more or less of this smaller grade; but make them run even and not put the large ones at the face end and the little ones at the bottom. Of course when you face a barrel of apples you face them up with the best you have; but don't put any more. Just face them up with good nice apples and put in a few just one layer below the face and then fill your barrel up just as the apples run from the face end to the top, or the bottom, whichever that may be, and mark them, if it is a No. 1 grade mark them a No. 1 grade, and when they open that barrel they see just what they are. Now I wouldn't want to have a law enacted that

would tell me that I shouldn't put on the market only such and such apples. It don't go down. It don't fit. It wouldn't with me anyway.

Now I would rather see this done, I would rather see a law enacted that a man should put his name on every package of apples that he puts on the market, the name of that variety, its grade, and the place where he lives; then send it to the market, and when they open that barrel, if a man buys it and finds it isn't what it is labeled, the grade it is said to be, if he goes to market the next day and sees that same man's name there he will examine that barrel of apples to see if it is like the other, and if he gets bit more than once, you may rest assured that he will be careful not to get bit the third time. In that way we will help the grading of apples. Now before any such law could be enacted, we have got to begin at the bottom and that is, grow better fruit. Now we like to have people pat us on the back and tell what nice things we have, what nice fruit we grow, and that we can do better here than anywhere else in this great land, but is that the way to do? That don't improve us one bit. When we stay at home and look at ourselves, we think we are somebody. When we go away and mix with other people, we don't know where we are—we are not half as big as when we were at home; and so with our fruits. We have got to begin at the bottom and grow better fruit, for we don't grow our fruits in Massachusetts, we don't grow apples in Massachusetts, and I think a majority of you here in Maine don't grow apples. What do you do to grow them? Set out the trees, gather the fruit,—that is about all. Now before we are ready for any such legislation as is asked for, we have got to grow better fruit. And then, why if we grow better fruit, and only good fruit, why what use is there for this legislation? You are smart enough to look out for your own interests, and I try to be to look out for mine and to do what is going to give me the best returns. Now these Western apples—they bring up instances of the Oregon fruit, the Washington fruit, the prices they get—yes, they do get big prices, but mark this—are you willing to grade your apples the same as they do? Their rule is that no apple shall go into a box that has any defect at all,—even if while picking the stem is pulled out that apple is not packed in that

box. Do you throw away every apple, and not call it a first-class apple, large and nice apple with no defect about it except the stem has been pulled out? You have got to grade your apples a great deal better than you ever did yet, I am afraid, if you are going to bring yourself down to what you say other people are doing and getting the best prices. So that I say again at the foundation, the growers must grow better fruit, handle their fruit better, and as they do they will for their own defense put their fruit up well and send it to market and get good prices.

Now a commission merchant was saying to me the other day that there ought to be a law passed forbidding anything less than two inches in diameter to be shipped to market as a No. 2. I said, "You don't know what you are talking about." Says I, "It is all right for your side, but it is not all right for the side of the grower. It would be a very nice thing for you to have nothing but nice fruit coming here to market, but we that grow it have got to pay our bills, and we have got to be careful that we get out of our fruit all that there is in it." Now take the No. 2 apples, take one case, for instance. I try to get out of my No. 2 apples enough to pay me for handling my crop and doing a larger portion of the work so that the No. 1 apples belong to me after paying my bills. Now you see No. 2 apples don't bring much. Now I will say this that last year, and I think this year will be no worse than last year, my No. 2 apples sold for $2.25 in Boston a barrel. Why, that wasn't a bad price for No. 2 apples. We sold them in January and February. If you put your apples onto the market now, you won't get much of anything for them after paying expenses, that is, your No. 2 apples, after paying expenses, the cost of barrels, commission and railroad cost. Everybody is shipping their soft fruit that is not going to keep, to stand up any length of time, into market now or they won't get anything for it. Now if you can arrange it so that you can hold back that fruit until the market is cleared, there is demand for such fruit. Not every one in the cities can buy a barrel of apples—of nice choice apples, or a bushel of nice choice apples; they won't do it. But there is a large number there that will buy a cheaper grade of fruit when they wouldn't buy any fruit at all if it wasn't for this cheaper grade. And as long as there is a call for this cheaper grade of fruit, put it up for what it is, send it to market

for what it is, and let it be sold for what it is. No one is cheated. If you should put your fruit up as No. 1 and sell it as No. 1, with a peck of No. 1 fruit at the face end and the rest poor, why then of course there would be deception; but if you put it up honestly it will sell honestly and it is an honest trade all the way through. You are benefited and the buyer is benefited. I know that it is important that we send good fruit to market. It is for our own interest to, but I don't want to see a law enacted that tells me I shall do this and I shan't do that. It goes against me, and I know it does you too. My disposition is not so much different from what the rest of you have. I would like, as I said before, to see a law enacted, and that would harm no one, that every man shall put his name on his barrel, the grade of fruit it is, the name of the fruit and the place that he lives. That, I think, is all that is necessary to do today. By and by, if you want to do more, when you get up to this and grow your fruit good enough,—that is the time I think to bring the question of legislation, to have restrictions put on the packing and grading of fruit, and not now.

Now this is about all I have to say on this line, and I know in speaking on this question—I am satisfied at least—that I speak just about the same as all our practical fruit growers, for it was brought up at our meeting last year, and I think it was when your representative was there and spoke in regard to it, and one or two just touched on it after he spoke of it, and then I got up and I told just what I thought as near as I could, and I said—I used our friend, Dr. Twitchell's, own story, I stole a little of his thunder, I said I thought we were just about in the same position that the little boy was when the minister asked all that wanted to go to heaven to raise their hands, and all but one raised their hands, and he turned to him: "Johnnie, don't you want to go to heaven?" "Not yet." And so I think in regard to this law, it is simply "not yet." Thanking you for your time and attention.

T. L. Kinney, South Hero, Vermont, President of Vermont Horticultural Society.

I shall have surely to differ from my brother on this matter of going slow. I never met an audience in New England yet

where I felt at liberty to say "Go slow." We must put out more energy and go faster. How do any of us expect, even farmers, to ride in an automobile if we don't go fast. Now the only question is, to keep your balance when you turn the corners. But you have got to go fast, and the apple growers of New England have got to stir and move quickly. We have got to grow up apple trees that will bear fruit in less years; a few years ago we thought it took twelve or fourteen. The day has gone by when slow action is asked for in New England. We have got to move quickly and this matter of the Fruit Marks Act of Canada is something that we want to consider today and with a great deal of vigor and determination and energy. Now we have learned how to grow good fruit, as these tables exhibit to you. We have learned how to put it on the table in the condition that it will show well, and we never any of us think of such a thing as bringing our fruit here and exhibiting it in a poor condition, with good apples in the top of the box, and poor ones in the middle when we ship them to market, as our brother has said. Now an apple that comes to market and sells for No. 1 is to be two and one-half inches in diameter. Now don't think that you are to be frightened, or scared, if you have sold a barrel of apples according to the Marks Act of Canada and there is one poor apple found in it you are going to be taken up and sent to jail or prison for it. There is a provision there, as there is in every law, a provision in that Marks Act that says that if there is more than a certain amount of apples in that package that don't come up to the standard then they will be called to account. They are liberal. A very liberal amount is allowed by the law. And officers are provided, inspectors, to take that matter into consideration, and they are not allowed to take up a man because of a few apples found in a barrel of good apples. But the law is that we shall protect ourselves and our customers by putting up just what we have marked to be put up.

Now what is the condition of things in New England today? I know it is in Vermont, and I feel quite sure it is in Massachusetts, New Hampshire and Maine, where apples are grown, there are a great many farmers that won't risk their apples, to sort a barrel of apples today. Why, there is nothing to govern that package, govern the sorting of that package after it gets

to market—nothing to govern it—and how does he know, what has he got to tell him what is a No. 1, what is a No. 2? There isn't half the apple growers in Vermont that know that two and one-half inches is required by the commercial societies of the country for a No. 1 apple, that two inches in diameter is required for a No. 2 apple. Now what they want to know is to know just what a No. 1 apple is. Why, it is a sound, perfect apple, two and one-half inches in diameter or more. Now is any one fearful of putting up a box or barrel of apples with those conditions? No, just as quick as they know that to be a fact. Then if a quart, or peck, or whatever the law states, is found—then you are convicted, not otherwise.

Now the Marks Act requires that those inspectors watch carefully the producers. They are working for the producer as much as they are for the consumer. They are to watch them carefully and if they think there is an inclination for fraud on the part of the farmer or speculator who is buying the apples and shipping them, then go for them strong. That is the way with us Yankees here in New England, we want the law first to act upon, and then we are going to use good judgment in the action of that law.

Now we want that law just as quick as we can get it. Don't go slow. Don't wait. We want to consider that today. Isn't it sensible, isn't it right, that any product which we may produce in the form of apples, the standard fruit of New England, should have a standard by law which makes it entitled to its position on the market or anywhere else? Isn't it entitled to it? Then if it is entitled to it, give it the benefit of your legislation. Give it the benefit of your Government legislation. If the Government doesn't legislate to this effect, some of the states are going to at the next session of their legislatures. We almost had such a legislation in the State of Vermont nearly two years ago. The bill almost went through, and I am sorry it didn't. It was just that slow condition of our old New England farmers at just the last minute. We don't want any more of that slow action. That bill should have passed two years ago and we should have had two years' experience today to show to the people of Maine what the conditions were after trial. What is the use of waiting for an automobile if you have got the money to buy it and you want to ride fast? Now is the time

to do it before it is out of fashion. It is just so in this legislation business. Remember that it is the people here at home, it is the fruit growers in this assembly here that are going to push this matter up or down; we are going to be energetic or we are going to be slow, and we are going to make that law if anybody does. The politicians in this country are not going to make that law unless they are driven to it by the people who are interested in apples.

