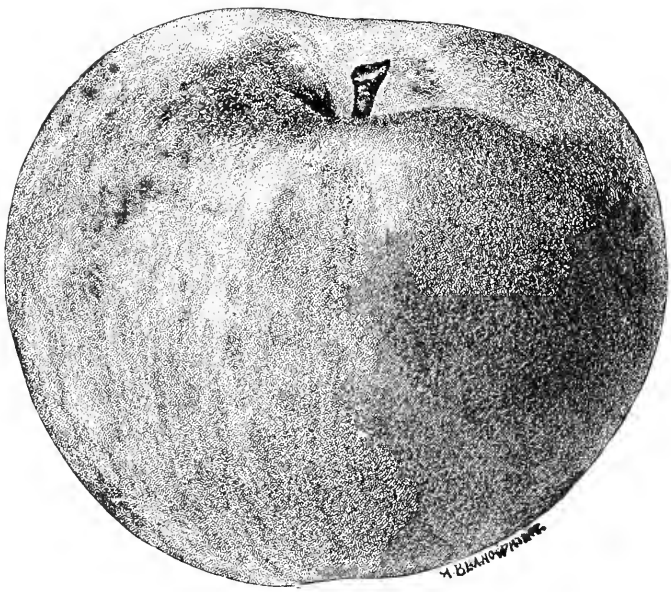


ROLFE.

A Maine seedling. See page 120 for history and description.

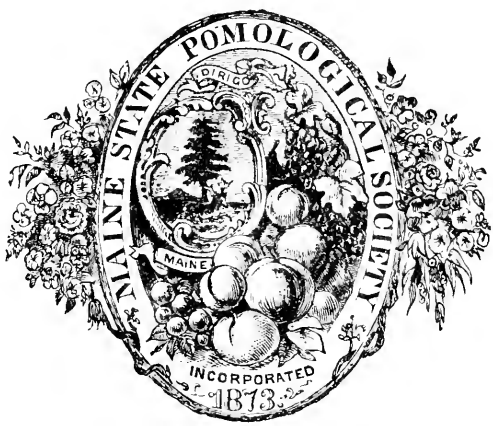
TRANSACTIONS

OF THE

Maine State Pomological Society,

FOR THE YEAR 1888.

Including the Proceedings of the Winter Meeting held in Lincoln Hall, Damariscotta, February 12, 13 and 14, 1889.



EDITED BY THE SECRETARY,

D. H. KNOWLTON.

AUGUSTA, MAINE:
BURLEIGH & FLYNT, STATE PRINTERS.
1889.

"So, on a large scale, the student and lover of nature has this advantage over people who gad up and down the world, seeking some novelty or excitement; he has only to stay at home and see the procession pass. The great globe swings around to him like a revolving showcase; the change of the seasons is like the passage of strange and new countries; the zones of the earth, with all their beauties and marvels, pass one's door, and linger long in the passing. What a voyage is this we make without leaving for a night our own fireside!"

CONTENTS.

MAINE STATE POMOLOGICAL SOCIETY.

Transactions for the Year 1888-9.

There are so many ways in which our Society is doing a magnificent work in behalf of the various industries it represents, it is extremely difficult to gather the fragments and arrange them in intelligble form for publication. It may be an easy matter to set in order the papers read at our meetings, and to spread out before the reader the various discussions which form so important a feature of our public gatherings. The official action of the Society, so far as it may become a matter of record, may be readily shown in its list of officers, the votes passed, reports of committees, etc. The annual exhibition as announced in premium lists looks well, and so do the tables of fruits and flowers, but the list of awards is all we are able to publish in connection with it. These represent what we may call the visible work of the Society.

Beyond all these the Society is the means of disseminating useful information to the public which none can correctly measure. During the year the officers have been in frequent correspondence not only with Maine fruit growers, but with other persons outside the State, and with other kindred societies. There have been frequent calls for our annual volume of Transactions and for information regarding varieties of fruits and cultural directions. So far as possible it has been a pleasure to respond to these inquiries, though in the absence of any extended publication the answers have necessarily been brief. The extent of the unorganized work is the feature most difficult to determine. To illustrate:—Our last exhibition was one of the best arranged we have ever held. Many of its details are published elswhere, but the taste shown in the displays of fruits and flowers is the æsthetic feature and can not be shown in print. The harmony of colors in the floral designs was

studied by many, and the skill of the designers in producing the effect will be copied by hundreds who saw them and admired their beauty. About the fruit tables and the officers large throngs of fruit growers were attracted. They were in search of knowledge and were busy seeking it of others who happened to be near them. New varieties were examined with closest scrutiny, their merits discussed, and many a one "made a note of" what they had learned. "Jack Spratt" and "Nelson" failed to draw the fruit growers from these pleasant surroundings.

Particular attention is invited to the annual address of President Pope, especially to those portions in which are outlined the work of the Society during the past year.

Regarding the present volume the plan of arrangement is somewhat different from that of previous volumes, but it is believed it will make the contents more valuable to the reader. The business transactions of the Society are under one general head instead of being scattered through the book. The papers and discussions are, so far as possible, arranged according to subjects. The fruit list prepared by the Society's Committee on Revision of Fruit Catalogue, though not complete will be found reliable, and it is hoped may prove helpful to those in search of the information it contains.

D. H. K.

OFFICERS FOR 1888.

President.

CHARLES S. POPE, Manchester.

Vice Presidents.

D. J. BRIGGS, South Turner.

O. C. NELSON, New Gloucester.

Secretary.

D. H. KNOWLTON, Farmington.

Treasurer.

A. S. RICKER, Turner.

Executive Committee.

The President and Secretary, *ex-officio;* H. W. Brown, Newburg; L. H. Blossom, Turner Centre; J. W. True, New Gloucester.

Trustees.

Androscoggin	County,	I. T. Waterman, East Auburn.
Aroostook	"	J. W. Dudley, Castle Hill.
Cumberland	"	S. R. Sweetser, Cumberland Centre.
Franklin	"	M. C. Hobbs, West Farmington.
Hancock	"	F. H. Moses, Bucksport.
Kennebec	"	E. A. Andrews, Gardiner.
Knox	"	Elmas Hoffses, Warren.
Lincoln	"	H. J. A. Simmons, Waldoboro'.
Oxford	"	C. H. George, South Paris.
Penobscot	"	S. C. Harlow, Bangor.
Piscataquis	"	H. L. Leland, East Sangerville.
Sagadahoc	"	H. S. Cary, Topsham.
Somerset	"	James S. Hoxie, North Fairfield.
Waldo	"	D. B. Johnson, Freedom.
Washington	"	Dr. A. R. Lincoln, Dennysville.
York	"	B. F. Pease, Cornish.

Committee on Nomenclature.

Z. A. Gilbert, North Greene; W. P. Atherton, Hallowell; D. P. True, Leeds Centre.

Committee on New Fruits.

D. H. Knowlton, Farmington; L. H. Blossom, Turner; J. W. True, New Gloucester.

Committee on Revision of Fruit List.

D. H. Knowlton, Farmington; D. J. Briggs, South Turner; D. P. True, Leeds Centre; Henry McLaughlin, Bangor; E. W. Dunbar, Damariscotta.

MEMBERS OF THE SOCIETY.

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

LIFE MEMBERS.

Andrews, A. Emery.....Gardiner
*Atherton, H. N.....Hallowell
Atherton, W. P.....Hallowell
Atkins, Charles G.....Bucksport
Atwood, Fred.. .....Winterport
Averill, David C.....Temple
Bennoch, John E. .....Orono
Boardman, Samuel L.....Augusta
Briggs, D. J .....South Turner
Briggs, John... .....Turner
Burr, John.....Freeport
Butler, Alonzo. .....Union
Carter, Otis L. .....Etna
Chase, Henry M.....North Yarmouth
Chase, Martin V. B .....Augusta
*Clark, Eliphalet.....Portland
Cole, Horatio G.....Boston, Mass.
Crafts, Moses. .....Auburn
*Crosby, William C. .....Bangor
Dana, Woodbury S.....Portland
DeRocher, Peter.....Bradentown, Fla.
Dirwanger, Joseph A.....Portland
Dunham, W. W.....North Paris
Dyer, Milton..... Cape Elizabeth
*Emerson, Albert.....Bangor
Farnsworth, B. B .....Portland
Frost, Oscar F .....Monmouth
*Gardiner, Robert H.....Gardiner
Gardiner, Robert H .....Boston, Mass.
George, C H.... .....Hebron
Gilbert, Z. A.....North Greene
*Godfrey, John E.....Bangor
Hackett, E. C.....West Gloucester
Hanscom, John .....Saco
Harlow, S. C.....Bangor
*Harris, N. C .....Auburn
Harris, N. W..... Auburn
Harris, William M.....Auburn
*Hersey, T. C.....Portland
Hopkins, Miss S. M.....Gardiner
Hoxie, James S.....North Fairfield
Hobbs, M. C.....West Farmington
Hoyt, Mrs. Frances.....Winthrop
Ingalls, Henry.....Wiscasset
*Jewett, George.....Portland
Johnson, Isaac A .....Auburn
Jordan, Francis C.....Brunswick
Knowlton, D. H.....Farmington
Low, Elijah.....Bangor
Low, S. S.....Bangor
Lapham, E. A.....Pittston
McLaughlin, Henry.....Bangor
Merrill, T. M.....West Gloucester
*Metcalf, M. J.....Monmouth
Moore, William G.....Monmouth
Moor, F. A. .....Waterville
Morton, J. A.....Bethel
Morton, William E.....Portland
*Noyes, Albert..... Bangor
Perley, Chas. I....Seward's (Vassalboro')
Pope, Charles S.....Manchester
Pulsifer, D W.....Poland
Purington, E. F .....West Farmington
*Richards, F. G ..... Gardiner
Richards, John T.....Gardiner
Ricker, A. S.....Turner
*Richardson, J. M.....Gardiner
Roak, George M.....Auburn
Robinson, Henry A..... ....Foxcroft
Rolfe, Samuel.....Portland

*Deceased.

LIFE MEMBERS—Concluded.

Sawyer, Andrew S.....Cape Elizabeth
Sawyer, George B.....Wiscasset
Shaw, Stillman W.....West Auburn
Simmons, H. J. A.....Waldoboro'
*Smith, Alfred.....Monmouth
Smith, Henry S.....Monmouth
Starrett, L. F.....Warren
*Stetson, Isaiah.....Bangor
Stilphen, Asbury C.....Gardiner
Stanley, Charles.....Winthrop
Stanley, O. E.....Winthrop
Strout, S. F.....Cape Elizabeth
Strattard, Mrs. A. B.....Monroe
Sweetser, S. R.....Cumberland Center
*Taylor, Joseph.....Belgrade
Taylor, Miss L. L...(Lakeside) Belgrade
Thomas, William W., Jr.....Portland
Tilton, William S.....Boston, Mass.
True, Davis P.....Leeds Center
Varney, James A.....The Dalles, Oregon
Vickery, James.....Portland
Vickery, John.....Auburn
Wade, Patrick.....Portland
*Weston, James C.....Bangor
Wharff, Charles S.....Gardiner
Whitney, Edward K.....Harrison
Woodman, George W.....Portland

ANNUAL MEMBERS, 1888.

Berry, M. B.....New Gloucester
Chandler, S. H.....New Gloucester
Chipman, A. B.....New Gloucester
Davis, Jacob L.....Upper Gloucester
Fogg, Chas. N.....New Gloucester
Nelson, O. C.....Upper Gloucester
True, John W.....New Gloucester
Ward, John H.....New Gloucester
Whittier, Phineas.....Farmington Falls

ANNUAL MEMBERS, 1889.

Bickford, James.....Carmel
Blossom, L. H.....Turner Centre
Chase, Geo. C.....Lewiston
Davis, Jacob L.....Upper Gloucester
Dudley, J. W.....Castle Hill
Dunbar, E. W.....Damariscotta
Dunton, John.....Lewiston
Gurney, Lemuel.....Hebron
Hawkins, M.....Auburn
Hoffses, Elmas.....Warren
Hopkins, John.....Newcastle
Judkins, H. P.....Chesterville
Kenniston, J. P.....Simpson's Corner
King, S. M.....South Paris
Leech, H. T.....East Monmouth
Leech, S. E.....East Monmouth
Luce, Willis A.....South Union
Merritt, E. W.....Houlton
Nelson, O. C.....Upper Gloucester
North, M. J.....Wilton
Perkins, L. J.....Portland
Pulsifer, D. M.....East Poland
Skillings, Laurinda.....Lewiston
Stetson, Everett.....Damariscotta
Towle, Willis O.....West Gardiner
True, J. W.....New Gloucester
Wharff, W. R.....Gardiner
Young, W. H.....Auburn

*Deceased.

Annual Statement for the Year Ending December 31, 1888.

Receipts.

Cash from Manufacturers' National Bank	$400 00	
State Treasurer, bounty, 1887	500 00	
Life members	40 00	
Annual members	40 00	
State Agricultural Society	450 00	
		$1,430 00

Expenditures.

Cash paid—Secretary's salary	$75 00	
clerk	8 00	
expenses	53 91	
Executive committees' expenses	158 75	
stationery, printing and binding	62 77	
interest	6 20	
Peoples' Trust Company, note	350 00	
L. F. Starrett	3 65	
Carl Braun	20 00	
overpaid by last Treasurer	2 56	
paid S. L. Boardman	32 95	
overpaid premiums, 1887	10 00	
paid premiums, 1888	584 75	
in treasury	61 46	
		$1,430 00

Financial Condition of the Society Dec. 31, 1888.

Assets.

Due from the State bounty, 1888	$500 00	
Property owned by Society, estimated	150 00	
Permanent fund deposit	365 85	
Balance due from State Agricultural Society, 1888	50 00	
		$1,065 85

Liabilities.

Due Manufacturers' National Bank	$400 00	
Outstanding orders and accounts, so far as known	35 00	
		$435 00

Permanent Fund.

Cr.

By fees of 91 life members to Dec. 31, 1887	$910 00	
4 " received 1888	40 00	
		$950 00

Dr.

To amount in deposit with Wiscasset Savings Bank	$365 85	
Balance due fund	584 15	
		$950 00

A. S. RICKER, *Treasurer.*

Turner, February 12, 1889.

The foregoing accounts of the Treasurer have been examined and found correct.

Charles S. Pope,
L. H. Blossom,
H. W. Brown,
J. W. True,
D. H. Knowlton,
} *Executive Committee.*

Damariscotta, Feb. 14, 1889.

Maine State Pomological Society.

Report of the Sixteenth Annual Exhibition Held in Lewiston, September 11, 12, 13 and 14, 1888.

By invitation of the trustees of the Maine State Agricultural Society the executive committee of this society met them in Lewiston, and perfected arrangements for holding the society's sixteenth annual exhibition in connection with the exhibition of their society. The arrangements made were definitely understood and recorded by both societies. There was perfect harmony of action between the two societies, and, we are glad to state, the most friendly relations have continued to the present. The exhibition was accordingly held in the exhibition hall in the State Fair Park, Lewiston, September 11, 12, 13 and 14, 1888.

The executive committee gave the revision of the society's premium list most careful attention, and after fully discussing the premises decided to reduce the number of premiums offered on single varieties of apples and to increase the amount of premiums offered for our three leading winter fruits for market, namely, the Baldwin, Rhode Island Greening, and Roxbury Russet. The premiums offered for each variety were $5 for the first, $3 for the second and $2 for the third. In this department each plate consisted of just twelve specimens of fruit. At first there were some doubts about the wisdom of this plan, but as the season advanced it seemed to be approved by fruit growers, and when the fruit tables at the exhibition were put in order there was spread out before the public a display of winter fruit never surpassed in Maine. For the Baldwin premiums there were forty-two plates of fruit, for the Rhode Island Greening thirty-one, and for the Roxbury Russet twenty-five.

There were county exhibitions of fruit from all the counties except Hancock, Piscataquis, Washington and York. It was a pleasure to have so large a part of the State represented, but we ought not to be content till our tables are laden with fruit from every county. Hon. Parker P. Burleigh from Linneus made an excellent display of fruit grown by him. From the fine specimens of apples in his collection we are convinced that Aroostook will soon produce an abundance of apples.

The exhibition was a surprise to many, for the fruit was not only more abundant than anticipated, but it proved to be far better in quality also.

There was a large number of varieties of fruit exhibited for name, and special care was taken to have these apples carefully examined by the committee on nomenclature and other fruit growers. Names were given so far as known, but some specimens could not be identified. This feature of the exhibition proved to be one of the most valuable.

There was a very good exhibition of pears, and they were of excellent quality, too. Fruit growers are confident in the belief that Maine can grow her own pears, and the annual exhibitions show a very large increase each year.

The exhibition of flowers was large in spite of the frost, though many tender varieties of open air plants were conspicuous by their absence. Mr. George M. Roak of Auburn had an excellent and attractive display of greenhouse plants.

The executive officers took special care to have every part of the exhibition well cared for, and to show every attention possible to the exhibitors and the thousands of visitors.

The fruit of several exhibitors was placed at the disposal of the secretary of the society. The ladies representing the Women's Charitable Association of Lewiston and Auburn were presented with the fruit in behalf of the exhibitors. They informed the secretary that the fruit was of value to them, as from its sale they were able to secure funds for the noble work of their organization. Before the fair closed, the ladies formally extended to the secretary and the donors their thanks for the fruit.

The General Rules of the exhibition were essentially the same as last year, and as they were published in the premium lists, they are omitted in the Transactions of the society this year.

List of Premiums Awarded at the Sixteenth Annual Exhibition, 1888.

Class I—APPLES.

Entries for *all premiums* in this division must consist of five specimens of each variety exhibited.

By "named varieties" is meant such as are named and described in some standard work on Pomology or have been named and approved by some National or State Horticultural Society.

In adopting 20 as the number of varieties required in the general and County collections, the Society does not intend to encourage the multiplication of varieties; and the committee will be instructed in awarding the premiums to have regard to quality and value rather than to the number of varieties, and will be authorized to recommend gratuities for meritorious collections embracing less than the number of varities required.

Awards. Best exhibition of fruit grown by exhibitor: Rufus Prince, So. Turner, $5.00; J. S. Hoxie, No. Fairfield, $3.00.

Best general exhibition of apples grown by exhibitor in any part of the State: W. R. Wharff, Gardiner, $12.00; C. I. Perley, Sewards'. $8.00; Miss L. L. Taylor, Lakeside, $5.00.

Best general exhibition of apples grown by exhibitor in Androscoggin county: John Dunton, Lewiston, $8.00; A. S. Ricker, Turner, $6.00; Nathan W. Harris, Auburn, $4.00.

For the same in Aroostook county: Parker P. Burleigh, Linneus, $6 00

For same in Cumberland county: J. W. True, New Gloucester, $8.00; S. R. Sweetser, Cumberland Centre, $6.00; Milton Dyer, Cape Elizabeth, $4 00.

For same in Franklin county: H. P. Judkins, Chesterville, $8.00;

E. F. Purington, West Farmington, $6.00; David C. Averill, Temple, $4.00.

For same in Kennebec county: H. G. Fairbanks, North Monmouth, $8.00; Willis O. Towle, West Gardiner, $6 00; Charles S. Pope, Manchester, $4.00.

For the same in Knox county: Alonzo Butler, Union, $8.00.

For the same in Lincoln county: E. W. Dunbar, Damariscotta, $8.00.

For the same in Oxford county: C. H. George, Hebron, $8.00; Lemuel Gurney, Hebron, $6.00; S. M. King, South Paris, $4 00.

For the same in Penobscot county: C. A. Arnold, Arnold, $8.00; H. W. Brown, Newburg, $6.00; J. P. Kenniston, Simpson's Corner, $4.00.

For the same in Sagadahoc county: H. S. Cary, Topsham, $8.00; A. P. Ring, Richmond, $6.00; Fred Wright, Bath, $4.00.

For the same in Somerset county: J. S. Hoxie, North Fairfield, $8.00.

For the same in Waldo county: Moses Bartlett, East Dixmont, $8.00; George Bartlett, East Dixmont, $6.00; Mrs. A. B. Strattard, Munroe, $4.00.

For the best collection of apples for home use, for the entire year, in eight varieties: D. J. Briggs, South Turner, $5.00; L. H. Blossom, Turner Centre, $3.00; S. R. Sweetser, Cumberland Centre, $2.00.

For the best collection of crab apples: James Bickford, Carmel, $1.00; J. P. Kenniston, Simpson's Corner, 50c.

Second Division.

Entries for best dish of Baldwins, Rhode Island Greenings and Roxbury Russets, consisting of twelve specimens each.

Baldwins: James Bickford, $5.00; W. E. Rose, $3.00; D. M. Pulsifer, $2 00.

Rhode Island Greenings: C. I. Perley, $5.00; H. G. Fairbanks, $3.00; A. S. Ricker, $2.00.

Roxbury Russets: H. T. & S. E. Leech, $5.00; C. I. Perley, $3.00; Mrs. M. L. Robbins, $2.00.

Alexander: John E. Haley, $1.00; C. H. Bradford, 50c.

American Golden Russet: H. P. Judkins, $1.00; I. T. Waterman & Sons, 50c.

Ben Davis: I. T. Waterman & Sons, $1.00; C. I. Perley, 50c.

Benoni: H. W. Brown, $1.00; J. S. Hoxie, 50c.

Black Oxford: H. W. Brown, $1.00; H. P. Judkins, 50c.

Deane: M. J. North, $1 00; S. R. Leland, 50c.

Duchess of Oldenburg: D. P. True, $1.00; E. G. Woodside, 50c.

Early Harvest: J. S. Hoxie, $1.00; E. F. Purington, 50c.

Fall Harvey: Miss L. L. Taylor, $1.00; H. P. Judkins, 50c.

Fall Pippin: R. H. Gardiner, $1.00; A. B. Chipman, 50c.

Fameuse: C. H. George, $1.00; C. I. Perley, 50c.

Garden Royal: C. I. Perley, $1.00; M. J. North, 50c.

Gravenstein: T. M. Merrill, $1.00; E. G. Woodside, 50c.

Grimes' Golden: H. W. Brown, $1.00; J. S. Hoxie, 50c.

Hubbardston Nonesuch: H. T. & S. E. Leech, $1.00; Miss L. L. Taylor, 50c.

Hunt Russet: H. W. Brown, $1.00; F. A. Rogers, 50c.

Jewett's Fine Red: C. I. Perley, $1.00; D. M. Pulsifer, 50c.

King of Tompkin's County: Miss L. L. Taylor, $1.00; W. R. Wharff, 50c.

King Sweeting: H. P. Judkins, $1.00; G. A. Pike, 50c.

Large Yellow Bough: Laurinda Skillings, $1.00; F. H. L. Sleeper, 50c.

McIntosh Red: E. F. Purington, $1.00.

Mother: Miss L. L. Taylor, $1.00; H. T. & S. E. Leech, 50c.

Munson Sweet: D. H. Knowlton, $1.00; S. R. Sweetser, 50c.

Northern Spy: W. H. Young, $1.00; R. H. Gardiner, 50c.

Orange Sweet: H. P. Judkins, $1.00; J. S. Hoxie, 50c.

Peck's Pleasant: R. H. Gardiner, $1.00; J. S. Hoxie, 50c.

Pomme Royale; C. H. George, $1.00.

Porter: E. G. Woodside, $1.00; R. H. Gardiner, 50c.

President: I. T. Waterman & Sons, $1.00; Horace True, 50c.

Primate: E. F. Purington, $1.00; J. S. Hoxie, 50c.

Pumpkin Sweet: H. S Cary, $1.00; H. P. Judkins, 50c.

Red Astrachan: H. P. Judkins, $1.00; E. F. Purington, 50c.

Red Canada: Willis O. Towle, $1.00; Laurinda Skillings, 50.

Rolfe: S. R. Sweetser, $1.00.

Stark: E. F. Purington, $1.00.

Somerset: Miss L. L. Taylor, $1.00; H. G. Fairbanks, 50c.

Starkey: C. I. Perley, $1.00.

Talman's Sweet: I. T. Waterman & Sons, $1.00; C. I. Perley, 50c.

Tetofsky: J. S. Hoxie, $1.00; S. M. King, 50c.

Wagener: Nathan W. Harris, $1.00; H. P. Judkins, 50c.

Wealthy: S. R. Sweetser, $1.00; O. H. Merrill, 50c.

Williams' Favorite: H. S. Cary, $1.00; J. S. Hoxie, 50c.

Winthrop Greening: M. J. North, $1.00; Horace True, 50c.

Yellow Bellflower: R. H. Gardiner, $1.00; Mrs. I. V. McKinney, 50c.

Russell: David C. Averill, $1.00; M. J. North, $1.00.

Yellow Transparent: S. R. Sweetser, $1.00.

Class II.—PEARS.

Best general exhibition of pears: Samuel Rolfe, Portland, $10.00; L. J. Perkins, Portland, $8.00; C. I. Perley, Sewards', $5.00.

Best five autumn varieties: George C. Chase, $3.00; D. P. True, $2.00.

Bartlett: George C. Chase, $1.00; H. T. & S. E. Leech, 50c.

Belle Lucrative: Alonzo Butler, $1.00; J. S. Hoxie, 50c.

Beurre d' Anjou: D. P. True, $1.00; C. I. Perley, 50c.

Beurre Clairgeau: D. J. Briggs, $1.00.

Beurre Diel: D. J. Briggs, $1.00.

Buffum: D. P. True, $1.00; C. I. Perley, 50c.

Clapp's Favorite: George C. Chase, $1.00; H. T. & S. E. Leech, 50c.

Doyenne Boussock; C. I. Perley, $1.00.

Duchesse d' Angouleme: Geo. C. Chase, $1.00; A. B. Chipman, 50c.

Eastern Belle: J. S. Hoxie, $1.00.

Flemish Beauty: Miss L. L. Taylor, $1.00; H. H. & H. B. Whitman, 50c.

Fulton: L J. Perkins, $1.00.

Glout Morceau: D. J. Briggs, $1.00.

Goodale: C. I. Perley, $1.00; T. M. Merrill, 50c.

Howell: C. I. Perley, $1.00; J. S. Hoxie, 50c.

Lawrence: C. H. George, $1.00; John Dunton, 50c.

Louise Bonne de Jersey: D. P. True, $1.00; Geo. C. Chase, 50c.

Nickerson: Miss L. L. Taylor, $1.00; D. P. True, 50c.

Seckel: D. J. Briggs, $1.00; Mrs. I. V. McKinney, 50c

Sheldon: Geo. C. Chase, $1.00; Mrs. I. V. McKinney, 50c.

Souvenir du Congres: L. H. Blossom, $1.00.

Pratt: D. J. Briggs, 50c.
Napoleon: D. J. Briggs, 50c.
Beurre d' Amates: S. M. King, 50c.
Seedling: C. I. Perley, 50c.

No entries were made for grapes.

Class IV—PLUMS.

Best general exhibition of plums: John Dunton, Lewiston, $6.00; E. W. Dunbar, Damariscotta, $4.00; D. P. True, Leeds Centre, $2.00.

Coe's Golden Drop: Geo. C. Chase, $1.00.

Green Gage: E. W. Dunbar, $1.00; James Dunning, 50c.

Prince Imperial Gage: Geo. C. Chase, $1.00; E. W. Dunbar, 50c.

Purple Gage: E. W. Dunbar, $1.00.

Red Gage: D. P. True, $1.00; R. H. Gardiner, 50c.

Yellow Gage: James Dunning, $1.00; D. P. True, 50c.

Jefferson: R. H. Gardiner, $1.00.

Lawrence: D. P. True, $1.00.

Lombard: C. H. George, $1.00; I. T. Waterman & Sons, 50c.