Now we want to consider just a little more the very conditions which we are laboring under today as a commercial growing center of the best late keeping winter apples there are in the world. You may talk about the Pacific coast—there is no place on the face of the earth—perhaps the Canadian provinces can grow as good a winter apple as we can, but no better, they have got their markets for theirs, they are going across the water and into the Northwest—we have got these great markets to fill here in the United States. I don't care if we never ship another barrel to Europe, we can consume them all here. What we want to do is to put these apples on the market in a condition that they will bring the best price and that nobody will be afraid to buy them.

Now the matter was brought up here by the Massachusetts gentleman the other day about those poor apples in Vermont, and those poor apples found here in your little town. Now I don't think it is any disgrace that those poor apples were found out here in this store. There may be some persons so poor that they feel that they can't afford to pay more than ten cents for that package of apples—and it wasn't a big price for them. I don't care if they were too poor to peel,—they could be eaten without peeling by some poor child who hadn't money enough to buy anything better. Now then, the Marks Law in Canada and the one we are going to have in the United States, isn't going to forbid us from sending our poor apples to market at all. When you consider as the gentleman has considered, the No. 2 is worth more money to the person who wants just actual worth in those apples than the No. 1. Why? Because the No. 1's are very large apples, many of them much larger than two and one-half inches in diameter, and there isn't so much weight as in the small grade of apples. You don't expect you are going to get an apple more than two inches in diameter—or not

MAINE FARMER PRESS, AUGUSTA

T. L. Kinney (on the right) and his apple pickers, South Hero, Vt.

many of them, for No. 2; but they are going way above two and one-half, many of them, in a barrel of Northern Spies such as are shown here. In a No. 2 barrel they will be restricted down to about two inches. You may put larger ones in, but what would be the use when they can go into the No. 1? Now then, that No. 2 barrel and a No. 1 don't amount to much this year—I should prefer this year in putting up my stock to have all No. 2—I should prefer in sending my apples to Boston this winter, and I have got seventeen hundred barrels, not to send one No. 1 barrel if I could have a law that would protect me on No. 2. But what does the market think of No. 2s? Why, they think a No. 2 is no good at all—they don't know whether they are getting an apple or slops. It is a jockey package, that is the way they consider it on the market. They don't care what you send them as an apple grower if you will only let them know just what is in that barrel. If it is slush in the middle or isn't very good, he has got a place to trade that off, there are lots of people that look for that kind of goods. Now if we had an act saying that No. 1s shall be such and such, No. 2s shall be such and such, to accommodate the condition of our apples today, I would prefer all my apples should be put up as No. 2s—I could face them so nicely and they would look so nicely, no one would consider them under the head of No. 2. When he speaks about the man's name being placed on the apples,—the man's name has got to be placed under the Marks Act in Canada, and the grader, or both—or the owner or both—so that they can trace them right back. It don't matter whether they find that apple in Montreal or across the water or somewhere else, they can trace it right back. Your apples have got to be marked just the same by this Marks Act as the gentleman asked you to have them marked. But what do we care about our name specially, if we have this grade mark? That makes all clear. We have got as good apples in Maine as in Vermont, and just as good in Vermont as in Maine. The question today is the packing, the grading, the marking and the shipping. We are working today to this combination, this gathering together of representatives from other societies and we know it is going to help our societies to be heard and go back and report what we see here and learn here, and we hope it will

be some gain to you. Now when we get together, so that we can work in combination and on equal terms all over this great country of ours, how much better it will be for the whole of us. How much better it will be for the smallest apple towns here in Maine. Now the buyers, do you know what they are doing? Some years they come and they want the largest apple, they won't touch a No. 2. A year ago they wouldn't buy No. 2 Russet, Bellflower, Talman Sweet, wouldn't have them. They would take No. 2 if we gave them No. 1 to have them. Look at the schemes of these commercial men. You know that corporations are sometimes said to have no souls. That means a good deal; that means more than just a soul, sometimes, doing all their business through an agent. They have an agent in the office in New York, wherever the association is located; he does all the fighting. They have another one to go about the country and find out what the supply is and what the demand is going to be; they have another agent to go into the community and see what they can do with the farmer, and they beat you down and down and down until they get them as low as they can, and then they will make their purchase. Now then when apples are plenty and they have got a good market for winter apples, in order to make good sales and good returns they are not going to put any slush in the middle of the barrels that year. They won't take the No. 2s. This year they want everything they can get and they are putting everything into the middle of the barrel.

Now where is my reputation? My reputation is at stake in the hands of these speculators in New York who care no more for Maine orchards than they do for any other people anywhere else. Now give us this legislation. Give it to us now. If you can get the thing going any quicker or any better by starting it in your Maine legislature, commence here and work out into the National legislation. If you can do better to go right to the National legislature, go right off. The dairymen have a law to protect their butter, and it is worth more today than ever before. We want to protect the apple just the same. I don't know but the day will come when we will protect our orchards from insects and pests of every kind through legislation. I may have a neighbor who won't care much about the good condition of the orchards for the next few years and he

lets the insects go where they are a mind to. Legislation is something we need along every line of business transaction, whether it is in commercial lines, whether it is insurance offices, banking institutions, trust companies, or on the farm—the law is what stands and the law is what we are going to stand by, and let us make these laws when they are needed and make them just as well as we can. Don't go slow. Study up these laws, read the Fruit Marks Act, and read the considerations of the societies along these lines in other states. Look at the State of Oregon. Just a few years ago Oregon, when they first commenced to produce those beautiful apples that are almost beating the world today—some other sections are keeping up with them,—their apples were all bought by men in California, rich corporations. They marked those packages California fruit and they went out to the world as the finest fruit that ever was grown. California can't today, and never could, grow so fine an apple as they did in Oregon. Pretty soon Oregon found it out. What did they do? Did they go slow? The people, the fruit growers of Oregon, got together and they called upon the legislature to pass a law that every package of apples that went out of Oregon should be labeled "Oregon Fruit." Simple law. Plain law. No use going slow about that. Grown in Oregon, let it be marked "Oregon." Don't let California carry off the honors for this fine fruit. And after that California people went down to buy the fruit and they had to sell it as Oregon fruit, and Oregon stands high in the estimation of the world today. And we in New England by proper legislation, and proper agitation, and proper work, and prompt work, and quick work, may bring our standard as high as Oregon or any other State in the United States. Thank you.

Sec. Knowlton. Considerable has been said here in regard to the Fruit Marks Act, and I think with many of us it is not quite understood what that act has accomplished and is accomplishing in the Dominion of Canada. Now a gentleman from Ontario is here and he can give us some idea, I think, of what that law has done in the Dominion of Canada. Only a few years ago, before this law went into effect, Maine fruit rated in the English market higher than the Canadian fruit. At that time as a rule I think the Maine fruit was put up better than the Canadian fruit. They went to work and passed this Fruit

Marks Act, and, through its influence I think, the situation has been changed. Canadian apples are worth more there than Maine fruit. And I want these people to hear from Mr. Elliott of Ontario in regard to the operation of that law in Canada.

Mr. Elliott. When I look over this large assembly of fruit growers through the State of Maine and think of some other assemblages of people of Canada, my own Province, fruit growers also, I am somewhat in the position of a certain hotel man when he was entertaining a large number of members of the legislature in a legislative town. He thought that they were getting just a little mixed in the corridors of his hotel and he put up a notice reading something like this "The members of the legislature will come in to their meals first and the gentlemen afterwards." Well, he thought that hardly conveyed the right idea and he put another below it. "N. B. Loafers and blackguards are not allowed in the corridors of this hotel mingling with the members of the legislature because it is hard to tell the one from the other." I can hardly realize that I am across that imaginary line and on that side of it where the stars and stripes rule supreme. There is no emblem in this hall that tells me I am in the United States. I want to tell you that if you were in the city of Toronto, if there was only one solitary representative from across the border—what would we do? Why, we would have the flag of Great Britain that for a thousand years has braved the battle and the breeze, and we would have the American flag, both draped together, emblematical of the manner in which all this ought to be. The two flags together—what could they not accomplish? They could make war, but they would not make war. They could command peace, and the golden wings of peace would descend upon the earth. Those two flags together—what do they represent? They represent alike the liberty of the subject; they represent alike that great principle that every man is entitled to happiness as long as in the pursuit of happiness he does not infringe upon any one else's happiness; they represent education; they represent civilization; they represent civil and religious liberty. And this they represent, and will continue to represent, as thus they are draped together.