Magnum Bonum: M. P. Hawkins, $1.00.

McLaughlin: D. P. True, $1.00; Alonzo Butler, 50c.

Moore's Arctic: James Dunning, $1.00; F. W. Chase, 50c.

Smith's Orleans: E. W. Dunbar, $1.00

Washington: E. G. Woodside, $1.00; E. F. Purington, 50c.

Yellow Egg: Lemuel Gurney, $1.00; R. H. Gardiner, 50c.

Niagara: E. W. Dunbar, $1.00; Laurinda Skillings, 50c.

Bradshaw: R. H. Gardiner, $1.00; W. H. Young, 50c.

Prince English: R. H. Gardiner, $1.00.

Duane Purple: Lemuel Gurney, 50c.

Purple Damson: J. W. True, $1.00.

Class V.—MISCELLANEOUS.

For best variety of canned fruits, preserves, pickles, etc., made and put up by the exhibitor: Mrs. W. H. Waterman, Auburn, $8.00; Mrs. Frances Hoyt, Winthrop, $5.00.

For best specimen of canned peaches: Mrs. Frances Hoyt, 50c.; Mrs. W. H. Waterman, 25c.

Canned plums: Mrs. D. P. True, 50c.

Canned strawberries: Mrs. D. P. True, 50c.; Myrtie V. Averill, 25c.

Canned raspberries: Mrs. E. F. Purington, 50c.; Mrs. W. H. Waterman, 25c.

Canned blackberries: Mrs. W. H. Waterman, 50c.; Myrtie V. Averill, 25c.

Canned gooseberies: Mrs. E. F. Purington, 50c.

Canned blueberries: Myrtie V. Averill, 50c.; Mrs. E. F. Purington, 25c.

Canned cherries: Myrtie V. Averill, 50c.; Mrs D. P. True, 25c.

Canned quinces: Mrs. Frances Hoyt, 50c.

Preserved quinces: Mrs. Frances Hoyt, 50c.

Preserved apples: Myrtie V. Averill, 50c.; Mrs. W. H. Waterman, 25c.

Preserved plums: Mrs. Frances Hoyt, 50c.

Preserved pears: Mrs. W. H. Waterman, 50c.; Myrtie V. Averill, 25c.

Preserved strawberries: Mrs. W. H. Waterman, 50c.; Myrtie V. Averill, 25c.

Preserved raspberries: Mrs. D. P. True, 50c.

Preserved currants: Mrs. E. F. Purington, 50c.

Preserved cherries: Mrs. W. H. Waterman, 50c.; Mrs. D. P. True, 25c.

Best jar assorted pickles: Mrs. Frances Hoyt, 50c.

Best bottle tomato catsup: Mrs. Frances Hoyt, 50c.

Best jar quince jelly: Mrs. Frances Hoyt, 50c.

Apple jelly: Myrtie V. Averill, 50c; Mrs. W. H. Waterman, 25c.

Currant jelly: Myrtie V. Averill, 50c.

Strawberry jelly: Mrs. W. H. Waterman, 50c.; Mrs. Frances Hoyt, 25c.

Raspberry jelly: Myrtie V. Averill, 50c.; Mrs. Frances Hoyt, 25c.

Rhubarb jelly: Mrs. W. H. Waterman, 50c.; Mrs. Frances Hoyt, 25c.

Class VI.—FLOWERS.

FIRST DIVISION.

Best display of cut flowers: Mrs. Chas. Stanley, Winthrop, $10.00; Miss Cora E. Ring, Richmond, $8.00; Mrs. A. B. Strattard, Monroe, $5 00; Mrs. Frances Hoyt, Winthrop, $3.00.

For best exhibition of roses: Geo. M. Roak, $5.00; John Burr, $3.00.

Dahlias: Mrs. Chas. Stanley, $2.00; Miss Abby E. Ring, $1.00.

Chinese Pinks: Mrs. Chas. Stanley, $1.00; Mrs. Frances Hoyt, 50c.

Asters: Miss L. M. Pope, $1.00; Mrs. Chas. Stanley, 50c.

Pansies: Lucy A. Chandler, $1.00; Mrs. A. B. Strattard, 50c.

Zinnias: Miss Cora E. Ring, $1.00.

Phlox Drummondii: Mrs. W. H. Waterman, $1.00; Mrs. Frances Hoyt, 50c.

Stocks: Mrs. Chas. Stanley, $1.00; Miss Cora E. Ring, 50c.

Balsams: Miss Abby E. Ring, $1.00; Mrs. Chas. Stanley, 50c.

Petunias: Miss Lucy A. Chandler, $1.00; Mrs. A. B. Strattard, 50c.

Gladioli: Miss Cora E. Ring, $2.00; Miss Lucy A. Chandler, $1.00.

Verbenas: Mrs. Chas. Stanley, $2.00; Miss Lucy A. Chandler, $1.00.

Wild Flowers: Geo. M. Chase, $2.00.

SECOND DIVISION.

Parlor bouquet (professional): Geo. M. Roak, $2.00.

Parlor bouquet (amateur): Mrs. Frances Hoyt, $1.00.

Wall bouquet (professional): Geo. M. Roak, $2.00.

Wall bouquet (amateur): Miss Lucy A. Chandler, $1.00; Mrs. Frances Hoyt, 50c.

Hand bouquet (professional): Geo. M. Roak, $2.00.

Hand bouquet (amateur): Miss Lucy A. Chandler, $1.00; Mrs. H. H. Briggs, 50c.

Floral design (professional): Geo. M. Roak, $8.00; John Burr, $5.00.

Floral design (amateur): Miss Lucy A. Chandler, $5.00.

Floral wreath: Geo. M. Roak, $2.00; Mrs. A. B. Strattard, $1.00.

Floral dinner table decoration: Miss L. M. Pope, $2.00; Geo. M. Roak, $1.00.

Dish of cut flowers: Geo. M. Roak, $2.00.

Basket of cut flowers: Miss L. M. Pope, $2.00; Geo. M. Roak, $1.00.

Dried grasses: Mrs. Chas. Stanley, $2.00; Mrs. W. S. Haskell, $1.00.

Everlasting flowers: Mrs. Chas. Stanley, $1.00; Mrs. Frances Hoyt, 50c.

THIRD DIVISION.

For best exhibition of greenhouse plants: Geo. M. Roak, $15.00.

For best exhibition of pot plants: Mrs. Chas. Stanley, $8.00.

Ferns: Geo. M. Roak, $3.00.

Geraniums: Geo. M. Roak, $2.00.

Begonias: Geo. M. Roak. $2.00.

Coleus: Geo. M. Roak, $2.00.

Best specimen plant of Tuberose: Geo. M. Roak, 50c.

Dracæna: Geo. M. Roak, 50c.

Double Geraniums: Geo. M. Roak, 50c.

Single Geraniums: Geo. M. Roak, 50c.

Salvia Splendens: Geo. M. Roak, 50c.

Foliage Begonia: Geo. M. Roak, 50c.

Flowering Begonia: Geo. M. Roak, 50c.

Coleus: Geo. M. Roak, 50c.

Fuchsia: Geo. M. Roak, 50c.

Carnation: Geo. M. Roak, 50c.

Best single pot plant: Geo. M. Roak, $1.00.

Rustic stand filled with choice plants: Miss L. M. Pope, $3.00.

Best floral design by girl or boy under 15 years of age: Ellen B. Roak, $3.00; Lucy B. Burr, $2.00.

Business Transactions.

March 14, 1888. A meeting of the Executive Committee was called for this date, but in consequence of a severe snow-storm only the Secretary was able to be present.

April 6th the committee met in Lewiston to revise the premium list, and the following assignments were made for the exhibition:

Collections for home use, single varieties and displays of fruit grown by exhibitor, H. W. Brown.

Collective exhibitions, general and county, L. H. Blossom.

Grapes, plums and miscellaneous articles, J. W. True.

Flowers, plants, etc., Charles S. Pope.

April 16. By appointment the President and Secretary met the Trustees of the Maine State Agricultural Society in Lewiston, and perfected arrangements for the annual exhibition.

September 11, 12, 13 and 14, Annual Exhibition.

September 12. The Annual Meeting of the Society was held in the exhibition building on the State fair grounds, at 6.30 o'clock, P. M. Only a small number being present, the election of officers was postponed to the time of the winter meeting for the year 1889.

December 14. The Executive Committee met in Lewiston, the Secretary of the Board of Agriculture being present by invitation. Arrangements were perfected for holding the winter meeting in Damariscotta in connection with the State Board of Agriculture. The premiums awarded, as per schedule presented by the Secretary, were ordered paid, and the accounts of the Society for the current year were closed up.

February 12, 1889. Winter meeting of the Society in Damariscotta, President Pope in chair. The officers of the Society made their annual reports. [See Treasurer's report and President's annual address.] Officers were elected for the current year. [See

list of "officers for 1889."] Committee on revision of Society's Fruit Catalogue reported. [See Report of Committee, Fruit List.]

The papers read during these meetings and the discussions on the same appear in other parts of the "Transactions" under their respective subjects.

February 13. J. W. True, D. J. Briggs and Chas. S. Pope were appointed a committee to examine the fruit on exhibition and report on the same. D. H. Knowlton, D. J. Briggs and E. W. Dunbar were appointed a committee to prepare and present resolutions bearing on the duty of State Experiment Station to horticulture and pomology.

February 14. The committee on exhibition of fruits reported as follows:

Report on Fruits Exhibited.

We find 165 plates of fruit on exhibition, all of which are creditable to the producers.

Lincoln County had some very fine specimens presented by E. W. Dunbar, W. A. Jones, Joseph Day, W. H. Hurne, Ephraim Taylor, John Hopkins, Miles M. Hall, Joseph C. Rollins, Henry Ingalls, S. K. Given and George A. Hopkins.

Knox County. W. A. Luce showed some fine specimens consisting of 17 varieties.

Aroostook County. J. W. Dudley, Castle Hill, had some very fine specimens of apples for any latitude, a variety which originated on his farm. E. W. Merritt, Houlton, had a display of ten varieties, some of which were seedlings originating with him.

Androscoggin County. Two collections were noticed by your committee.

Franklin County. Phineas Whittier of Chesterville showed seven varieties of choice fruit deserving special mention, also a case of evaporated apples of fine quality. D. H. Knowlton some good specimens. E. K. Lord of Farmington presented a plate of particularly fair specimens of russet seedlings.

Kennebec County. Chas. S. Pope exhibited some fine specimens. We also noticed a jar of raspberries presented by Mrs. C. S. Pope put up without cooking. The fruit was well preserved.

Cumberland County. O. C. Nelson, as usual, presented fine sorts, ten in number. J W. True also had fine specimens. J. L. Davis offered ten plates of well selected fruit.

PENOBSCOT COUNTY. Henry W. Brown, Newburg, had twelve varieties on the tables.

There were several jars of good fruit, pickles, jelly and evaporated cider exhibited by S. K. Given, Newcastle, and they added much to the appearance of the tables.

In testing the fruit, we find it a little off in flavor, but large in size and of good color.

J. W. TRUE,
D. J. BRIGGS,
CHAS. S. POPE,
} *Committee.*

Committee on new fruits reported, through Mr. L. H. Blossom [see New Fruits].

The committee on resolutions bearing on the State Experiment Station, reported resolutions as follows:

WHEREAS, The general and State governments have established and liberally endowed an agricultural experiment station in connection with our State College; we congratulate the State upon the possession of an experiment station within its own borders, believing that the possibilities it offers for obtaining reliable and valuable information relating to the successful development and prosecution of our various agricultural industries are inestimable, and that every intelligent farmer should encourage the station in the prosecution of its experimental work; and as horticulture and fruit culture are among the most important of our agricultural industries, and in the future are destined to increase largely as the knowledge of varieties and culture becomes better known; therefore,

Resolved, That we most respectfully solicit the aid of the experiment station in the future development of horticulture and fruit culture, believing that these industries, in consequence of their importance to the agricultural interests of the State, should receive special attention in the experimental work of the station.

Resolved, That inasmuch as the results sought in the line of horticulture and fruit culture are frequently remote, and the experiments necessary to reach them require so great skill and perseverance, in our opinion the work should be first undertaken at the station, under the immediate oversight of the director.

Resolved, That as the work at the home station is perfected, we believe it may be profitably extended so as to reach other parts of the State, and that the results thus ascertained will prove of inestimable value to the industries we represent.

Voted, That the time and place of holding the annual exhibition be referred to the executive committee, together with the necessary arrangements for the same.

On motion of O. C. Nelson, the following vote of thanks was unanimously passed:

That the thanks of this Society be and hereby are extended to the Lincoln County Agricultural Society and the citizens of Damariscotta and New Castle for the liberal arrangements made for holding this meeting and the manifestation of their interest in the welfare of the Society; also to the local committee and those citizens who have co-operated with them in perfecting the arrangements for this meeting; also that the thanks of the Society be extended to the Knox & Lincoln and Maine Central Railroads for reduction of fares; also to the several persons who have presented papers and reports, and to those who have entertained us with music.

D. H. KNOWLTON, *Secretary.*

PAPERS, DISCUSSIONS, REPORTS, ETC.,

PRESENTED AT THE

UNION WINTER MEETING

OF THE

Maine State Pomological Society and State Board of Agriculture,

HELD IN

Lincoln Hall, Damariscotta, February 12, 13 and 14, 1889.

The Union Winter Meeting.

Introductory.

The arrangements made with the Secretary of the Board of Agriculture, by which both organizations united in the winter meeting in 1888, proved so generally satisfactory, that the officers were unanimously in favor of making similar arrangements for the winter meeting of 1889. Secretary Gilbert met with the Executive Committee for the purpose, and a second union meeting was agreed upon, which proved even more satisfactory than the first one. There seems to be no good reason why the two bodies should not work together in this way in the future, especially when such effort seems to make both organizations more efficient.

The Lincoln County Agricultural Society and citizens of Damariscotta and Newcastle extended a very cordial invitation to the Society to hold the winter meeting in Damariscotta. Arrangements were accordingly made, and the meeting was held in Lincoln Hall, Damariscotta, February 12, 13 and 14, 1889. The programme offered was an exceptionally good one, and was faithfully carried out. The local interest in the meeting was good and the attendance was large, representing fruit growers from eight or more counties in the State. The papers and discussions presented were of a high order, and will rank favorably with those delivered before other societies, more liberally endowed than ours.

The citizens of Damariscotta and Newcastle were cordial in their attentions, and appreciative of the papers and discussions, and it is confidently believed that a fresh impetus was given to fruit culture in the locality. The numerous visitors are especially indebted to Mr. E. W. Dunbar of Damariscotta, and Maj. E. W. Stetson of Newcastle, for their constant and courteous attentions during the meeting. Those interested in perfecting the arrangements for the

meeting are also indebted to these gentlemen for efficient services rendered by them in working up the local details for the meeting.

The exhibition of fruit was large and arranged with excellent taste by the committee. The fruit shown was of good size and well colored, but in quality was inferior to our best apples grown in ordinary seasons. It was gratifying to the society to note the rapid advance of fruit raising in Lincoln and Knox counties. The quality of the fruit shown was a sufficient guaranty that conditions there, when understood, will prove very favorable to profitable fruit culture in the future.

The society assumes no responsibility for the ideas advanced in the several papers and discussions found in this volume. They represent individual opinions of fruit growers and are presented as such.

OPENING EXERCISES.

In behalf of the Board of Agriculture, Maj E. W. Stetson of Newcastle called the opening public session to order, stating the objects for which the meeting had been arranged and the local interest that had been generally shown by citizens. He also made brief allusion to the condition of fruit culture in Lincoln county and the rapid progress of recent years among the farmers. He was gratified to have the State Pomological Society meet with them, and in behalf of the citizens introduced the Rev. J. H. Parshley of Damariscotta, who extended a most cordial address of welcome to the representatives of Maine agriculture and fruit growing.

In behalf of the Pomological Society and the State Board of Agriculture, Secretary Gilbert responded to the address of welcome. He was grateful for the cordial words of the speaker and thanked him and the citizens for the welcome so gracefully extended.

Mr. Charles S. Pope, President of the Pomological Society, was then introduced and delivered his annual address.

ANNUAL ADDRESS

By CHARLES S. POPE, President.

Ladies and Gentlemen: As it has always been the practice to open our meetings with an address by the President, it may not be advisable to altogether ignore the custom at this time, but I shall be brief and will not detain you long from the feast of good things which has been prepared for your entertainment.

Firstly reviewing the work of the Society for the past year. By invitation of the trustees of the Maine State Agricultural Society the Executive Committee of this Society perfected arrangements for holding the Society's sixteenth annual exhibition in connection with the exhibition of their Society. The arrangements made were well understood and there was perfect harmony of action between the two Societies, and we are glad to state the most friendly relations have continued to the present. The Executive Committee gave the revision of the Society's premium list most careful attention and made several changes, the most radical of which was to offer increased premiums for our three leading varieties of winter apples for market, viz.: Baldwins, R. I. Greenings and Roxbury Russets. The premiums offered for each variety were $5 for the first, $3 for the second and $2 for the third. At first there were some doubts about the wisdom of this plan but as the season advanced it seemed to be approved by fruit growers, and when the tables at the exhibition were put in order there was spread out before the public a display of winter fruit never surpassed in Maine.

There were county exhibitions of fruit from all the counties except Hancock, Piscataquis, Washington and York. It was a pleasure to have so large a part of the State represented, but we ought not to be content till our tables are laden with fruit from every county. Hon. Parker P. Burleigh, from Linneus, made an excellent display of fruit, and from the fine specimens of apples in his collection we are convinced that Aroostook will soon produce an abundance of apples.

The executive officers took special care to have every part of the exhibition well cared for, and to show every attention possible to the exhibitors and the thousands of visitors.

The Fruit Growers' Convention, held during the evening of Sept. 12, was a grand success. The attendance was large, and the papers contributed for the occasion were practical, and the subjects were

ably presented by the writers. The value of these evening meetings during the fair was fully recognized by all, and there can be no doubt that in future fairs they will form an essential part of the exercises.

The officers of the society have sent specimens of fruit during the year, to Prof. Harvey of the State College, for the purpose of investigating the extent of the ravages of *Trypeta pomonella* in the State. During the fair they collected infected specimens from several parts of the State, and forwarded the same to him. This troublesome insect is now found in several counties, and is doing much damage to fruit. The insect seems to work mostly in fruit grown in sheltered places around buildings, or in places otherwise protected from the cold winds. So far as our own observation extends, they are not working very much in the orchards of the State, except as noted above.

The Executive Committee received a cordial invitation to join the Aroostook party and attend the annual fair at Presque Isle. It was a cause of regret among them that circumstances prevented their joining the party. By permission of the exhibitors a selection of choice specimens of fruit was carefully packed and sent by express with the best wishes of our society.

Your Secretary received a circular and letter from the Division of Pomology of the United States Department of Agriculture, under date of October 19, 1888, soliciting from our society specimens for the fruit display for the Paris Exposition of 1889, "representative specimens of our finer American fruits of all kinds, not in great quantities, but a sufficient number of each variety so that when received here at the department, fine and perfect specimens may be selected for the exhibit. All specimens should be perfect in every way and representative of the variety and with stem and calyx intact if possible. Owing to the extreme difficulty of preserving even a small proportion of the specimens in a fresh state, it will be necessary to place them in a preserving fluid in glass jars, which will be done here. All specimens should be correctly named if possible, with name of grower and locality from which they come. We desire to make as creditable a display as it is possible to do in this manner and at this late day. Will you kindly communicate with this office, stating what you can do toward the furtherance of this scheme?"

On consultation it was decided to send specimens of as many of our best varieties as could be found suitable for that purpose. From various parts of the State the executive committee gathered specimens of fruit which were forwarded to the President, re-packed and expressed to Washington. About thirty varieties were forwarded at this time.

The reception of the fruit by the Department was acknowledged in the following communication:

U. S. Department of Agriculture,
Division of Pomology,
Washington, D. C., Dec. 4th, 1888.

Mr. D. H. Knowlton, Secretary, Farmington, Me.,

Dear Sir:—In the continued absence of Prof. Van Deman, I take pleasure in acknowledging receipt of your favor of recent date and shortly thereafter of the barrel of specimens of apples from your society. The fruit is all in excellent condition, and is certainly very fine and a credit to your State.

Very truly yours,

C. L. Hopkins, *Ass't Pomologist.*

You will see from the report of the Treasurer, that while we are owing a considerable amount to the "permanent fund," we have been very careful not to increase our indebtedness for the past few years. The society is very much in need of more funds, that it may extend its work in many directions. We are now receiving from the State $500 a year, but I think it could be easily proved that twice that amount could be expended to advantage, not only in helping to spread the knowledge acquired by practical fruit growers, but to teach others to avoid those errors which have cost many beginners, not only much vexation of spirit, but considerable money. It may not be advisable at this time to ask for a larger appropriation, but we hope the time will soon come when the society will be treated with the same liberality as are kindred societies in other States. Meanwhile let those who have an interest in the welfare of the fruit grower and the fruit consumer, (which should include the whole community) be willing to come forward and assist us pecuniarily by becoming members of the society, and thus assist us in sustaining our meetings and exhibitions. It may require considerable effort to attend these meetings, but we shall return from a meeting of energetic, practical fruit growers with a better knowledge of methods

than can be obtained from the printed page, and with an enthusiasm which we hope will last at least until our tables are abundantly supplied with fresh fruits in their season.

The labor of disseminating a practical knowledge of horticulture must be largely a gratuitous one. The men who have done the most to awaken a greater interest in horticultural matters have been prompted by beneficent motives and without hope of pecuniary reward. I think you will find, as a rule, that those who take the most interest in such matters are generous, whole-souled men, ready to impart any knowledge they may have gained, and who have no desire to protect their new discoveries by a patent right.

We are not here to proclaim that every one can make a fortune in a few years by setting a few fruit trees or starting a garden of small fruits. We do claim that a man who has a love for the work and faith in the calling, who will not be discouraged at every failure, and ready to change his occupation whenever low prices prevail, will be well compensated for his time and the money invested. There is another point we wish to press, that is the raising of more fruit for the table. Some may call it a luxury that they cannot afford, but if it was known how easily blackberries, raspberries and currants can be raised, they need make no objections on that account. Blackberries will bear bountifully although badly neglected, and all of us know that the currant was in nearly every farmer's garden before the advent of the currant worm. This enemy is now so easily overcome, that old favorite should be universally planted again.

But to return, is it a luxury? We claim that while it may be a luxury it is certainly a judicious economy. It is generally admitted that during the summer months, no diet is so refreshing and wholesome as one in which fresh fruits and vegetables play an important part. Our farming population has the reputation of living on the least varied diet of any class of people, and this too, when with a little trouble and expense their tables could be supplied with the freshest and best of garden products.

We think there will be a larger area set with small fruits the coming spring than ever before, and we would warn beginners against spending much money for new varieties and novelties, which frequently are no better than the standard sorts and often worthless. The Russian mulberry, under the name of "tree blackberry" and the "gooseberry tree" are specimens of these, and are not wanted in Maine.

How to better distribute and open more markets for our fruit in years of great plenty, is one of the questions we are called upon to solve. Thousands of bushels of apples lie rotting in our cellars while tens of thousands of people here on this continent are unable to obtain an apple at a fair price. New markets must be opened and arrangements made with transportation companies to carry our fruit at lower rates. When we can get as low rates as our western fruit growers do to England, we can place our apples in distant markets and realize better prices.

The plan of evaporating our surplus fruit has been advocated by some, and I think no doubt that to a certain extent it is advisable, particularly to dispose of the poorer grades of apples when the farmer can do it with little or no extra help.

In those sections where fruit growing is made a specialty and prices are low, there are already enough evaporators in operation to supply the present demand at prices so low that we cannot afford to compete with them.

In closing I wish to say a word to those who are so discouraged by the experience of the past season in apple raising, that they have lost all faith in the business, and will turn their attention to other crops, neglecting the orchard until prices advance.

Perhaps the farmer is no more vacillating than other men, but it is proverbial that when the price of any farm product is high, everything else is neglected to grow this crop, which can be harvested only in season to reach an overstocked market. Nearly all business has its ebb and flow, and fruit growing is no exception.

In some other states apples may yield more abundantly, but our rocky hillsides, almost worthless for anything else, are particularly adapted to orcharding and will give us a good crop with a small investment of capital. Then our apples are not only noted for good keeping qualities, but those varieties that will fully mature in this latitude are much superior in every respect to the same fruit raised in a warmer climate. Maine Kings and Gravensteins are acknowledged by Boston dealers to be superior to all others, even those from the far famed Annapolis valley.

If you have land suitable and have a love for the business, there is no cause for discouragement. Fruit raising pays as well, if not better than any farm crop, if the requisite conditions are complied with. Feed well, cultivate well, sort well. In times like these the market reports read, "Only the best sell at all now."

The President's annual address was referred to a committee consisting of D. H. Knowlton, E. W. Dunbar and A. S. Ricker, who reported as follows before the close of the winter meeting, and the report was accepted.

Report of Committee on President's Address.

That so far as possible the permanent fund of the society should be maintained intact in accordance with our by-laws; and we would recommend that the indebtedness of the society to that fund be paid at the earliest day possible.

In the absence of further aid from the State, as urged by the President, it is hoped that the officers of the society and its members will earnestly endeavor to secure new members, that our funds may be increased and the work of the society extended.

We see no more reason for our apple growers being discouraged or neglecting their orchards in consequence of the present low prices, than that our western grain growers should stop planting the cereals in consequence of abundant crops and unprofitable prices for a single year.

ANNUALS FOR LAWN DECORATION.

By Miss L. M. Pope.

The present low prices of seeds make floriculture a possibility with even the impecunious. Every one must have observed the increase in flower gardens through the country in the past few years, due, no doubt, in part to the reduced price of seeds, but there must be a growing taste for flowers, as well. One now seldom finds a cottage too humble for its bed of annuals or vine-clad window.

That flowers are capable of giving delight to both cultivator and beholder, however humble and simple in character and arrangement, we must admit; but when the same outlay of trouble and expense may be made to produce pleasing effects, it seems a pity to huddle them in incongruous masses of coloring, and style of growth. Frequently this flower planting is performed by persons with little time for such recreations, and in their haste to make the most with the least outlay, they outrage every law of beauty. To be sure, they cannot spoil the color or form of the individual specimens, but the too close proximity to each other of individuals with discordant coloring and style of growth, spoils the beauty of all.

There is no question but with a little thought in planting, these beds of simple annuals can be made as much objects of beauty and means of decoration in the humblest yard as the experienced gardener makes of his beds on a grander scale on the extensive grounds of his wealthy employer. And since there is no doubt of the educating, elevating influence of beauty in the simplest things, beauty being allowed to be any revelation of nature's great law of harmonies, it becomes an object to study the best effects. Many of the green-house plants are more desirable for bedding than annuals owing to their habit of constant bloom. Not infrequently they are in full bloom when set and continue so through the entire season, but necessarily they are expensive and only accessible to the few, but by early planting many of the annuals are close rivals even in this respect. By planting some of the varieties in boxes, or better still in hot beds long before the frost is out, they will frequently have attained a size that will enable them to commence blooming as soon as their roots are fixed after transplanting, and many of these seedlings are quite as brilliant and effective when they once come into flower as their tropical rivals.

Having been for some years an enthusiastic cultivator of flowers I have given considerable time and thought to effective planting and will try and give some of the results of these experiments, to induce others to try like experiments, with no doubt better results, for the present multiplicity of varieties admit of infinite combinations.

One finds there is a limited number of specimens that combine well in the arrangement of any one bed or border; better effects are assured usually by employing a variety of colors in the same class of plants, only introducing another class when a dividing line is desired, or for a border to the bed when wanted.