I am sorry that I am not a fruit grower to any great extent, and I am more sorry that the Canada Fruits Act, that I have carried

in my grip ever since that grip was sent to me, was left at home only a few weeks ago. I am not going to give you what I say as being absolute authority. In some respects it may be wrong. I want to say, however, that to quite an extent, I disagree with some of the men who have spoken. I am speaking, you understand, from across the line; while we have a fairly good local trade, we have come to depend upon a foreign market for our trade. And what of the conditions of that market? I don't need to tell you that the Englishman is the most conservative man in the world. He wants exactly what he does want, and he doesn't want you to dictate to him what he does want; and he is willing to pay and pay liberally for what he gets. And if you don't offer him what he wants and don't cater to his prejudices, you are not going to deal with him. An illustration of that we have in the great bacon industry. The Englishman says, I want none of that pure white outside skin on the bacon and the shoulder and the ham, and we went to work and singed it just to cater to them. It didn't make a snap of difference as far as the quality was concerned. We must do that in everything that we send them. I have understood since I came here that the State of Maine has sent and is pouring in about a million of barrels of apples more or less per year, and the question in my mind is—Where do they come from? I haven't the slightest doubt that they competed with the Canadian in the British market, and here is, I believe, where legislation has stepped in. The question has been brought forward that every man should put his name on the package. This ought to be. But bear this in mind, that tens of thousands of barrels of apples are sold across the water, where it is a national mark that sells the article, and it is only as the national reputation is good that that fruit sells. You go to London, Liverpool, Glasgow, and you will see thousands of barrels rolled off those vessels. The man who buys them pays no attention to who grows them, but if they are sent out as Maine apples, and if that word on those packages means that they are exactly as they are represented, then those apples will sell by the ten thousand barrels. If five out of every six of the men shipping from this State ship a first-class, nicely put up article, but the sixth man does not, and his barrel drops into the hands of a large retail dealer, a man

perhaps selling one hundred thousand barrels a week, that barrel is not as represented to be,—it is not the man who is blamed but the whole State of Maine suffers. We want some inspection by which the dishonest man shall be compelled to put up an honest product, in order to protect the five-sixths or nine-tenths of the people, as it may be, who are honest. That is the reason why I want some inspection, and I don't believe you can have it too rigorous in order to establish a reputation. Reputation is essential in the business world. Without it we cannot do business. We have got to trust to every man. We ought to have a rigorous inspection as regards the smaller package. This year, for instance, living within about four miles of a manufacturing town of some eight or nine thousand inhabitants, we happened to have a certain number of barrels of Snows, very nice; we were offered $2.50 a barrel for them but thought we could do better. They were put up in baskets and sold readily for from 60 to 75 cents a basket. We are looking more at the quality than the quantity. Do you suppose that the manufacturers of breakfast food could get ten or twenty-five cents for a hundred pounds such as they sell to you in the package? It is the small package—they look at the package and don't ask the price. I put in some six weeks in British Columbia on the coast, and among the Institute delegation there, there was a young man who was an expert in British Columbia. He had been sent by the Dominion Government over to the Hood river to get the latest ideas about the packing of fruit. He came back with certain ideas, and went round giving exhibitions of just how fruit ought to be packed. And I learned something there. The boxes were different from anything I see here. They were supposed to hold about forty pounds. They were slatted sufficiently strong so that while they might spring a little bit there was no danger of the box breaking. I found out, for instance you throw down enough of apples to make two boxes of the same kind, and almost without selection he would put four rows of apples in one box, the very select, the next box he would put four rows and a half into it, and there was hardly any difference in the appearance of those two boxes—one box contained the big apples, but the second looked about as well as the first because they had been separated from each other. I

am in the habit of buying lambs—you will see the point—get a couple of hundred lambs, some 60, some 70, some 80, 90, 100; I keep them perhaps a month or three months. I would never think of putting those lambs on the market in that shape. Why? Because the drover will object—I can't sell those big ones. There is a lot of small things there, I have got to reject those altogether, give you less price. I don't give him the chance. I divide them up into lots. When he goes to the various pens, they are all alike and he does not object to the big lambs; he takes the small ones. Grade them honestly and we can sell the goods better.

Then another matter, we packed apples in Vancouver Island, on the islands lying in the channels, in the Chilliwack Valley up into the districts further north, and in the Fraser Valley and the Okanagan Valley, and we found this, that a 40 lb. box of apples there would just bring as much money, because they were so very much better. I prefer to do that than to sell a larger product for a small price because I am dealing on a higher level and I realize the higher the level of my business, the better man I am and the better citizen I am. I sometimes say—of course I won't say it here because it isn't along the same line—that the farmer who deliberately, systematically, knowingly and wilfully handles the poorest scrub he can put his hands on and is satisfied with it, he does not do that very long before he becomes a scrub himself. I want to handle a high grade of material in order that I may be a better man. In that very line, I may say, if I go into the market to hire a man to work on my farm, if I can get hold of a man who can harness his horse properly, draw a straight furrow, deep and solid and level, and continue that straight furrow, and can do all the kinds of work on my farm in the very best manner possible, I not only have a man who is worth a great deal more money to me, but I have a man who from the very fact that he can do that is a better citizen and a better man. Right doing leads to right thinking.

To come back, may be you think I am a Scotchman, but you are mistaken, I am a Canadian. I don't belittle the Scotchman a bit. I tell you, I believe that from those rugged hillsides of Scotland have come the best horses, the best cows and the best

men that ever trod upon the heather. That doesn't hit a great many people here, because you never trod on heather. If you ask me the reason, I will tell you this, it is because the Scotchman has to work every day of his life from the time he is five years old doing something, and that is the reason why the Canadians—but, no, I won't say it. Do you know what I was going to say, why the Canadian is a little bit better than the American—I was going to say that too, but I won't.

In conclusion, I will simply say this, that we are not competing against each other to any extent. The people of the United States and the people of Canada, have alike the same great duty devolving upon them, that is, feeding the rest of the world; they have also the duty resting upon them to take those immigrants every day coming to our shores by shiploads, and by such a school system and such a system of government as we have to convert them into good American and Canadian citizens. We are working together for the same beneficial purpose, the benefiting of the human race.

Dr. Twitchell. I did not discuss this afternoon the Fruit Marks Act, because two or three times before, in previous years, we have had it up before us and gone through it in detail. This in explanation to our visitors why more time has not been given to it today.

This much we can say for 1906,—Maine apples, New England apples, were sold in the Liverpool market at an average of fifty cents per barrel less than Canadian fruit, because of the Fruit Marks Act there, and because our crop was not so graded and so protected by law. That is what we lost last year in the European markets on our fruit from the State of Maine. I have here a clipping from one of our exchanges, taken from a report of the American Pomological Society recently held, in which President Goodman dwelt at length upon this subject and finally put before the meeting a resolution, which was unanimously and immediately passed:

"The subject is that of the truthful labeling of each and every package of fruit put upon our markets. The dishonesty which is the more common practice of not labeling the barrels and boxes according to the grade of fruit actually put in them is the meanest thing in American horticulture, as many see it, and the

effort in this case was to take steps to remedy the evil. In Canada, as Mr. McNiell fully explained, there has been a law in force for six years past, known as the Fruit Marks Act. He stated that it had been opposed at first by some growers and dealers, but now nearly all agree that it is very beneficial and favor it. It requires the truthful statement of the contents of the package by a brand or mark indicating the same, and a penalty which will be felt is imposed for violation of the law. The resolution at this meeting looked to the enactment by our Congress of a similar act. We surely need it, and we can get it if the people push for it. Not only will our dealers sell what they claim, and the consumers get what they pay for, but our fruit will be in better repute, and bring a better price abroad. The Canadians are now ahead of us in all these respects, and it is to our shame and loss."

It seemed to me, knowing the sentiment of the other New England States, and somewhat in our own State, that it was wise to push immediately the matter of legislation, and because through some correspondence with the officers of the societies over the country as far west as Oregon and California, and also in the Middle and Southern States we find such a diversity of opinion regarding what legislation should be, I have come to the conclusion that the wisest thing for us to do is to move in the New England States for legislation by our separate legislatures —we are cut off by ourselves a little mite out of the world— and now we can stand together; Boston is our great shipping point, excepting southern Connecticut, and there is where the grading and inspection might possibly be done. And if it is arranged that we accept the invitation of the Connecticut Society and meet with them in February—the delegates present of the different societies of course can only speak for their own —Mr. Burlingame and Mr. Hixon both assured me that they would have a representative there, and if we can arrange a meeting in Connecticut in February, there will be a bill formulated before that time and presented for discussion, specific bill, which may be adopted by individual states or may not, but which will aim at some legislation looking to conservative action, not extreme,—but looking to the protection of both classes, and with such penalties as may be desired; the matter to be discussed

and then to be taken up by the several states in after meetings, and in the hope that legislation may come out of the discussion and the education and the work, which it seems to me is vital to us along these lines, whether it comes in one year or ten. We have taken hold of this in the State of Maine and we don't propose to let go until we get something tangible. I voice the sentiments of a great majority of this society, and yet I do not know of one who seems to be in a hurry about it. Let us find out what we want and then take hold unitedly and go to the legislature and demand of our State legislature that they give us protection. But that protection would be very little for us unless we could have you co-operate with us, New Hampshire, Vermont and Massachusetts. It seems to me this matter is of transcendent importance to the fruit interests, in order that we may reach what Mr. Elliott has touched upon, those higher levels. We all recognize the fact that he has presented, that it is only the man who is doing the very best, only he who is striving to improve, who grows, who is making his mark in the world or who is accomplishing anything. So this work, it seems to me, not only helps the man who is trying to help himself, but it forces others to lifting up of the standard of work in their orchards, to the growing of a better quality of fruit, and therefore to a better reputation in the market for us all. I wish I could ask of the representatives present, Mr. Wheeler, and Mr. Kinney and Mr. Clark, if they think it would be safe for us to accept the invitation and meet with the Connecticut Society in February. I have an invitation passed me by Mr. Knowlton from Mr. Miles, Secretary of the Connecticut Society, and also a letter from Mr. Rogers, their representative, expressing his regret that he could not be present, and giving us an invitation to meet with them in February. Will your society send a delegate there?

Mr. Clark. I think it will be so arranged although we have no meeting before then. I think arrangements could be made, and it is so near I think some one would be there any way.

Mr. Wheeler. I know perfectly well that our society would be only too glad to send representatives to that meeting in February to discuss this matter further. I was rather unprepared to discuss the question here today, but I know we have men that

can and will talk on that subject and will go to Connecticut well prepared to act in accordance with the rest of New England on the subject. It is a subject that certainly is of very great importance to fruit growers.

Mr. Kinney accepted the invitation in behalf of his society.

OPPORTUNITIES FOR YOUNG PEOPLE.

By Prof. Fred W. Card of Pennsylvania.

I thought I would talk tonight a little about the opportunities for young people. This is a day of opportunities. We see them in all lines of work. We see men who have reached high attainments, have begun in low places and worked their way up. The other day all the wheels of one of the great railway systems in the West stopped; not a wheel turned for five minutes in honor of the man who had been its president, the man who begun at the very bottom of the ladder, who climbed his way step by step to the highest position in that railroad.

Sometimes we think perhaps that those chances for growth, for progress have gone by largely, that all those opportunities have been utilized, have been taken, and that at the present time the young man does not have the chance which he had before. But I think this is a mistaken notion, that the opportunities are still with us if we have but eyes to see them, whether it be in the lines of business, professional, mechanical, or any calling whatsoever.

But I am concerned chiefly, as we all are perhaps, most of us at least here tonight, with the opportunities offered in agriculture, because we are here, a meeting of agriculturists—one phase, I believe the best phase of agriculture, but many of my friends would differ with me as to that. Now what are the opportunities which agriculture offers to the young men or the young women—I wish there were more of them here tonight.

In the first place there are opportunities for bright, intelligent men as teachers and experimenters. Our agricultural colleges, our experiment stations, are constantly calling for more and more men. Men are dropping out to take up other callings, and new men are needed. Those institutions are growing. I

don't know how many are employed in the United States at the present time, but I think it is safe to say that every state in the Union employs from ten to fifty men, perhaps some of them more in connection with the college and experiment station work. The Department of Agriculture at Washington employed, the last time I knew, something like 3,500 men in agricultural lines, in different lines of agriculture.

There are opportunities also for the men who have the training and the executive ability to handle funds and handle business, to take the capital belonging to other men and utilize that to bring a return in agricultural lines. Men of wealth are constantly seeking for an opportunity to place that wealth where it may be safely employed and yield them a business return. They don't ask for fancy returns; they know that those fancy returns are not to be gotten with safety; if they can get straight business returns on their capital, they will be glad to put their money into land. Many of them would. There have been in the last few months particularly good opportunities for investment in securities, but look at the condition today, how the value of those securities has dropped fifty, one hundred per cent in some cases, and the man who thought himself worth $50,000 six months ago may find himself worth $25,000 or $30,000 at market prices today. Now money put in land does not meet with that great fluctuation, and there are shrewd business men who are looking for opportunities to put their money in that way. Many, many more of them would do it if they could have the men to manage that land when they get it. There are few men who can take a business proposition and carry it through to a business issue. Now the young man cannot expect to do that when he graduates from college, because to make a successful business requires an ability which cannot be imparted in the class-room. It requires natural business ability. It requires executive ability which can only come with age and training. The man who has within him the possibilities for that line of work may readily get the experience and grow into positions of that kind.

More and more men are seeking summer homes, who find their homes in the city and are looking back to the farm as they grow older. It is the almost universal experience, you meet a

man past fifty years of age who has spent his life in other callings, he wants to go back for at least part of the time to a farm; and after he has the farm, then he needs some man to manage it. There are opportunities for men in those positions, and many of them are most admirable ones so far as salaries are concerned.

But I am concerned more particularly with the opportunities which the farm itself offers to the young man or the young woman, and I believe there lies one of the best opportunities that can be offered today in any line of effort. What does the farm offer to the young man who has a taste for it? Now let me say right here, that this of course goes back to that old question, Should the young men leave the farms? Should they follow some other calling? And let me say right at the outset that I believe there is no special virtue in being a farmer. The character of the man lies far and away above the calling which he follows. But there are young men who may well stay on the farm and there are young men who ought not to stay on the farm. And first, of those who ought not to stay, there is the young man with a special bent. There are boys and there are girls who nearly from the time they are out of the cradle are designed for some special calling in life. There is the boy who has a natural talent for medicine; another one, perhaps, has a natural talent for mechanics; another one for law, it may be; another one possibly for commence; those boys who have that special bent for some one thing ought to follow that lead, and it is a great mistake if we attempt to carry them away from it. Now there is another class of boys that I believe ought not to be kept on the farm, and that embraces a very large class,—the boys who are willing to be led. Too many men in this world are willing to be led; few men are willing to lead. Now the man who is willing to have his work blocked out for him to follow some one else's lead, some one else's direction so long as he lives can probably get along and get a living easier in some other calling than he can on the farm. He can at least until he reaches the age line late in life. The man who expects to succeed in farming must lead; he must take the reins in his hands, have resourcefulness, be ready to meet emergencies when they come. He must not expect to depend on some one else to tell him what to do.

There are some boys who, I believe, ought to stay on the farm, and that is, first of all, the boy who loves the farm. There are such boys, and let me say right here, that I believe there would be far more such boys but for the parents' misapprehensions. As a teacher in agricultural college work, over and over again have I met this situation; a father or a mother comes to an institution with a son, or perhaps with a daughter, and they express themselves something like this: I want my boy to do something where he can get his living easier than I have got mine. That father thinks that farming is the hardest calling, that something else will be much easier. It is but natural. We all see the bright side of the other man's occupation, because we cannot see behind his door to see the unpleasant things. Concerning him we can see the bright side. Perhaps we see too plainly the unpleasant things which concern us and we overlook to a certain extent the blessings which we find in our own calling. But, I say, there are boys who love the farm, and those boys ought to stay there, because the opportunities are as good as at any other calling, I believe.

Then there is another large class of boys who I think may well stay on the farm, that is, the boys who may interest themselves in anything. That embraces, I suppose, by far the larger class. It is the exceptional boy, the fortunate boy I may say, who knows just what he wants to do. The most of us had to grope around and flounder about to try to find out what we were good for, and perhaps we never found out. The most of boys can interest themselves in anything. You put them at a machine, they become interested in it; put them at the study of a plant and they become interested in that; the study of an animal, mathematics, language—the bright, intelligent boy will interest himself in anything. Now we may well show to that type of boy the opportunities which the farm offers. And what are some of those opportunities?

In the first place, it offers the opportunity for healthful employment. Over and over again do men as they come along late in life find their health failing, and some of our most successful farmers are men who have been driven late in life to the farm by failing health, obliged to get out from some calling. It is hard work. Anything is hard work which succeeds. But

it is healthful work, and an occupation which we need not fear at all so far as health and enjoyment are concerned.

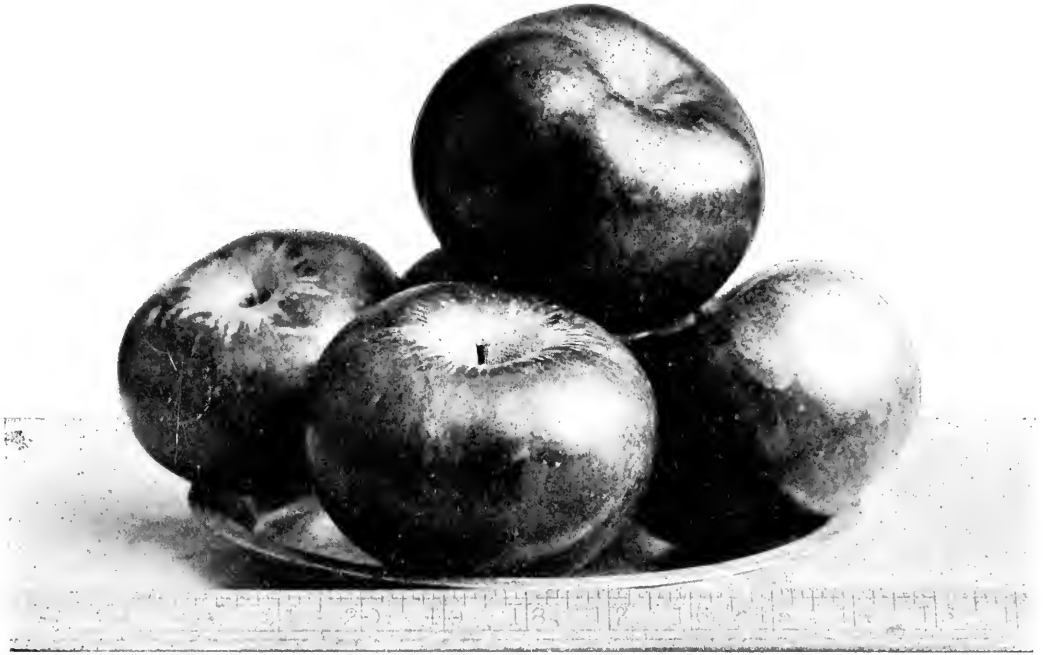
Again, the farm offers a continued livelihood. I asked a business man with wide experience some months ago what percentage of men who invested their money in mercantile lines and manufacturing, were able to receive their money and continued livelihood so long as they lived—what percentage lost their money? Thinking it over a little, he said he could only give a matter of judgment, but he said he thought perhaps fifty per cent of those who put their money into commerce were able to get a livelihood from it through their life, and perhaps eighty per cent through manufacturing; but he thought of that fifty per cent in commerce a large proportion would finish by working for some one else,—in this way: a man may be established, we will say, in the shoe business in a town. The department store comes, and he becomes the head of the shoe department in that great establishment. Perhaps he may remain there so long as he wishes to remain; but more than likely, as he grows a little old, not quite so alert, not quite so up-to-date in finding the best styles and bringing about sales, a younger man is wanted and he is obliged to drop out. I am reminded of a story of a gentleman in the city of Quebec, who on an icy morning started to go down a long flight of steps, and who losing his footing went down bumpety-bump onto the ice below. As he got well started he was somewhat chagrined to see a lady ahead of him. He was not able to steer his course very well and the consequence was he ran into the lady, she sat down on his lap, and together they went bumping down the steps to the bottom. When they reached the bottom they were both somewhat disconcerted, and she not getting up quite so quick as he thought she ought to, he said "Pardon me, madam, but this is as far as I go." Now many a man reaches early in life a point which is as far as he can go. He reaches that dead line which faces every man who is working in the employ of others, and it is coming early in life in the city in these days. Young men are wanted, men who are alert, active, bright, energetic, and the man who has the experience perhaps may find that that experience does not count against the alertness, the energy of the young man, and he may be obliged to step out. And what is that man going to do?