The little beds often planted under the window and each side the door-step may be a thing of beauty, instead of a conglomerate mass of color, the coarse growing ones possibly crowding the delicate ones out of sight. Plant the taller ones at the back of the bed, and so graduate the height as to bring the lowest and often the prettiest ones at the front, being careful to choose only colors that harmonize. The border from the street to the front door, if properly treated, may certainly be very effective by using some small, flowering, low-growing plant on the inside line, like the bush lobelia, either blue or white. If the blue be used care should be taken in choice of color of the next line of plants. I

will propose Drummond phlox in a variety of colors, but always leave out the blue and purple shades or use the calendulas in variety. And still another plant fits the place, the dwarf varieties of tropeolum, not omitting one single shade, as they all are beautiful and harmonize. One thing is necessary to insure constant blooming on all annuals, and that is cutting all the old flowers before they go to seed.

Then this border may be finished on the back by planting the dark foliage seedling, perilla nankinensis, in effect equal to some of the dark colors; or the border may be made without either the outside border lines, and any of the above named seedlings make beautiful beds in the grass if massed by themselves. The Drummond phlox needs to be planted very near together, as they grow slight and tall and can thus support each other. A few stakes placed around the outside of bed or border, with a wire stretched from one to the other just above the ground, will keep the plants in line.

Every one knows how much finer pansies are when planted in a bed by themselves. They are a cool-weather plant, and are better when planted in the early fall and transplanted to beds for spring bloom. They had better be slightly protected during the winter. They will not give large flowers or good colors during the summer months, but if they have been blooming all the spring, one can afford to pull them up by the last of June to give place to some summer blooming plant. Balsams, if planted in boxes, can be put in this bed, or snap-dragons in variety make a beautiful show.

Asters also should always occupy a bed by themselves. The most satisfactory way is to buy the seeds in separate packages of color using the darkest colors for the center of the bed and shading out to the outside of white or green of the lightest shades, or making ribbon beds using lines of contrasting colors.

The finest tropical looking beds used on the lawn are grown from seeds using ricinus for a centre, cannas for the next row, perilla nankinensis for the third row, and then centaurias, lastly the blue lobelia or white candytuft. A bed of the new single chrysanthemums makes a very fine show when planted in masses.

If the grounds are large, a bed or screen of double hollyhocks will make a stately appearance. Some of them are as fine in color as the camelias which they very much resemble. The seed should be planted in the early summer to bloom the next summer. If protected slightly during the winter they will live for several years. Beautiful

beds are made of any regular growing plants of one color only, with a border line of some low growing flowering plant with contrasting color. I once saw a bed of pink zinnias with a border of white sweet alyssum that was strikingly fine. Any color of asters used in this way would be in good taste. Nothing can surpass the scarlet salvia when planted in masses on the lawn. They should be planted very early in the season to get the most bloom possible.

Rustic baskets and lawn vases can be filled with annuals entirely, and quite outshow some of the green-house products, using several of the pendant-growing seedlings to droop over the edges, among which are the thunbergia, lobelia elegans, ipomœa, quamoclit, maurandyas, or the tropœolums, if the basket is quite large. Then there are centauræs, dwarf cannas, perillas, pyrethrums, white candytufts, ageratums, bush tropœolums, vincas, uphorbias, emphorbias, agrostemma, and the amaranthus, the tri-color in particular for the center of such baskets.

Annuals furnish some of the finest vines for trellises or screens found among the florist's treasures; among them the cobœ, tropœolum, lophospernum and the ipormœa. These are some of the combinations I have used with happy results, and any one looking at the various catalogues issued by the florists will see there are still plenty of possible combinations to tax their ingenuity and give delight to any who may like to try inexpensive lawn decoration, and prove to the public that taste and not expense makes the beautiful attractive home.

ERRATA.

On page 32, 8th line from bottom, "centaurias" should be "centaureas." On page 33, 2d paragraph, 4th line, "lobelia elegans" should be "lobelia elegans." In same line there should be no comma after "ipomœa." In same paragraph, two lines below, "centauræs" should be "centaureas." In same paragraph, line following above, "uphorbias" should be "euphorbias," and the word following should be omitted, i. e., "emphorbias." In last paragraph, 2d line, "cobœ" should be "cobæa." In line following, "ipormœa" should be "ipomœa."

POMOLOGICAL THOUGHTS AND FANCIES.

By Miss Delia M. Taylor.

To this society of wide repute,
A friend requests me to present some fruit.
I see the well-filled *table* where *three States*
Offer a fine collection of *choice plates*.
These fruits are standard and their merits known,
I've no rare specimens with labor grown:
There's only one encouragement I claim—
To send varieties without a name.

The Sibyl, nature, on fresh leaflets writes
Her precious lore, and our research invites,
No human voice the outward ear may reach,
Yet all around be eloquent in speech.
Each tree, perchance, by leafy pantomime,
May truth portray or breathe a murmured rhyme.
One day I listened, by these fancies led,
And carefully observed what each one said.

I noticed, first, a Willow drooping low,
In helpless anguish swaying to and fro;
And, as a light gale brought the whispered word,
This mournful message I distinctly heard:—

"Life is for all, a round of loss and pain,
What men call joy they never can obtain,
Strive on, but failure only will remain."

"'Tis true that grief and fruitless toil oppress
The strongest soul." I cried in bitterness.
But soon, impulsively, I turned away,
"Has Nature, then, no cheering word to say?"
A ready answer came upon the breeze,
Borne from a group of merry Poplar trees:—

"Life is life, only as pleasure we have,
Fearlessly sorrow and failure we'll brave,
Gayly our silvery banners we'll wave."

"Alas," I said, "that I must hear again
The wild despair and idle mirth of men!
These sounds combine in bitter mockery
Instead of soul-inspiring harmony."
A Lombard Poplar rustled at my side,
And sternly pointing upward, thus replied:—

"Life is in renunciation,
Pain and joy alike disdain,
Outstretched hands must meet temptation,
Earthly things are never gain."

"How true! No—false!" I thought, "but comment spare,
That distant sound may some new counsel bear."
The rushing wind this quiet wood alarms,
As men of old the herald's call to arms.
On dress parade the brilliant MAPLES stand;
Their winged messengers fly o'er the land:—
"Life is in conquest, in warfare victorious,
Proudly our standards shall gleam in the field;
When many fall is our triumph most glorious,
Only to all-conquering time will we yield."

I wondered more as each new voice I heard,
A gentle breeze the upper branches stirred,
Symmetrical in form and towering high
Above the throng so soon to fall and die,
A lofty PINE with dignity serene
Waved its majestic top of evergreen:—
"Life is rising above all these passions that blind;
What is nobler indeed than the conquest of mind?
To the truth and to *justice* your energies give,
For 'tis wisdom alone that is destined to live."

A stately ELM, betraying mild surprise,
Like one who hears, but tacitly denies,
With queenly gesture and becoming grace,
Declared what seemed most worthy of embrace.
"Life is art. Towards the ideal
Should all effort tend.
Aim beyond the low and real;
Beauty is the end."

Feeling responded quickly: "This is best.
Why further wait, or listen to the rest?"
Just then a noble OAK, with royal mien,
Spread out in generous strength its sheltering green.
"'Life is kindly service,' greatest hearts will say;
Goodness holds the strongest, most extensive sway.
That one is the wisest, fairest is his fame,
Whose success the people gratefully proclaim."

Conflicting murmurs then began to cease,
And all the wood around was hushed in peace.
Perplexing doubt within my soul was stilled,
But—why the thought of something unfulfilled?
The *orchard* trees my question seemed to meet,
And, silent, dropped their offerings at my feet.
"In leaves," I mused, "the wild wood trees abound,
But on their thrifty boughs no fruit is found.
No precious product of their own they give,

And only for themselves they grow and live.
What if the secret of true living be
In quiet, self-denying ministry?
Nature can have no grander truth to teach,"
I said aloud. And as, within my reach
An apple tree its luscious wealth displayed,
I picked the fruit, a transverse section made.
Counted again the ten green dots which seemed
The ten commands my childish fancy dreamed.
I *traced the outline* which these points made clear;
Amazed, I saw a *perfect flower* appear.
The spring-time *promise*, by slow growth concealed,
In full fruition was to *sight* revealed.
You smile, my friends. Yet why? Perhaps you see
The wondrous lesson of the apple tree.

FIELD WORK.

By D. H. Knowlton.

Some men whom I meet from time to time claim that the subject of fruit growing is an old story, and that people are tired of hearing so much about it. Well, there are old stories to be sure, besides that of fruit-culture. The story of salvation is one of the oldest, and yet men and women never tire of relating it, and singing together "The Old, Old Story." The A, B, C's are as old as our language, and yet there are and always will be boys and girls who do not know them. It will be remembered, moreover, that the wise man said, "The thing that hath been, it is that which shall be; and that which is done is that which shall be done; and there is no new thing under the sun."

So we may say in our pleasant tasks, that the principles of horticulture and pomology are as old as the hills, but there are and always will be men who do not know them. What more delightful duty can we have than teaching these principles so far as we may be fortunate enough to know them ourselves? None of us, however, are so fortunate as to have gained a knowledge of all or even a considerable part of all there is even in those branches of fruit growing in which we may be the most proficient. While the laws of nature may be unchangeable man has never gained a knowledge of them except as the reward for his study and diligence. As yet I am confident Nature has revealed to none of us a knowledge of all her ways, and there lies just before us in every department of our work, fuller

revelations than have yet been made. We are not content to plant and grow crops as our fathers did for, we believe in utilizing all that has been learned, and at the same time we believe it to be our duty to search for more knowledge.

For years past horticultural societies have devoted their efforts mainly to the introduction of the best fruits and their cultivation. This was the work most needed in the past, and its importance is as imperative as ever, but it occurs to me the time has now come when more attention should be given to the dissemination of a knowledge of the invaluable qualities of fruit. This is of special importance to our own society, for here in Maine the apple crop is becoming one of our most valuable agricultural products. As the orchards have increased in size and number more apples have been used in the State, but we are confident that with a more complete knowledge of the various ways in which fruit may be economically used in our domestic life, a much larger quantity would be used by the growers, while thousands of others would be ready to avail themselves of the information our combined wisdom may be able to offer.

Our country is large and embraces all the variations of climate between the Arctic and Torrid Zones. Almost every variety of fruit known is produced in some part of the country. The succulent fruits of the citrus family are successfully grown in the Southern States and California. Grapes and other fruits are also grown in their greatest perfection. The rapid transportation of these fruits to all parts of the country brings them into direct competition with Maine apples. I have frequently noticed our fruit stores and stands; where there is one basket of choice apples there are numerous baskets and crates of oranges, lemons and other fruits. Bananas, grapes, peaches, pineapples, in fact not only the fruits grown in the United States are in open competition with our apples, but those also grown in other parts of the world. Let us teach the world that in economic value the apple leads them all.

As a rule people know when they obtain a superior article of fruit. There is an autumn apple grown in my own county, called the Russell. I know of no apple of equal quality in its season, either for dessert or cooking. At the same time last fall there was an abundance of autumn apples in our markets, but they were sold from forty to sixty cents per bushel, while the Russell sold readily for $1.00. The quality made the difference.

Our President told me that he sent his Gravensteins to Boston with a few King Tompkins early in the winter. The former sold

for $5.00 per barrel and the latter for $4.00. This was at a time when ordinary fruit was selling from $1.50 to $2.50 per barrel. The fruit sold on its merits.

This may not be in exact accord with the commercial idea of orcharding now prevailing, but at the same time we are quite sure that the demands of the future will be for the best, and not always for what our orchards may produce the most of. Remember, if you please, that we are competing not with different varieties of apples, but with the oranges, bananas and other fruits grown in warmer climates. When I can get a Russell or a Gravenstien I would not exchange for any fruit grown. They are *good enough* for me, and when their superior qualities are known, the sight of them will tickle the palate of the daintiest epicure.

In our cities and many of our larger villages all festive occasions are made redolent with the sweet odors of flowers. By some it is feared the people are becoming extravagant in the profusion of floral displays. It might be better if more flowers were used in our homes day by day and less on public occasions. But along with the flowers wherever good taste would admit, I would make use of fruits. Especially would we use them about our dining-rooms, and so far as flowers or ferns would add to their beauty we would combine them. Adorn the table and sideboards with the choicest fruits; and for one I like their presence before me at every meal. Fruit-pieces are ornamental sometimes in other rooms, and frequently add a charm to the guest little dreamed of by the housekeeper. For one I should be in favor of offering premiums for fruit pieces, though it might be well to limit the fruit to that grown in the State. So far as I have attended exhibitions of the society there has been an effort to make the displays of fruit and flowers attractive, but I fear we may not be doing quite enough, for the influence of our society in this direction is important, as illustrative of what may be done to make fruits beautiful to the eye.

Too often the fruits on exhibition are jumbled together in a confused mass, and in consequence are likely to be passed by unobserved. Let us remember that few people care to partake of fruit that is unattractive. It is usually safe to follow Nature in matters of art, and she adorns our trees with the fruits which never fail to win the admiration of the beholder; and never a man or woman can go among our fruit trees in harvest but an irresistible desire arises

to test the fruit, and our word for it, the man does not always wait to receive it from the hand of the woman.

There is a lack of public taste in these matters. How rarely does one find the best apples placed before him at the hotels. In many cases it would seem as if the proprietors bought only No. 2 apples, and that the *best* of these were eaten by the servants. The fruit dishes are too frequently filled with inferior fruit, and that, too, without any effort to make it attractive. Often one is disposed to refuse such fruit when offered. It is terribly provoking for a fruit grower to think of, for he knows there is no necessity for using inferior fruit any more than there is of using inferior potatoes. Let the hotels use the best dessert apples in the market, polish up their crimson cheeks and arrange them tastily before their guests, and they will find few who will care for other fruits.