He finds himself in a very unenviable position, because he has done that one thing and he is not able to take up the other lines of work which he may need to take up for anything which will afford him a livelihood. Now the farm has the advantage that it offers an all-round development. I know of no calling in these days which makes so much a full man as the work of the farm. I went through the other day a large paper mill in your State and I saw men doing various pieces of work. I saw one man picking blocks out of a large tank of water, throwing those blocks into a machine which cut them up into chips—taking up one block, throwing it into that machine, taking another block, throwing it in, hour after hour, block after block, day after day, week after week, year after year perhaps. What was there in that calling? Monotony,—can you think of anything more monotonous. That is only a type of the kind of work which all those men were doing, one thing over and over. What was the training? What is that man worth for anything else by the time he has spent ten years putting blocks into that machine? That is simply typical of all lines of manufacture, and it is one —I was going to say the curses—perhaps not in the broad commercial sense, but it is a curse so far as mankind is concerned that our present day system drives men to do one thing, which narrows their life down to the narrowest possible horizon—little more than that of the horse which we stand in our stable,—indeed, less variety in it.

The man who works on the farm not only gets this broad training, but he has opportunity to bring into play all the education, all the training which he may have.

Again, the problems which confront him are numerous and varied. He has opportunity to observe all phases of nature, all phases of his work. Perhaps in no calling is there a better opportunity to enjoy the fruits of an education than upon the farm.

Further, the farm offers a modest financial return. I cannot say to you that there is a prospect of becoming a millionaire by means of farming, and indeed I am glad there is not, because what does one gain by becoming a millionaire? We get such a wrong sense of proportion. We are constantly striving after dollars. We think that that is the great desideratum in life.



MAINE FARMER PRESS, AUGUSTA

Plate of Wolf River exhibited at the Gardiner Exhibition

We chase after it day after day, year after year. When we catch it, then we have forgotten what we wanted of it. We don't know how to use it. We think that it is going to make us happy, but when did dollars ever add to happiness? Certain things we must have. We must have food, shelter, clothing, but beyond that what we get has nothing to do with happiness. What matters it whether the front of our home is brown stone or clapboards? Whether the carpet we walk upon is rags or Wilton?—nothing to do with happiness. "Seek happiness o'er all the earth and she shall but follow on thy trail or sit patiently on thine own door-step and wait thy return." Yet we are all seeking for dollars, and it is right that we should in a measure, and the farm furnishes a moderate financial return. And perhaps in that line it is only just, and I am glad to speak of the opportunities of Maine in fruit growing. It seems to me that we have here in Maine, just along the line of this meeting today, most admirable and splendid opportunities. Why does fruit growing offer good opportunities? In the first place, it calls for only a moderate investment. In many other lines of effort today the investment demanded is so great it is very difficult for a man to get a foothold and to establish an independent business in commerce or manufacturing; it is almost impossible except as he unites with others to do it. But in agriculture he can begin with a moderate investment in various ways. Now in the first place, if we take apple growing for instance, the first value of that land is only small. We do not need to have expensive lands; in fact, the very lands are oftentimes the least valuable which are the best for orcharding purposes. Then there is only a moderate investment needed in the way of buildings and equipment. The buildings are not expensive. The equipment is far less expensive for fruit growing than it is for dairying or many other kinds of work. The trees are not costly. Indeed we may begin and propagate them with very little expense except for labor if we are willing to wait a little. And then, above all, we have an appreciating investment rather than a depreciating one. Build a manufactory or a dairy barn, complete it today, tomorrow it is worth less than it was when you finished it. Each day and each year reduces the value of that building or that factory. Plant an apple tree and tomorrow it is worth

more than it was today. That investment is growing better all the time. It reaches a good age before it begins to go the other way. That is an important factor in fruit growing.

The labor problem is the greatest problem. For instance, compare the dairy with fruit growing, and compare the feed of the cow with the feed of the tree. Now feed for the cow is expensive, but in fruit growing the fertilizer bill is the least of any line of agriculture I know of. We can get all the nitrogen we want from the clover plants we turn under. So from the financial standpoint fruit growing offers excellent opportunities. It offers a safety of investment. I know of no line, even of agriculture, that offers more safety than that, and agriculture offers the greatest safety of any line. In many lines of investment a little turn in the tide of affairs may take the value out from under them. It is not so with the farm. Conditions may be unfavorable, returns low for a series of years, but the investment stands.

You have here excellent advantages for marketing fruit and the more fruit you grow the better will those advantages be. I have been impressed in the last weeks, travelling through the State, with the great potato houses I have seen all along the railroad to handle this crop which you grow so extensively. The fact that you grow potatoes in large quantities affords you far better opportunities for marketing them than you could possibly have if only here and there a man grew potatoes. If instead of here and there a man growing apples, you had hundreds of orchardists, you would have the same conditions for marketing apples. The buyers would be here seeking them. You would have train service and shipping facilities from all points.

Then it seems to me that here in Maine you have some particular advantages for apple growing. You have the climate which gives you the very best of color. In few localities in the whole country could you go into an exhibit and see such high colored fruit as you find here—perhaps in the Northwest and Minnesota, but they are limited greatly in the varieties. Why, you can get the highest quality, and then you can get apples out of season as compared with a large part of the apple growing region of the country. I was astonished, coming into the State here since the first of November, to have given me a Porter

apple, kept in an ordinary cellar. In northern Pennsylvania that Porter apple would have been gone by the middle of September at the latest. Perhaps we never think of it as anything but a summer apple. You can grow those summer varieties and put them in after the apples from other localities would be gone. It seems to me there must be a decided advantage in that. There are some of the advantages which are offered in a financial way.

The farm offers also an opportunity for usefulness. As I said, we make a mistake in thinking it is all dollars. It is not all dollars; we want something more than that. We want a life. We want the opportunity to make our life count for something in the world. Now no calling monopolizes the opportunities for usefulness. In all fields of effort a man can make himself useful to the community. Perhaps you may think that the farm is circumscribed, narrow, that it does not give you a field for making yourself felt in the community. But if you were to go into the city where you know not your next door neighbor, just one little atom in that whirl and swarm, what chance have you to make your influence felt as a young man under those conditions? In a farming community you know every one. The young man who has within him the ability can make his life count for far more for the upbuilding, political, moral and in every way, in a community, than he can in a larger community. And the man who takes his place on the farm can make his life count. We need good farmers, men who shall set good examples of how to grow good crops and get good returns, but we need educated men, men who will take their place in the community and stand for the best in life, more than we need farmers.

The farm offers above all things an opportunity for home making, and it seems to me that in that lies one of its deepest appeals. It is the one thing which appealed to me more than anything else in all the years I was teaching. As a teacher my position was reasonably secure, but I never could have a home in the full sense of the word. I never could even plant a strawberry bed and be sure I could pick the fruit from that bed. Perhaps the landlord would for some reason want that house, or I would decide to move to another house. Two or three

times I have done just that thing, planted a strawberry bed and moved and let somebody else pick the fruit. Now the man and the woman who live on a farm have the opportunity to make the home which is the best home on the face of the earth. And here lies the chief opportunity of the young woman. There are fields open to her in these lines of agriculture. She may succeed commercially in farming. She may succeed as a farmer; she may succeed as a landscape gardener. There are plenty of fields for her to succeed in, salaried positions, but above all her opportunity lies in making the farm home the best home it is possible to make. Now that home, it seems to me, should be something more than a place which contains merely the comforts of life. Every woman wants her home to be something more. She tries to make it just as beautiful and attractive within as she can make it; she adorns it with tapestries; sometimes she is very dissatisfied, nevertheless she tries to make of that home the best possible home which she can make. Now, I want to think more of the outside of the home. I want to make a plea for the surroundings of the home. Because as I have passed through this State of Maine, I have seen neat farmhouses, neatly painted, tidy, but there has been very little, almost nothing of ornament about those homes outside. Of course you have a hard climate—it is not like the climate farther south, but nevertheless there are plenty of things which thrive here—must be—which would beautify these homes. Now when we start to plant about a home to make it attractive, what can we do? We may set out a plant because we admire the flowers that plant produces. We usually set out a rose bush because we admire the roses, not the bush on which the roses grow. We may put out a plant because we admire the plant itself for its beauty. We may set out plants because we can make a pattern bed, as we see so oftentimes about railway stations and places of that kind. But better than all, we can put that plant in as a part of one picture, of the scene as a home, which shall help to make the other surroundings of that home a scene which is attractive from all points of view. Now the canvas upon which we must paint that picture is the greensward, and we must never lose sight of that. We must never fritter it away. We want to preserve the open lawn in front of the

buildings. Then we want to plant about the borders, about the house itself, the shrubbery and the flowers which shall make of it an attractive picture. Now the landscape painter when he starts to put a picture upon canvas meets with fewer limitations than we meet with in working that picture in living plants. If he thinks his picture will be more beautiful putting a mountain or water scene in the distance, he can put it in. In the first place he selects the point of view. We must accept it and look at his picture from one point of view. Then he can improve it in those ways. He makes a picture which remains always the same. We must make a picture which changes from day to day, season to season, year to year. It calls then for the highest artistic ability to make that picture as it should be. The essentials are first, the law, and then the grouping of shrubbery, flowers and trees about the borders of that lawn and about the home. And we want to remember to preserve all the most attractive views from that home; to sit by the windows which you use most and see what are the attractive scenes, and take care that there are openings in those groups which enable you to look at the view in the distance—it may be a bit of water; it may be only a church spire; it may be only a set of farm buildings; but if you frame that object with plantings, so that you look through and see that, it becomes at that moment attractive. There may be objects which are unattractive likewise, and we want to shut those out. Now we can put about the homeliest farm buildings a very little planting which shall partially screen those from view and transform an unattractive scene into one which becomes attractive. A little thought, a little study can make of any home a delightful place and a picture. And then we want to do all that we can do to make the home within as bright and happy as it may be. Let us realize that the children within that home are of more importance than the dollars which we are seeking to bring to it. It is of far more importance that we help those children to the noblest impulse of life, that we help them to make the home a home which they will always think of with pleasure and be glad to return to even if they leave it for some other calling, realizing that boys and girls are worth more than dollars and land. Now we do not need to go into the distance to find the opportunities.