In a standard work it is stated, that "For the kitchen the apple is certainly, of all fruits, the most useful; and perhaps it is here that its utility to man is most conspicuous, because it proves, when cooked, a nutritious and wholesome food." There are few indeed who realize the full extent to which fruits may be advantageously used. The testimony of physicians is uniformly that cooked fruit is one of the most healthful articles of food in diet, and scattered through the books on materia medica are frequent recommendations to use fruit both in health and sickness. When our people know how to make the fullest use of apples we shall have less occasion for eating so many meats, and the doctor's calls will be less frequent.

Future pomologists have many surprises in store. Here and there we have their shadows in view at times, though in our thoughtless methods we do not recognize them. The surprises are in the direction of plant or flower study. It has been the habit of our society to give liberal premiums for flowers, and the flowers form one of the most beautiful and instructive features of our exhibitions, but until the last fair I think the society has never offered a premium to directly encourage the study of our beautiful Maine flora. Heretofore the society has offered premiums for basket of wild flowers, bouquets, etc. But the last season as an experiment, for so it seemed to some of the committee, a premium was offered for best collection of correctly named wild flowers. There were two fine collections, but in one case the exhibitor omitted the essential condition, failing to give the botanical names.

We need more enthusiastic men and women to follow up these studies, and the more we can encourage our people to investigate the various conditions of plant life, the more useful we may become in our chosen field of labor. Let us offer more premiums for wild flowers, but let us insist as a first condition that the specimens, whether green or dried, shall be correctly named according to some standard authority. There may not be many who would take part in such a competition, but I am confident the children would enjoy the study, and it was never of greater importance than in the present condition of fruit and flower culture.

The Massachusetts Horticultural Society is one of the most active organizations of its class in this country. This society has a Window Gardening Committee that is doing good work in teaching children to care for simple plants that will thrive in windows, holding exhibitions and offering prizes. As a further stimulus, the committee will distribute free a pamphlet on the cultivation of house plants, giving directions for their growing and also lists of wild flowers in the vicinity of Boston.

It would be a pleasure if our society could do the same kind of work in Maine. Our people attend the fairs by the thousand and are enraptured by the display of flowers. They examine them with the closest scrutiny, to find out that they are all of foreign origin, hardly one among the entire collection that grows in its native soil. To obtain them in perfection is often difficult, and in our enthusiasm to cultivate rare plants we forget that Maine has floral beauties of rare merit.

It is an interesting diversion to look over the beautiful catalogues issued annually by the florists in our country. Even the French rose growers do not approach them in elaborate illustrations. They are so finely printed and gotten up it is really strange more people do not want them. But aside from this the most remarkable attraction to me is the evidence all the way through the pages of the immense results accomplished by the skill of the horticulturist. Every page shows new varieties of vegetables or flowers. Some of them may be inferior to the parent plants from which they originated, but many of them are vastly superior. The rose, the most beautiful of flowers, is one of the most extensive in varieties. The florists, by crossing different varieties, have produced marvels of beauty. The asters afford another illustration of new varieties, many of the later ones being so much superior to the originals that

a botanist's scientific knowledge is almost necessary to recognize the relation of the new to the old. The tulips, the hyacinths, the gladioli and other bulbous plants, show similar results. Recent Dutch growers have announced in their catalogues nearly 2,000 named varieties of tulips. And so we might go on through the catalogue, and note the results of crossing, hybridizing and culture. The fact, however, is apparent, that the newer varieties are more attractive than the older ones, in short, an improvement over the old in most instances.

At our recent State fair there was shown a plate of pear-shaped apples, as perfect in form as any pears ever grown. One of our botanists examined them with great interest and samples were sent to others. One said the organs of reproduction in the pear were so formed they could not receive the pollen from the apple. But no explanation of the "sport" was offered by any one. Shortly after my attention at our local fair was called to a similar "sport," but in this case the limbs of the apple tree interlaced a pear tree near by. I offer no explanation, but I am reminded here of the fact that in the production of new varieties of fruit there has not been given the same study as the florist has devoted to his favorites. So far as I can learn the most of our improved apples are chance seedlings. In giving the origin of various apples, Mr. Downing says they originated "in some town," or "on somebody's farm," or "with some one." The origin of the Wealthy seems to be an exception, for he says, Peter M. Gideon originated it from seed, but then goes on to say that he obtained the seed from Maine. There has been great skill shown in the propagation of the apple tree, and the culture given the trees by many fruit growers is a great improvement over the past. Many new varieties have been given us which are incomparably superior to the old, but as yet Maine fruit growers are not satisfied with the varieties they are raising.

In my own county there are two distinct varieties of the Fameuse, one our fruit growers call the "Winter Fameuse," as it keeps later by at least two months than the ordinary Fameuse. The stock came from the nurseries as the Fameuse, other than this no one has been able to give the history of this apple. It is more oblong, and more highly colored with a deeper crimson. It is in flavor fully equal to the earlier Fameuse. One of our fruit growers sent samples to Dr. Hoskins and inquired for information. In reply Dr. Hoskins offered the probable explanation, which is, that in

some parts of the Provinces where the Fameuse originated, that variety is about the only variety grown in many orchards, and various seedlings have been propagated from them as the Fameuse. This he suggests is probably one of these seedlings, which is really a cross of the Fameuse and some other variety growing near by.

A few weeks ago a gentleman living in my town brought to my place of business two apples which he wished me to test. They were the most perfect russets I ever saw, and they were also the handsomest. In quality they are fine, and though they may not keep quite as long as the Roxbury Russet, they seem to be of equal flavor. These apples originated on the gentleman's farm, a chance seedling growing by the roadside. The quality of the apple was accidentally noticed, and since then he has cut more or less scions from the tree.

These illustrations and others I might give, suggest that the "coming apple" for Maine has not yet been found. A large part of our fruit growers pronounce the Baldwin the most profitable apple for us to grow. Some people prefer different varieties, according to the markets in which their fruits are to be sold, but it is quite generally agreed that they all have their faults. The Baldwin, which most of our fruit growers now prefer, has been led in the English markets by several other varieties which have sold higher. The apple wanted in the markets must be attractive in its appearance, and to receive continued favor must be of superior quality. Then for profitable production the coming apple must be a good keeper, and stand up well in transportation. In other words, the apple we are in search of must have the combined qualities of several varieties, and even then there will probably be chance for improvement. A chance seedling will hardly be expected to be the apple we are in search of, for we know in other departments the best stock is not produced by chance fertilization. Good cultivation may improve the stock, but it cannot change its parentage or eradicate its inferior qualities. In recent years, the florist's skill has given us several strawberries that are superlative in their excellence, and so incomparably superior to the varieties grown thirty years ago, that those earlier varieties have nearly or quite disappeared from the fruit catalogues. There is good reason why they should. It is the survival of the fittest. Now we need the same skill in the culture, or rather propagation of the apple. It is more difficult, perhaps, to originate desirable apples—at any rate, it

requires more time, and here is where organized horticulture ought to lend a hand. It is an easy matter to pick up chance seedlings here and there, and claim the origin thereof, though I would most certainly use even these when they are better than those found in the orchards. It is a matter of skill and patient toil to produce an apple by crossing two improved varieties, but when we see how much the florist has done in the production of new and superior flowers, we have abundant reason to hope for better fruit than we are now growing. Perhaps we may be able best to accomplish this great work through our agricultural colleges. At any rate, here is a good field in which they can join hands with fruit growers.

In conclusion then, our field of labor is a broad one, but there is no department of labor or research which offers the enthusiast more agreeable occupation or more generous returns. The dissemination of knowledge already gained is our first duty. This will teach the public of the best cultural methods and bring to the fruit grower the most desirable varieties. The invaluable qualities of the apple when more generally known will lead inevitably to a larger consumption of the fruit, and consequent profitable production. Then intelligently combine by cross fertilizing the best apples we raise, and in spite of the present depressed markets we may hope that the future will have in store for us more health and wealth in the production of fruits.

DISCUSSION.

Sec. GILBERT: I do not desire to consume much time in discussing this topic; but the paper which we have just listened to with so much pleasure is very suggestive in many directions. The only thought which I would call attention to just here is in connection with the originating of new varieties of fruit. The paper well asserts that we have not yet reached perfection, that there is yet an invitation to us to work for still better results. It is a fact everywhere found in nature that all of the good qualities have not yet been combined in a single individual. That is just as true with our fruits as with our animals and with our other products of the farm. There are, however, efforts being made, looking to the originating of new varieties which shall combine more of the higher qualities than the fruits we now possess. While we may think, just here, that we have fruits that are about good enough, yet we find that our fruits, most delicious in quality, many of them, have certain serious draw-

backs; in fact, it has come to be said that everything good has its out. Now, if by skill, if by attention to the matter, under careful, deliberate operations, guided by judgment, we can cancel the outs and retain the good qualities, or if we can displace some of the objectionable features with still other good qualities, we certainly can accomplish some good.

Horticulturists are quite enthusiastic over the improvement of small fruits, principally by cross-fertilization. This is especially true in regard to the strawberry, which has been multiplied almost indefinitely. We have a great many enthusiastic horticulturists who are at work on this problem of cross-fertilization, for themselves. In flowers great progress has been made; the florists have multiplied results to a far greater extent than has been the case with small fruits. But these efforts have not been confined wholly to small fruits and flowers. There are efforts going on at the present time in the direction of the apple. The most marked example of this that we have are the efforts of that distinguished horticulturist, Mr. Peter M. Gideon, of Excelsior, Minnesota, who has been for several years at work upon this problem of the originating of new varieties of apples, with a view, particularly, that he may produce something which shall be better adapted to the northern belt of the fruit growing section of our country. His work certainly is a commendable one when we take into consideration that there is a belt across this continent, that is north of the natural fruit growing section of this temperate zone. This extensive belt has been, up to within a very recent period almost excluded from the privilege of growing palatable fruit for its own use, and has been obliged to purchase its supplies from abroad or go without this important luxury. Hence efforts are being directed toward the growing of fruits combining the desirable qualities for this belt. The first of all of course, is hardiness. It is a fact that our most delicious fruits are, as a rule, somewhat tender in their habits and cannot be grown far north. Now the effort is being made to combine hardiness with fine qualities, and this Mr. Gideon is engaged in that work. Such is his success in this line of work and so enthusiastic is he that still greater results will be accomplished, that he has been put on a salary by the State of Minnesota, and is now under employment by that State in propagating, through cross-fertilization, new varieties of apples, with a view to supply the wants of that section which has been heretofore excluded from the privilege. While he has not yet published

the full results of his work in that direction, still he has accomplished a great deal. His attention was first called to this line of work by the apple which has been referred to here in the paper, the Wealthy, which was grown from seeds furnished him by Mr. Albert Emerson of Bangor. That seed is supposed to be a cross from the crab apple, which gives it its superior hardiness. And it is a very satisfactory fact that the Wealthy apple promises to be adapted to a wider extent of this northern country than any other fruit heretofore discovered of like high quality. Thus has occurred one of the greatest benefactions in this direction that has ever been handed down to us; and this was an accident; yet accidents have given the cue to what may be accomplished by design, and that is, the cross-fertilization of hardy varieties with other hardy varieties of higher quality. This is what is being done, and Mr. Gideon has now on hand some 25,000 seedling apple trees that are being grown for the purpose of showing the quality of fruit which has resulted from his cross-fertilization. These trees will all be fruited and the quality of the fruit tested, and from that number it is expected, and reasonably expected, that a large number of valuable varieties may result. He already has some twenty different varieties which he calls valuable acquisitions. They have not been disseminated to any considerable extent; except to test them in different localities; they are not given to the general public yet; still, unquestionably, there are valuable varieties there.

Now, when you take into consideration the results achieved with the limited efforts that have been carried on up to the present time, you see we may well believe that very much greater efforts will succeed, in the future, as we gain knowledge of how to go to work, what to cross with and how to bring about the desired results. The limit can hardly be conceived, and without any question the time is near at hand when we shall produce varieties of a high quality that may be adapted to our Northern climate. It is a curious fact, in this connection, that we have families of apples, like the Fameuse, for example—which is grown about Montreal, whole neighborhoods confining their orchards to that one variety—that reproduce themselves very closely. The Fameuse blossoms are crossed with Fameuse blossoms, and, as with our native Fameuse and the Canada Fameuse, they propagate themselves very closely indeed; and these Fameuse apples, varying only very slightly, have been multiplied almost indefinitely. The same occurs in Russia;

they have several varieties of apples there which propagate themselves; through a wide section of Russia the Alexander apple propagates itself as nearly as do our native Fameuse or the Canada Fameuse, varying but slightly, retaining almost the identical characteristics, from the fact that they are fertilized from their own kind. It is the opinion of Mr. Gideon that very much more may be expected from this method of originating varieties than from the introduction of the Russian varieties, which the Government and the Wisconsin State College and Mr. Gibbs of the Quebec Agricultural Society have been engaged in introducing. These Russian varieties, nearly all of them, are somewhat inferior in quality, and nearly all of them are summer fruits. Of course some summer fruits are desirable, yet there is a still greater desire for something of good quality that will keep late.

Certainly the State of Minnesota has set a good example in thus putting this enthusiastic worker on a salary which shall enable him to carry on these experiments for the benefit of the general public; for the country at large will have a share in the results of his work.

Mr. D. H. KNOWLTON. So far as you know, are there any others engaged in the same work in this country?

Sec. GILBERT. Not to any considerable extent. I think, however, that Prof. Budd, of the Iowa State College, is engaged to some extent in the propagation of varieties by this method; but his work has been largely connected with the introduction and testing of the Russian fruit. Mr. Gibbs is also engaged to a limited extent in the work, but he has been associated with Prof. Budd in testing the Russian varieties. These two gentlemen visited Russia for the purpose of examining these varieties in the home country and securing samples of them, scions from the trees, and forwarding them to this country, for the purpose of testing them here in our own climate.

There are efforts being made in the direction of originating new varieties of grapes that have been quite successful, and a considerable number of the valuable new varieties that have been introduced in our country have been the result of this method of work. The latest example of the New England grapes, I believe, is the one originated by J. B. Moore & Co., of Concord, Mass., which has been in the market only one year, called the Eastern grape, a very fine looking grape, and one that promises to be a valuable acquisition. There are many others of value, but more particularly adapted

to the belt of country a little to the south of us, as we have very few varieties of grapes that can be grown successfully here.

Mr. STARRETT. It seems to me that the paper we have just listened to is one of the most valuable that I have ever heard on the subject. There was an allusion to the poor apples which are served up at hotel tables. And we all know what an immense amount of mean, contemptible fruit is served up at the homes of farmers. I know many families who are eating poor fruit all the time, although they are raising good fruit; they will always have some variety of fruit which is a little past its season and which they think they must eat up before they commence on the next in order, and by the time they have got ready to commence on that, it in turn has overmatured, and the result is they are eating behind the season all the time. And there is so much poor mean fruit raised where choicer varieties might just as well be produced. It seems to me that it would be one of the grandest things that could be done if some one would go around and cut down all the mean, contemptible varieties of apple trees, so that people would be eating something worth eating.

Mr. D. P. TRUE. I have been very much interested in the paper, which is certainly of great value. There was one point that particularly interested me, and that was in reference to the grapes. I think in this latitude we need an improvement in grapes. True, there has been a great advance. Cole, in his fruit book published a little more than twenty years ago, has not in his list one that is propagated at the present time. Even this year at our exhibition, although it was one of the most unfavorable of seasons, there were three varieties of grapes that were well colored and nearly ripe. It shows the advance that has been made in this direction, and I think there is a prospect that there will be still greater advance in this direction.

Mr. POPE. Speaking of new varieties, there was one placed upon our tables at the last State Fair, after a season so unfavorable that even the Concords grown in New Jersey were not well colored, yet these grapes that I speak of were so well ripened that the committee could not believe at first that they were grown in Maine; but they were, and were well ripened at the time of the fair, the first week in September, in that unfavorable season. It was the variety known as the Moore's Early, which I consider one of the greatest acquisitions in the grape line.

DISEASES ATTACKING OUR FRUITS.

By Prof. S. T. Maynard.

In the study of the plants about us we find two great classes: those having green leaves—which, taking up the elements, carbon from the air, and potash, lime, phosphoric acid and other mineral elements from the soil, transform them into their own organism—and those having no green parts with which to assimilate or organize the crude materials from the soil and air, but are parasitic, taking their food from the organized material of other plants.

Parasitic plants are all more or less alike in that they obtain their food from other plants, but differ as much from one another as do the higher plants From their minute structure they are very difficult to detect, except by their effect upon the host-plant, without the aid of the microscope, but are found in all departments of the farm and garden.

Perhaps we may say these diseases are the results of our advanced methods of cultivation, for in new countries they are less abundant and less destructive. With our efforts to produce abnormal growths and the removal of the natural protection of forests; with the unnatural conditions produced by pruning, by manuring and by cultivation, have come the conditions under which blights, rusts, mildews, etc., can develop rapidly.

It is claimed by the Entomological Department at Washington that the loss to our farmers from insects in a single year amounts to over $200,000,000, and with our experience from blights, rusts, smuts, rots and mildews, we feel certain that the loss must be far greater from fungus growths.

Parasitic plants, destructive to our fruits, may be divided into two classes, i. e., those growing within the host-plant wholly, as the blight of the pear, the yellows of the peach, etc.—and those which root in the tissues, but grow upon the outside of the host-plant as well, such as the mildews, rusts, etc.

BLIGHTS.

The first class consist of very minute unicellular plants often called bacteria, microbes, germs, etc., which feed and grow very rapidly under conditions of a certain stage of decomposition of the cell contents of the host-plant.

These germs are so very minute as to require the highest powers of the microscope to detect them. So small are some forms that it is claimed a globular mass that would pass through the eye of a cambric needle might contain 20,000,000 of these living, growing organism.

The lightest breath of air may disturb them and carry them long distances. They may be said to be everywhere. As many as 11,000 have been found floating in a cubic metre of air, and 80,000,000 have been found in a quart of ordinary water.

The blight of the pear and the twig blight of the apple and quince, are caused or accompanied by a very rapid development of very minute germs, (micrococcees amylovoms) which are oval in form, about $\frac{1}{25000}$ of an inch long by $\frac{1}{40000}$ in diameter, and closely related, in form and method of development, to those producing contagious diseases in animal tissues, as the small-pox, diphtheria, hog cholera, glanders, etc.

PEAR BLIGHT.

In some sections and some seasons it is more prevalent than in others. The first appearance of it may be seen by black spots on the bark of the shoots or by the leaves turning almost black, and so rapid is its work, that it requires but a short time to destroy large branches and often the whole tree.

It very seldom attacks all the trees in an orchard or all the varieties alike at one time, but we see a branch here or a tree there affected and perhaps one only of a large number of the same kind in a row, showing that it cannot be classed as a very contagious disease as is claimed by some

I shall take the ground that it is not contagious to healthy trees, but like so many of similar organisms which attack animal tissues, it only develops when the cells of the plant are in a proper stage or condition to furnish the necessary food. It is stated by Prof. W. S. Farlow, the noted mycologist, that the germs have been found in healthy tissues and did not cause the disease or blight, just as the germs of diphtheria and hydrophobia have been found in the throats of persons who were not attacked by either disease.

The germs may enter through crevices of the bark, through the delicate tissues of the blossoms or through the stoma of the leaves, but if the tissue is in a vigorous, healthy condition, it will resist

their attack, or rather, the germs not finding the proper conditions of food will fail to grow. I have yet to find a single tree that has been attacked by blight that had not, in some way, been seriously weakened. The causes which may lead to the attack of this disease are want of plant food, or exhaustion of the soil, a wet soil, mutilation of the roots by the plow, or of the top by borers or improper pruning, and by overbearing.

To overcome, or rather prevent the disease, I would manure liberally in the fall or early spring with manures or fertilizers containing an abundance of potash and phosphoric acid, with enough nitrogenous matter to keep up a moderately vigorous growth; get rid of all surplus water by underdraining, and if the land is cultivated, not to use the plow or cultivator after August 1st. We cannot control the conditions of the seasons, which may sometimes affect the trees so as to bring on the blight, but in nine cases out of ten, I believe we can prevent injury by intelligent treatment.

TWIG BLIGHT.

The twig blight of the apple and quince is probably of the same nature as the above, and requires the same conditions to prevent attack. In all cases it is advisable to remove the injured branches at once and burn them, to prevent as far as possible the spread of the spores.

SUN SCALD OR CANKER.

In many apple orchards the ends of the branches die off in large numbers and we find that the injury begins at some distance from the end of the branch in a black cankered spot. Upon examination with the lens we find upon these spots, more or less hidden under the bark, numerous small mealy insects which feed upon the juices of the tissues. From this point decay spreads and the branch must be removed to keep the trees in good form and appearance. The decay of the branch is due to the increase of minute organism for which there may be no remedy after attacked, but by keeping the trees in a vigorous condition they may overcome the injury in some degree. All injured branches should be removed and burned as soon as the injury is noticed.

LEAF BLIGHTS, RUSTS, ETC.

Of an entirely different habit of growth are the leaf blights, rusts and mildews that are so abundant and so injurious to our farm and

fruit crops. They are plants of a much larger growth, yet so small as to be visible to the naked eye only when seen in large masses, as the mealy or downy growth on the leaves of the grape vine, the yellow spots on the grass leaves and the brown spots on the leaves of the pear, apple and strawberry.

The germs or spores from which these plants originate are very minute and are easily carried about in the air but are generally hundredths of times larger than the germs of the true blights. These germs coming in contact with the leaf surface of the host-plant when there is rain or dew upon it, germinate and throw their roots down through the stoma feeding upon the juices. They grow only under conditions of moisture and heat, however, and in dry seasons very little injury is caused by them.

Like the blights for complete and rapid development, this class of plants are more or less dependent upon the condition of the host-plant. If the foliage is healthy and vigorous, the juices do not offer that condition of food under which the parasite can exist, and while the temperature and moisture of the season may be such as to cause an unhealthy condition of the tree, thus leading to an attack, much may be done by proper manuring, cultivation, etc., to overcome the injury.

Leaf Blights. The leaf blights are abundant on the pear, plum, cherry, and in some cases on the apple, and our strawberry crop is often seriously injured in the same way. The pear leaf blight comes on during hot, moist weather in July, often in severe cases, causing all the leaves to drop, and the tree remains bare until a new set is formed. Some varieties are more liable to injury than others, and it is especially injurious to young seedlings in the nursery before they are budded. In the nursery when the first spots appear on the leaves, we start the cultivator to loosen and lighten the soil, and if there is an indication of a want of plant food in the soil, some very soluble fertilizer is applied to give the seedlings a start into renewed growth. To prevent leaf blight on large trees in the orchard is a more difficult thing to do. If the land is well underdrained, if manures are applied only in the fall in sufficient quantities, and if the trees are not injured by over-bearing, by insects or by mutilation with the plow or saw, very little injury need be feared from leaf blight. Manures containing an excess of potash and phosphoric acid are especially valuable for a healthy growth of all fruit trees. Leaf blight upon the apple, cherry, plum

and quince are of a similar nature to that of the pear, appearing under the same conditions and are remedied in the same way.

Leaf Blight of the Strawberry. Of the small fruits the strawberry is the only one that is seriously injured by a leaf blight. This disease is of a similar nature to that of the other leaf blights, attacking especially plants in beds more than one year old. Some varieties, and young beds under poor treatment, are sometimes attacked the first year's growth and seriously injured, but when properly supplied with an abundance of plant food and given thorough cultivation, little loss would occur in the annual system of growing this fruit. At Amherst we have discarded the two-crop system, and only take one crop of strawberries from the same bed.

Mildews and Rusts. Mildews and rusts, although of a similar nature and habit of growth, are given these names from the appearance of the mass of surface fruit which appears to the naked eye. Plants affected by mildews generally present a mealy or powdery appearance, whence the name (mealdew) mildew, while those affected by rusts have a rusty yellow or brown appearance.

The mildew of the grape causes the most loss and is familiar to almost every one who has attempted to grow the Delaware and some other thin-leaved varieties. It is very abundant in warm moist seasons, not only attacking the leaves, but doing serious injury to the fruit.

When planted a good distance apart, on high sandy or gravelly soil, and trained upon high trellises, it is less injurious than when the vines are trained low and grow on less elevated land. Good cultivation and proper plant food will, in a measure, assist in preventing the disease. I have often found when the mildew first appears, that stirring the soil twice a week will check it very materially.

Blackberry Rust. On old plantations of the blackberry and black-cap raspberry, a yellow or golden colored growth on the underside of the leaf sometimes appears, causing the leaf to curl and die. This is a parasitic growth similiar to the mildew of the grape, but the fruiting parts that come out upon the surface have this golden color while the fruit of the grape mildew is white. It has been my experience that it develops more upon old plantations, especially if neglected and that good cultivation and proper manuring will largely overcome the injury.

As plantations become old it is more and more difficult to keep up the proper supply of plant food to insure a healthy growth, and it

may be more profitable when the plants begin to fail to renew them by planting on new land rather than to attempt to remedy the difficulty in any other way.

Rots. Many of our fruits when partially grown are attacked by fungous growth which we call rots. This is especially the case with the grape, plum, peach, tomatoes, etc.

The parasites which cause this destruction are similar in habit of growth to those causing mildew and rusts. They develop in warm, wet weather, and often spread so rapidly at the time when the fruit is approaching maturity as to destroy entire crops in a few days. Like all other growths of a similar nature they are dependent upon the conditions of the atmosphere and about the only thing we can do to prevent its ravages is to secure a healthy rather slow growth, and plant where there will be a full exposure of the foliage and fruit to sunlight and air, nature's two most powerful antiseptics.

FUNGICIDES.

In discussing the remedies for the destruction of the injurious parasites which are everywhere causing so much loss to our fruit growers I have said nothing about fungicides, or substances which may be applied for their destruction. I have not done this from the fact that so little is at present known upon the subject. During the past few years the agricultural department at Washington have conducted a series of experiments under the direction of Prof. F. L. Scribner and his assistants, in the use of sulphate of copper with various combinations for the destruction of mildew and black rot on the grape. The results so far as reported are very promising and if further experiments shall prove that this comparatively inexpensive and harmless substance will destroy two so destructive fungi, we may hope for equally good results in its use for other parasitic fungi of a similar nature.

The experiments above referred to are reported in the last annual of the department and in numerous special bulletins of the past season. The same department has also made numerous experiments with various insecticides for the destruction of injurious insects with very promising results. In both cases the applications are made in water and in many cases at about the same season of the year so that the two may probably be combined, thus reducing the labor and cost very materially. As an example of this, it has been found that the codling moth may be largely destroyed by spraying the trees

with Paris green, and if it is proved that any solution of copper or other substances are destructive to the spores of the leaf blight, the apple scab or the twig blight the two substances may be used together at the same time with a large saving of expense.

So, also, in the destruction of the plum curculio, it has been found that the application of Paris green in water is effectual, and the introduction of the sulphate of copper mixture would possibly prevent the rotting of the fruit and perhaps the black wart.

The mixtures which are especially recommended by the department of agriculture are known as the "Bordeaux Mixture," Eau Celeste, a solution of sulphate of copper and ammonia, and simple solutions of sulphate of copper variously diluted.

Bordeaux Mixture. The Bordeaux mixture, a compound of sulphate of copper and lime, is made by disolving 16 lbs. of sulphate of copper in 22 gallons of water; in another vessel slake 30 lbs. of lime in 6 gallons of water. When the lime is cool pour the two together and stir thoroughly. This mixture is applied with a broom, brush or by a pump with a nozzle that will allow the particles of lime to pass through without clogging.

Solution of Sulphate of Copper. This solution is made by dissolving 1 lb. of pure sulphate of copper in 25 gallons of water and is ready for use at once with any hand pumps or spraying machine. It can only be used on the shoots and branches before the leaves appear as it is sure to injure the latter while young.