You all remember the legend of the rainbow, that if we could find the end of the rainbow we should find a hidden pot of gold. How often we have thought that perhaps at that point we should find something—in some other climate, some other calling, lies the opportunity which shall enable us to make something of life, make more of life than we can here. But opportunity lies not in the distance, it lies in the man who can see it. All over this country we find men who have seen an opportunity, have developed it, and have made a business and a name for themselves in every way. It is not necessary to go to distant climes to get the opportunity. They lie about us everywhere. Some eye views the rainbow arch which ends upon your head. Beneath your feet lies the hidden pot of gold.

TID-BITS FOR THE GARDINER BANQUET.

President GILBERT.

If the fruit growers haven't a right to be happy, where shall we look for enjoyment and pleasure. As the old song has it "Weep when we must, but now be gay; life is too short to be sighing long," so let us this evening express our joy, respond to our feelings, and especially on an occasion of this kind celebrate the joy we feel and the bounty with which we have been rewarded for our year of effort.

I was born and brought up in an orchard. In my boyhood days, we boys in the morning, in our pajamas, would run out the back door for the High-Top Sweetings that had dropped from the trees during the night, vying with each other who should get there first through the dews of the morning. It has stuck to me to the present time. I planted the seeds, grew the trees that are now rewarding my labors with their bounty of fruit. I was planting some of those trees, my little boy was with me and he had been teasing me as boys are desirous of wearing the apparel of men, for a pair of rubber boots. I didn't feel that he was quite old enough to put on the rubber boots. I suggested to him that I couldn't afford to buy the boots then. As he played around the tree that I was setting, he says, "Father, can't I have some boots when these trees begin to

bear?" This autumn this little boy has helped pick 500 barrels of fruit from those trees. He can have the rubber boots now. He has helped me to grow those trees, he has been a faithful son, and is today exemplifying the efforts he was then trying to make in my assistance. I appreciated it. I appreciated the trees. I appreciate what they are doing. I can further see greater possibilities in the planting of trees. It has been my pleasure to encourage others to go and do likewise, and I have seen the bounty bestowed in many orchards from that time to the present time that my own hands were instrumental in starting and producing the results that are now gathered from those trees.

I look upon it as a laudable work that this Society is engaged in to encourage the planting of trees, which have been rewarding my early efforts in those directions, and I only wish that the seed that this Society has been sowing and their endeavors which they have been performing with so much of intelligence and so much of earnestness and so much of willingness shall result in bountiful rewards in the end. There is no limit to what we can do in fruit-growing in our State. I wish that the general public could appreciate what I know can be done and what the land planted to orchards will do for an intelligent effort. There has been marked progress in recent years. The fruit-growers of our State have learned lessons that they are now putting into efforts and receiving the bountiful reward which to the industrious and intelligent hand is ever ready from nature. It is a pleasant occupation. Do you wonder that we boys enjoyed running into the orchard, and enjoyed the fruits of the orchard? Do you wonder that enjoyment has filled us all these days of these busy years? And are we not entitled to something of the pleasures of life, and shall we not celebrate the annual return of the pleasures and this reward in which we have been engaged? I look upon it as a laudable effort. I look upon it that an occasion of this kind in celebration of the annual harvest is a fitting thing for this Society and its friends to engage in, thus drawing our attention to the advantages we are enjoying and to the possibilities of further endeavors in this connection.

We are present on this occasion in the city of Gardiner, near to the center of fruitgrowing in our State. This Kennebec

river, this Kennebec valley, with its immediate vicinity, if not in this particular city itself, the progressive fruit growing of the State of Maine emanated. It has gone out from here and traveled across the broad State of Maine, covering its entire limit from south to north, from east to west, not in the same bounty in all places, but in no place with greater bounty than has rewarded the efforts in this and near by this locality. We are here by invitation of the city of Gardiner. Some one today mentioned the fact, or hinted the idea that Gardiner was doing homage to the city up the river—wasn't that so, or am I mistaken about it? It is our privilege tonight to do homage to the city of Gardiner. And well we may do so. So far our stay here has been pleasant in the extreme. So far the endeavor that we brought with us has been rewarded in the full bounty of the most lavish expectation. You have attended not only on our wants, but you have attended on our efforts. You appreciate what we are here for. Your appreciation of what we are here for is an encouragement to us to push our efforts. It is just to our Society for me to say at this point that the efforts of this Society from its start up to the present time, the efforts we have put forth individually and collectively, have been entirely without the reward of money, but for the promotion of the business which we represent. I often query whether my associates in this work want to exchange, or would if they could today, the pleasures, the satisfaction, the results that have come from their gratuitous efforts, for money. There is a pleasure in laboring for the good of a cause without the thought of a per diem or a compensation coming along with it to mar those fruits in any degree whatever. We are worshipping too much the almighty dollar, and while the effort of all hands is very largely in the direction of the compensation, and I believe we are cultivating too much an idea in that direction, and especially with the young that the real thing to work for in life, and I fear sometimes the only thing we are encouraging them to work for in life, is the almighty dollar—too much so,—it is well for us sometimes to sit down and bring to mind that there are other things to reward us for our labors than money; other things that are more valuable; other things that will make us richer in the end and give us satisfaction in the end that money never can

fill. We are to work so I believe in a good cause. We are glad to know that you appreciate that fact and that you do us honor by your presence at the meetings that we have had and by this entertainment that you have so sumptuously provided this evening and graced with your presence in so large numbers, as you have. Let it go on record to the credit of the city of Gardiner and its people and their hospitality. So it is fitting for us to do honor to this city of the Kennebec.

Mayor WILL C. ATKINS, Gardiner.

I supposed that when I spoke my piece last evening that ended my connection with the speaking part of the program. I sat here tonight in all serenity and security, and I felt a good deal as Daniel is said to have felt when he was thrust into the den of lions and looked around upon the hungry beasts, and finally said—"Well, if there is going to be any after dinner speaking here tonight I will not be the one to do it." Now in the short space of five minutes it will be impossible to tell you all the good things about Gardiner so I am going to refrain and do as all speakers are supposed to do at after dinner speeches, either tell a story, sing a song or read a poem. Mine will be a story and it will be short. When the visitors began to come in in such numbers and it was doubtful if they could be entertained, I thought it might be necessary to have recourse to the expedient employed by the country hotel keeper. Late in the evening two drummers struck a small country village and coming to the hotel found that it was completely filled. It seemed that the landlord of the hotel was also the sexton of the church and the church was situated next to the hotel. They asked the landlord if they could have entertainment for the night and he told them that he was completely filled up, but as they were leaving much disappointed he called them back and said, "I am the sexton of the church here and perhaps if you would like you can go in there and spend the night." In the absence of a better place of entertainment they chose the church. Along about midnight the bell of the church began to ring and the landlord was awakened from his slumbers and he ran over to the church. He rapped on the door. It was locked, and after a considerable

knocking one of the drummers came to the door, and the landlord says "What does this mean, your ringing the bell this time of night?" "Well," he said, "this is an adjunct to the hotel and when you want anything we supposed you had to ring for it." "Well," he says, "what is wanted?" He says "We would like to have you send two cocktails to pew 13." Now we didn't think you would take advantage of the last part of that story, but we didn't know but what we might be obliged to take advantage of the first.

I want to tell you one little experience I had in my somewhat extensive practice before the justices of the peace in this county, and it seems to me quite funny. Perhaps some of you have heard it; perhaps not. I was trying a very desperate criminal for the offense of breaking the Sabbath day and after the justice had heard all the evidence he fined the respondent $2. My client took the $2 out of his pocket, threw it down on the judge's desk and said "Now Judge, I want a receipt." The judge said, "We don't give any receipts in criminal cases but I will minute the fact on the docket." He says "I know, Judge, but I want a receipt. When I go to heaven and I get up there before the recording angel, and he opens the debit side of my account and he finds there, debtor to breaking the Sabbath $2, then" he says "with those cherubim and seraphim a-singing and a-dancing all around me, I don't want to have to leave that beautiful place and go hunting all over hell for you and your docket."

Mr. WHITMORE, President Gardiner Board of Trade.

On behalf of the board of trade I extend to you a very hearty welcome to our city. Though your accommodations may not have been as large as we could have furnished before the Coliseum was burned, still I hope that the lack of the accommodations is more than made up by the hospitality of the members of our board and the citizens of Gardiner. I also wish to say that we were very much pleased with your program of last evening. I was considerably surprised at the number of apples shipped from this State; though I knew the crop had been large, I had no idea that there had been so many sold or shipped out of the State. And I was also surprised some seasons ago when

I returned from one of my trips in the south and landed in New York, to find a very fine apple, a very fine flavor and color, shipped from the state of Oregon. That is the first time I ever knew that apples were raised to any great extent in the state of Oregon. I was also much surprised at one time when I was in Havana and was quite apple hungry, in going into the markets there and looking over the fruit and seeing what poor fruit there was for sale, and I purchased one apple—and that apple was called the Ben Davis—and what do you suppose I paid for it? ten cents for a Ben Davis apple, but I was apple hungry and I wanted it. That reminds me of the first time my attention was called to the raising of that apple in this State, and that was a man by the name of Benner who lived in West Gardiner but has since died. He purchased nursery stock of a salesman thinking they were Baldwins, but when the fruit appeared they were an apple that neither he nor his neighbors ever heard of. They shipped them to Boston and from there they went to Liverpool and he got the highest price of any apples that he ever sold, somewhere between three and four dolars per barrel, and he derived an income from that orchard larger than he derived from all of his other crops.

Secretary Knowlton—About thirty years ago this Society held one of its earlier meetings here in the city of Gardiner. Only two or three of them are present at this banquet tonight. It was considered then an excellent meeting. I have read the report in years back, how they got together, and did good work and had a most excellent meeting. I wish some of those men who have passed away—one a prominent citizen of your own city here who took a great interest in the Society for many years of his life. I wish some of those men could look down upon us here tonight as we are assembled at this banquet, and as we have assembled across the way, and compare results and see what progress we have made. It would be no reflection upon their work, but it would show to them that the work they did has progressed and gained in power and strength as the years have rolled along.

Now I am exceedingly proud of this meeting. And I am proud of the work accomplished at this meeting. There are certain elements which have entered into this meeting and its

organization that have contributed to this grand result. The first of all is the cordial invitation and the cordial reception which came from your board of trade here and the citizens of Gardiner. The first time I came here after the committee was chosen, the chairman of the board of trade, represented by your mayor, said to me "Tell us just what you want and we will do it." Well, now, that was a beautiful sentiment, and that seems to be the sentiment that has actuated all the local movements here from the beginning. What we have wanted them to do they have done. Yes, they have done more than that, and to them we owe a special debt of gratitude as a society for what we are doing and what we are accomplishing here at this meeting.

Then there is another factor which I wish to speak of because it is one of the most potent factors in the State in promoting the very business which this Society is working for, and that is the hearty, whole-souled co-operation and assistance which the press has given us from the first. I am glad that so many representatives of the press have been here. I only wish that I could have devoted a little more attention to them.

Another thing which has contributed very much to the success of this meeting came about through a meeting which was held in the city of Worcester. I won't attempt to tell you what that meeting was called for, but it was a meeting at which were assembled representatives of all the horticultural societies in the New England States. It occurred to me while I was there that if a meeting of that kind could be held down here in the State of Maine with us, that it would be one of the finest things we ever had, and so in behalf of the Society I took the liberty of inviting the various societies there represented to send delegates down here, not so much to help us as to bring the fruit interests of the societies into harmonious touch and action. A hearty response came and we have with us here today or have had with us at our meetings, the representatives of all the societies except two. One delegate was chosen to be here and expected to be but sickness in his family kept him at home. I am well pleased with having these representatives here.

Now there are one or two other things along this same line. Yes, there are two—I will try and not forget one while I am

talking of the other. One is, that for the first time since the commissioner of agriculture was created so to speak, or since the office was created, we shall have with us tomorrow Commissioner Gilman and his full corps of institute workers to take part and assist us in our meeting. It is a grand idea, because it brings us into harmonious touch with the agricultural department which is doing such excellent work in the State.

Another thing which I feel proud of and want to speak of is the generous outpouring of representatives who have come from the University of Maine and the Agricultural Experiment Station, and I hope that being with us on this occasion in the way they have come may be one of the features of future years in the affairs of this Society.

I have been very proud in looking over the records of the Society, in noting what kind of work the Society has been doing in this State. And the most prominent thing I see is that all the time from the very first, since this Society was organized, the Society has stood boldly and squarely for the best things in fruit culture. They have advocated the best varieties, the best culture and the best methods of selling their fruit. Those are the three things above all others for which this Society has stood. I am proud to be connected with an organization that always stands up for and advocates the best things. And I am pretty sure of another thing, and that is the grand success of this meeting which we are having here now will be such that the good people of Gardiner and of Kennebec county will want us to hold another meeting here before a great many years, and for one, if I am a member of the Society then, I shall take pride in being here with you.

Mr. T. L. KINNEY, President Vermont Horticultural Society.

A few years ago I had the opportunity of visiting various parts of this State for a few days. We rode down from Montreal, through this beautiful State, down to Portland, and up this beautiful river this morning, and the exercises of today indeed have filled me with such overflowing anxiety for the horticultural and the pomological interests of not only the State of Maine but of New England, that I don't know hardly what to say. It seems to me that as I think over the State of Maine

and what it is doing in horticultural lines that you grow more and more wonderful in my mind, the more I know of you. And yet, it is no wonder that you are a great State, with your neighbors from the south, from the north, pressing down on you with all their force for the products of your soil—no wonder that the State of Maine can grow the biggest Irish potatoes in the world, that you can grow the most beautiful red apples that were ever grown. These calls are making a demand upon you, and when you have the natural resources of course you respond to them, and I am glad to see evidences of this in your exhibits. And as I look over the audience here tonight and look over this wonderful spread, these beautiful, bright, intelligent countenances, indeed I feel grateful that I am here tonight. It seems to me that if I were to live my life over again, and should have a dozen boys, that I should send eleven of them up here to Maine, and that other one, that twelfth one, of course it would be the dearest one of all, the last one always is, well, after your President has been telling us about those 500 barrel boots, I should send him here too. Whenever I see in the agricultural papers, as I very often do, an article from the State of Maine, I read it through and through, and I never have failed to find something that was worthy of attention, worthy of study, something that is solid like your hills and your mountains and your soil and the products you exhibit today. And I am proud of the State. As I read these and become better and better acquainted with you, and converse with you as I have today and expect to tomorrow, I feel that I am proud and happy to think that I am in Gardiner tonight, and the State of Maine.

A. A. Hixon, Secretary Worcester Horticultural Society.

Now there are plenty of people who will tell you all about fruits, and what you ought to do, and the benefits to be derived from growing of fruits, and I have only got five minutes and it is not time enough for me to say much of anything to you about fruits; I should want more time than that. But I want to call your attention to one thing, a crop that you don't think of, and a crop that the State of Maine will have to produce or you won't raise any fruit, and that is boys and girls. You have got to

raise them or you will go out of the fruit business. And I am sorry to say that the American family is not producing as much as it ought to; it isn't producing the right number per family that it ought to today. And that is a crop that you have got to raise. Now I say this in the interests of horticulture and pomology, and I hope that you will raise a good crop of children in the State of Maine as well as a good crop of Northern Spies and Baldwins.

EDWIN H. BURLINGAME, R. I. Horticultural Society, Providence, R. I.

I am here from a small state and I don't think anybody needs to be told that a state,—well it hardly equals territorially some of your counties, it don't equal Aroostook county and I think there are two others that are larger than that state—that it has made no great progress in pomological work. Our State Experiment Station, the State Agricultural College in line with it—has been doing splendid work. The state at large, taken commercially, is not an apple growing state at all. You can count on the fingers of one hand all the orchards of any size in the state. It has one thing to talk about or think of in the past. Every one of you fruit growers raising Greening apples knows that you owe that apple to Rhode Island. The original tree—although there is a question as to whether it is one or the other—but there is one that claims the honor, two hundred years old, and standing today. We have given the Greening apple to the country. We can boast in other ways: we have given to it cotton spinning and the whole cotton industry. And more than that, while I see religious subjects are barred, I will say this, that the noblest man that ever spoke for religious thought and freedom, Roger Williams, was the man who founded the state. I don't need to tell you, but there it is.

JOHN W. CLARK, North Hadley, Mass.

I come from Massachusetts, and I bring you their welcome, and also congratulate you for them upon the bountiful crop of fruit you have this year. Providence has smiled on you more than it has on us. The winter was very severe with us—it has been the last three or four winters although we are further south than you, and our fruit shows more or less injury. But I hope that next year we can welcome some one from your Society, or some ones, the more the better, to our Society meeting, and you can congratulate us on what Providence has done for us—not that we wish you to have any less fruit but we would like to have the conditions the same as this year when other people haven't much and you have a great deal and prices are good; because that is a very important item in the last wind up, that prices are good and that we get something for our work.

And I also want to thank your mayor for his generosity to us in making this afternoon pleasant to us in giving us the trip to Togus. I know I speak for myself, and I think for all the party that took advantage of his generous offer.

I am glad for you that you have such a broad outlook, that nature has done so much for you throughout your State, and though I don't belong here, still I have had the privilege of seeing considerable of your State, as I think this is the sixth or seventh time that I have been down here, and I have been over your State not quite from one end to the other, and still in quite a number of places and I have noticed that you can produce good fruit; but don't think that you are doing anything to what can be done. Although some don't like to hear me say it, I simply say we don't grow any fruit yet. The ground hasn't been broken. We don't get anything the results that we should. The possibilities, the half has never been told. It is here in your soil. Your fruits as they stand in the market have a name that very few states can claim. Your fruits are solid in texture, bright in color, and have the name of keeping equal if not superior to any. But there is one thing that I will say here—in the markets they are a little under size. Now that simply says that you want to grow them a little better, and if you will you will find it will pay you big interest on the money that you put in. I know one time—I can't tell you just when—I was at an insti-

tute meeting and I was speaking of the advantage of thinning fruits, that is thinning an apple tree, picking off the fruit. Well, three or four years after I was in the state again and some one came up to me, a stranger to me, and said: "I was at such a place, such a time, when you were there and you were telling us something about thinning fruit, and I went home and I tried it on a part of one tree, and you have no idea the difference it made in the looks of the fruit." "Yes, I do, that is just what I was telling you." And I felt well paid by what that man said to me. I thought that I had done something that had done some one some good. And if you never have tried that, when you have a crop of fruit, try it and you will be surprised in the difference it will make in the looks of your fruit. It isn't the amount of fruit—it is to grow good fruit. And it isn't to set out more trees, many of us, but to give better care to our trees and produce better fruit on those trees. I will simply say to those who are going into the fruit business, don't try to do too much, but grow more on a little space,—because things are changing even in the time that I can remember, and I am not so very old yet, I hope—conditions have almost entirely changed and just now those that don't understand the situation may be discouraged in going into the fruit business, with the insects and diseases that we have to contend with. But let me tell you this, don't get frightened. It is the best time for anybody who is willing to go into fruit to go into it now, understanding that he has got to grow the fruit; it won't grow itself; because those who will not take care of the fruit are going to be driven out of the business, and those that are willing to pay the price are going to get returns for their investment. Don't be afraid of the insects, the gypsy, or the brown-tail, or the San Jose scale. We were never floored yet and we never will be. When the San Jose scale first appeared in the eastern states, the fruit growers were alarmed and didn't know but what they had got to go out of the business. But as time has gone on they have found that they can control the scale. If you don't do it, you are poor and for that reason; these careless growers are going soon to be out of the business, and your markets are going to be more clear of this refuse, cheap fruit; you are going to have the markets to yourself. Fruit growing is to become a specialty.

Prices are going to be better and you are going to make more money than you ever did before if you are only willing to put yourself into it and do the work necessary. If you are not, don't go into it, but simply let it alone.

WILFRID WHEELER, Concord, Mass.

I am very glad to be with you here tonight, and in fact at this convention, and bring you a greeting from the old Massachusetts Horticultural Society. I suppose we can claim the honor of being one of the oldest societies, if not the oldest, in the United States. At the same time, we are always ready to welcome all the new ones, and we are always ready to welcome any of the people from other societies who may come to Boston at any time. And it is always a pleasure to me to go out among the other societies of New England and find out what they are doing. The progress of this Society helps us, shows us what you are doing, shows us what you are raising in Maine. And it is only through these horticultural societies that the people get together the products of the state, or the products of the communities. They bring these products together in their annual shows and these together with the literature they publish offer great opportunities to the producers of fruit or any other agricultural or horticultural products. We represent there perhaps a very aristocratic section in a great many ways. The people about Boston who are interested largely in the Horticultural Society grow flowers. Fruits and vegetables have lately been in the background more or less, as our premium lists would show. We award perhaps three or four thousand dollars for flowers where we award two thousand for fruits and vegetables. But at the same time we are always open to exhibitions of any kinds of fruits and vegetables raised in any part of New England, or in fact in the United States. And I was very glad to notice in what your president said tonight, that it was not the money part of fruit growing or the money part of horticulture that we ought to be interested in—we ought to be interested for a love of the vocation, the avocation, and this point all New England should strive for. And if we do strive for that, and if we attain it, we will grow fruit that New England will be proud of, we will

grow fruit that can beat all that western fruit, and certainly in quality it is far ahead of it now. We have a soil here, climatic conditions and markets that are superior to any other part of the country. We are near to the sea where apples and all our more hardy fruits can be shipped, and we are near to the markets where a large per cent of the fruit of the country is consumed. Therefore it is up to New England to prove to this country and to the world that we can grow fruit better than any other part of the country.

ROBERT H. GARDINER, Gardiner.

It has been a very great pleasure to me to be at the meeting of the Society. I have been a member of it, I believe, ever since the death of my father, but I seem to have so many irons in the fire that I never have been able to get time to attend a meeting before. I have found so much pleasure and profit in this meeting that I am going to turn over a new leaf and turn up at every meeting if possible in the future.

As I have not been a regular attendant of meetings of the Society, I want to say—and we are all here in the family so that I think we can speak pretty openly without seeming to pat ourselves too much on the back,—I have been a good deal struck with the tone of the meeting as brought out in the opening remarks of our President tonight. I have had the misfortune to have spent a good deal of my time in Boston among business men there, and there are altogether too many business men in Boston, as in every other large city who when they find a good thing try and keep it to themselves—they don't want any one else to know about it because they are afraid somebody else will share in that good thing and get some of the advantages which they are getting themselves. They won't, except when they want to borrow money at the bank, they won't admit that the business in which they are engaged is beginning to pay its expenses. I have been struck with the fact at this meeting that we all know we have got a good thing and we want everybody to know it, and, as Mr. Clark has just said, I don't think we begin yet to know how good a thing apple raising, especially in Maine, is going to be. I think, as Mr. Clark said, the half of the advantages of apple raising in Maine has not yet been told.

I think there is going to be an enormous development in the immediate future in apple raising. We know we have a good thing and we want everybody else to know it; and we want everybody else to know it because the Society evidently thinks, and its members who have spoken evidently think it is going to be a good thing for these other people. We want other men to share the advantages which we have had. We have made a discovery, and the Society is throwing that discovery open to the world and saying to everybody here in Maine, "Now here is a good thing, you better come in to it yourself. We are doing well. We want more men to share those advantages, and you better come in and see if you won't do well at it yourself."

Then it is going to be a great thing for the young men of Maine. The young men of Maine are going to see, as a great many of them have already come to see, that there isn't any better chance for a young man than to go into fruit raising, provided he is willing to work hard and faithfully. Lots of them are going to find it better to stay east on these Maine farms and go into profitable and attractive business. They are going to find it better than to go off to the big cities, and if they succeed as well as the majority of them, pass a weary life shut up in a little bit of a hall bedroom in a dingy boarding house on a noisy side street, with hardly a glance at the sky and only a breath of pure air, and just one unending routine day after day, week after week, month after month, of some uninteresting routine business.

B. F. W. Thorpe of Augusta, Editor of Maine Farmer.

It has been a more than pleasure to listen to the remarks already given by those who are much more able to give good things than the speaker. Especially have I been pleased to hear the good words expressed from those who have come to us from out of the State. I have been thinking since the President called for these remarks from me that perhaps I could do no better than for a moment to speak of something that has interested me much within the past two years, and more especially brought to my mind during the past few days. A lawyer in Illinois, who had a brilliant future before him, was told that within a very few years his sands of life would cease to flow unless he

got out of that business out into the open air. His physician told him to come to Maine and get outside, get out into the air. He left his home, came to Maine, bought a farm—six years ago this was—knowing nothing of farming, and since that time I have learned that he is learning the business and is especially devoting his energies to fruit growing in this county. He has got into comfortable circumstances, has regained health, and is now able to follow the most arduous toil from sunrise to sunset. Now this has been more than success to him. It has been life itself.

Just adjoining him a young man came from Nova Scotia and I was talking with him only Saturday last. He came here two years ago; through the influence of the paper I represent he learned of Maine fruit growing possibilities and came to this State and found a farm adjoining the gentleman that I have just mentioned. Here he bought eighty acres of farm land and has started in there to become a fruit grower, that is, an apple grower. Beginning with a wornout orchard, or at least an orchard in poor state of growth and fruiting, he has got that now started so that he tells me that he has grown apples there this year that exceed anything he has ever seen of Baldwins in the noted Annapolis Valley which is famed for being more largely for the same area engaged in apple growing, and more successful than any other similar area in the world. He says that Maine with the same energy and the same skill can outclass that noted valley, and he has the goods to prove it with from that old orchard. His idea is to begin now and set out one hundred trees each year until he gets at least a thousand trees, and he is fully satisfied that this land—eighty acres that he paid $3,000 for—is well worth more than the land that there costs $100 an acre. That is, he said for the $3,000 farm he would have to pay at least $8,000 in that valley, and he can get better results, better market, and more successful fruit raising.

Dr. C. D. Woods, Director State Experiment Station.

There is nothing that touches the agriculture of Maine in any way, be it fruit growing or what it may be, that is not of vital interest to the Maine Agricultural Experiment Station. We

are trying to help the agriculture of Maine as best we know how. Of course the field is large. There are many things that we are trying to do. We hope that we are going to be able in co-operation with this Society to get started in a new line of work along apple propagation, in which there are problems that need a longer life than our honored President has had to live, beyond the length of life of any one man. But we cannot do it upon any land that is under the control of the Experiment Station or the trustees of the University, because we haven't a soil or a climate that is adapted to the best fruit growing. We asked the last legislature through this Society for a farm for that purpose. In the wisdom of the legislature, or rather of the Committee on Agriculture of that legislature, that request was postponed to the next legislature. One of the things that was suggested this afternoon, you remember, was that we don't know but what the Baldwin apple could have been a hardier apple if we had confined ourselves to the old original Maine stock. That kind of a problem can never be answered upon private land. It must be where the experiment can be carried out for years under close observation. And so I would like to again state to this Society that I think that that is one of the things that we still, as producers of fruit in Maine, have a right to ask from this great State, that it shall give a laboratory—by that I mean a farm and the necessary equipment, with orchards upon which we can expend some of this money which we get from the Natioual government for the development of this fruit industry. We shall continue to do all that we can to help along the lines of fungous enemies, along the line of insect enemies; but we want to take some of these fundamental problems, that must take year after year of patient observation, and that must be under the control absolutely of the Experiment Station—I don't care about the ownership of the land, but the control of it—so that we shall know that an experiment we start today can be carried on year after year until with patience we get the answer. If we are going to solve these things, they must be solved upon land that is under control for a series of years extending, as I say, beyond the life of any one that is now connected with the Experiment Station, I hope. I want to say that the Station is at your control, to do everything that we can in any way; if

there are questions that you want to ask us, we will answer them if we can; we will honestly tell you when we can't. There are these questions we want to solve just as much as you want to have them solved, that we are desirous of undertaking, and we can't do it unless we can have the laboratory in the shape of a farm and things to do with.

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