"*Eau Celeste*" In order to prevent the burning of the foliage by the acid of the copper sulphate ammonia is used to neutralize it, and the "Eau Celeste" or blue water is made by dissolving 1 lb. of sulphate of copper in two gallons of hot water and when cooled add $1\frac{1}{2}$ pints of commercial ammonia, when used dilute with 22 gallons of water.

The Bordeaux Mixture has proved the most successful in the experiments made at Washington and other places, and can be used with safety on the foliage. The solution of sulphate of copper alone can be used upon the shoots before the leaves start and will probably destroy a large number of the spores already in position for growth.

The above remedies have been successfully used in European vineyards and have been modified to suit our soil, methods and varieties.

It is claimed that none of these mixtures can affect the spores of the true pear blight, but a thorough trial should be given it.

INSECT PARASITES.

Quite as abundant and much more visible are the numerous insect parasites with which we have to contend, and great progress has been made in the knowledge of their habits and methods of destruction, thanks to the labors of such men as Riley, Comstock, Forbes, Fernald and a host of others.

Among the most injurious are the borers. The *flat-headed* borer is more abundant than the round headed one, but is much more easily destroyed from the fact that it feeds only near the bark.

The *round-headed* borer often works deep into the trunk and can only be destroyed while young. To detect their presence the rough bark must be scraped off two or three days before the examination is made, when the chips thrown out of the holes may be easily seen. A stout pointed knife is the best implement for destroying them. To insure the destruction of all, the trees must be examined in June and August.

The *peach borers* are often numerous and much of the decay called the yellows may be accounted for by their injury. They are more easily detected than the apple borer as gum always exudes where they make their puncture and fresh chips in the gum is a sure indication of their presence. The knife is the only sure remedy, examining the trees in June and August.

The *tent caterpilar* is a very abundant yet easily destroyed pest which does more harm than it ought. We have found the best way to get rid of it to destroy the eggs in the winter, (they may be distinguished in the winter on the twigs by standing under the trees and looking against the sky), and by drawing the web together around the cluster soon after they have hatched out, and taking them off and crushing with the foot. There is no excuse for an orchardist having his trees injured by this insect except that of negligence.

The *canker worm* in some sections is very abundant but by the use of the tar or ink band and Paris green or insect powder (pyrethrum) they may be easily destoyed with proper care. Syringing with Paris green mixed with water at the rate of 1lb. to 100 gallons, or pyrethrum powder in the same proportions, when the first insects that hatch are one-fourth of an inch long and again one week later is less trouble and not much more expensive than the ink band, which requires constant attention from December to April or May.

Perhaps no one insect in the entire country is doing more injury than the *codling moth* for it attacks the apple, pear, and quince alike, and our apple crop the past year has been rendered almost worthless from the injuries of this insect alone.

Within a few years the use of Paris green has been tried with promising results. It has been used at the rate of 1 lb. to 100 gallons of water at the time when the blossoms are just beginning to fall and 70 or 80 per cent. of the fruit saved from injury. Further experiments are required to determine its real value and we should not give up the other means of destruction, i. e., feeding to cattle and swine all fruit as soon as it falls from the tree, and combining orcharding and pig and poultry growing.

The *plum curculio* is the most injurious to our plum and cherry crop, but does more or less injury to other large fruits. By recent investigations it has been found that the beetle feeds upon the leaves and fruit of the plum and cherry and that by the use of Paris green they may be destroyed. Applications of the solution should be made just before the blossoms unfold, when they begin to fall and one or two weeks later.

The *apple maggot* is an insect which punctures and burrows in the tissues in such a way that its presence cannot be easily determined until it is opened. It attacks the sweet and mild flavored varieties in preference to the more acid. No remedy has thus far been discovered except by the destruction of the fruit as food for animals or their use in making vinegar.

DISCUSSION.

I have not spoken of the plum wart or black knot which with us is one of the most difficult things to prevent. The wart, while it is in character like the mildews and rust, produces quite a different effect. The spores falling upon the branches and bark in the spring, penetrate the tissues and by the combined effort of the plant itself and the tree this wart is formed, which produces numerous spores in the fall and winter, which are scattered and again transmitted the following season. To destroy it we combine linseed oil, turpentine and kerosene, a very simple remedy and one that is effectual. The kerosene must be used carefully, as if it is allowed to spread over the branch it will destroy it entirely.

Either alone will destroy it, and you may cut it off afterwards or let it remain. The application will destroy every spore and render

it harmless. We have found the linseed oil effectual when applied two or three times, or turpentine and kerosene will kill it at once. Linseed oil has the preference. I would make two applications, or perhaps three. Kerosene will kill it at once, but if it is not carefully applied, if it runs over the outside of the wart it will do injury. It should be applied just the minute the bark is affected by the wart. You see first a little rising of the bark, a little excresence; then apply it, perhaps the first of June and then in July.

During the summer there is a developing of spores on the surface. Perhaps you have noticed that where the wart begins the color changes to a darker hue, and has a velvety appearance. Upon close examination you will find little spores growing upon stalks at the end, and that gives the velvety appearance. In the winter, if you examine it again, you will see it is covered over with little glistening black projections. As the season advances they open, and the spores escape from these little projections. So if they are not destroyed by the applications, they should be cut off and burned. The habit of the fungus is fully understood. There is no question about the development of the spores and that they are scattered and attack other trees.

Mr. Pope. Will you speak of the apple scab?

Prof. Maynard. The apple scab has appeared within a few years and, like the mildew grows upon the surface and also in the tissues. As we all know, it is particularly abundant in wet weather, the past season it having been particularly noticed. We know of no remedy, yet it is hoped that a sulphate of copper solution applied during the summer two or three times, may destroy it. No positive results have been obtained by its use, though it has been sometimes applied. It will not grow in cold weather, but in moist, warm weather it will grow very abundantly. In Massachusetts there was a great deal last year following the hot, wet weather of July.

In a dry season perhaps the condition of the tree would account for it. In a dry season, on high land, the tree might be weakened and in an unhealthy condition, and thus invite the fungoid development. I think it is unquestionably a fact that these fungous diseases will not show themselves in a perfectly healthy tree. That is a conclusion that a great many are arriving at, although there are a great many who still claim that they will attack healthy trees when the conditions of the atmosphere are favorable.

Mr. Blossom. Our pear trees here are affected by what we call the pear blight, which turns the leaves brown.

Prof. MAYNARD. The shoots turn brown and the leaves also. The leaf blight attacks the leaf first, I suppose, and keeps increasing until the leaves drop off, and pretty abundantly in hot, moist weather. It is a very difficult matter to determine what the cause of the disease may be in certain trees unless we know their history —the treatment which they have been receiving. If they have been highly cultivated and manured for a time, and then plant food has been withheld for a year, and the land seeded down, that might account for it. Or an excess of manure may have caused a hasty growth, which may have resulted in an injury to the tissues of the tree, leaving them in condition for these spores to develop in the following season.

MR. STARRETT. I had a Bartlett pear tree with the bottoms of the leaves all covered with a dirty, slimy looking substance, and the tree died. I don't know whether from that or some other cause. Some of the trees in the vicinity of that one were similarly affected, although none of them died. I strewed some wood ashes over the tree when the leaves were wet, thinking it would not do any harm. Have you any information to give us about that?

Prof. MAYNARD. There are two insects which injure the tree in that way, one a very minute scaly insect and the other a slug about a quarter of an inch to half an inch in length of a greenish slimy appearance. The former may be destroyed by a solution of one part of kerosene to two parts of soap which should be diluted with 25 parts of water and syringed over the tree. The latter may be destroyed by the use of pyrethrum powder dusted over them or by kerosene.

Mr. BLOSSOM. You speak of flat-headed and round-headed borers. Do they both work at the base of the tree?

Prof. MAYNARD. Yes, generally within three feet of the ground. The flat headed borer, the perfect insect, is of a steel color and has a habit of snapping. You have seen the snapping beetles, when you take them in your fingers they will snap. This is one of those snapping beetles. They reproduce annually while the round headed borer produces only once in three years, that is, it takes three years for one round of development. It is impossible to get them by probing after they have been in the tree the first year, because they have then made a turn in the tree. When the round-headed borer enters the tree it leaves a hole the size of a small pencil. These holes should be stopped up. There is a chance for moisture and air

to enter and the woody tissue around that point will decay very rapidly. It is a good plan to use grafting wax to fill up the hole and keep the air out, just as you would on any wound upon the tree. The latter part of June is the best time to dig out the round-headed borers. The flat-headed borers generally do not bore very much until the latter part of the summer.

Mr. HALE. My experience has been with peach trees. We have quite a large number of them and the borers have troubled us somewhat, and we have relied on washing. Originally we made a wash of strong soft soap, carbolic acid and lime, but of late years we have had more trees to wash and instead of using soap we have taken caustic, potash and made a strong lye and added lime and carbolic acid and put in a little white arsenic, which makes a handy filling, and sometimes a little clay to make it adhere to the tree. We wash early in May, moving a little of the top soil away from the trunk so we can wash a little below the natural surface of the ground. We apply it with a swab, striking into the branches and crotches of the tree one or two strokes. Where we have washed our trees in that way not one in a hundred of them is ever attacked by a borer. Occasionally we have left a row unwashed or a portion of a field unwashed and then not more than one tree in a hundred would escape from their attacks. Then we had to follow the professor's plan as to those trees and go around two or three times and dig them out. I think we save a good deal of money and labor, besides injury to the trees, by applying this wash. If the borer gets in and you go for him with your knife or a sharp stick or a wire it doesn't do much harm, but occasionally you don't find him; and after you have crawled around on your hands and knees all day digging out borers you are apt to get a little careless and skip some. We formerly had the idea which the professor has expressed, that the only way to get rid of them was to dig them out; but it costs ten times as much as the washing. And the washing leaves the bark smooth and clean and with no chance for insects to conceal themselves. I would not think of cultivating a peach orchard without an annual washing with something to keep out the borers and smooth the bark, and I should certainly try the wash on apple trees or any others that are troubled with borers. Two applications would be better. You want to make it strong and make it thick so it is almost a paste, and leave two or three swabs full in the crotches of the trees where the rain will wash it down.

Mr. Dunbar. My experience with apple trees is precisely like Mr. Hale's with the peach trees. I have used a wash similar to what he speaks of, and have found it very effectual. I set an orchard, and the first two years the borers got into every tree and destroyed some of them entirely, and I learned about this wash and applied it, and after that I don't think I found more than one borer where I had found twenty-five before I commenced to wash the trees. There would always be a few that I would have to dig out, and I have not omitted that. My time was the first week in June and then again from the middle to the 20th of June a second application. I think if I had done it again in August I should have made almost a complete thing of it. I followed that for years, and have no trouble of any consequence now with the borers; still I look my orchard over once or twice a year.

Mr. Pope. Whenever a tree in this climate stands leaning to the north-east, the southwest side of the body of the tree is very apt to turn dark, the bark becomes hardened and drops off. This is said by our New Brunswick friends to be caused by the flat-headed borer.

Prof. Maynard. The flat-headed borer works almost invariably upon the south side of the tree, and the blight might result from the attacks of the borer and the sun striking on the south side, and the winter freezing and thawing might cause a drying of the bark, which would be destructive, and then of course the fungoid diseases which penetrate all decaying matter would develop there.

PROPAGATION AND IMPROVEMENT OF THE APPLE.

By Frank Bowman.

As the apple is the most important fruit grown in Maine, my remarks will be mainly on the propagation of the tree, with some suggestions relative to the dissemination of new sorts. I will say right here that in all parts of this country the mode of propagation by nurserymen is almost exactly the same. As it would require a volume to write up all the details of nursery practice, only a synopsis of the leading and most important parts can be given. The first year in the seed bed the utmost pains are taken to grow the largest and healthiest seedlings. They are dug in the fall, sorted and stored in a cool cellar. During the winter they are prepared and worked for planting in the nursery rows, washed, side roots all removed. The tap root, which is from ten to twenty inches, is shortened to from three to five inches. If to be used as seedlings,

the top is left of only sufficient length to handle conveniently. Of those that are grafted, three to five inches of root is all that is used.

On this shortening the tap-root, we hear much said, many expressing doubts as to the effects of such practice. I will say to all doubters, by shortening this tap-root we get several roots to take its place, which will go as deep, and three times as many small roots or feeders. These last would not have appeared to any extent until the growth of that original tap-root (if left its whole length) had been checked in the hard soil or pan. The roots of these small trees resemble the tops. They are full of buds and vigor. It is youthful vigor, so much so that three-fourths of an inch of root from one of them will furnish all the roots required for the largest tree. The question is sometimes asked if the trees are as good where three or four trees are made from one root, as they sometimes are in the large nurseries. My experience is, that with those sorts that do well root-grafted, it makes no perceptible difference. On some sorts the top has a marked effect on the roots. But this effect is the same whether the roots used are long or short. The best guaranty that purchasers of trees can have, is that every nurseryman endeavors to grow the largest, healthiest and best tree he can, and uses only the best roots and scions for that purpose. We come now to the planting of our root-grafts and seedlings. A line is laid on the ground previously prepared for them.

The setting is almost always done with a dibble. This is an important part, and none but trusty help should be employed. After the tree is inserted in the hole made by the dibble, the dirt should be pressed firmly around the root, its whole length and especially at the bottom, as on this success or failure depends. These instructions complied with we are sure of a supply of roots for the vigorous, healthy growth of the tree. Set the trees ten inches apart, space between the rows four feet, which gives about 12,000 to the acre. About ninety per cent. of the grafts grow. Ordinarily the growth is from one to two feet the first year.

The soil and cultivation must not be overlooked. For a nursery, a good elevation, and a fine rich soil underdrained, or with such natural drainage as would amount to the same thing are required. It is necessary to get the largest possible growth on the trees in the first part of the season. This is done by constant and clean cultivation from early spring until the first of August. To promote the ripening of the wood the weeds are allowed to grow the last part of

the season. In a thrifty, well-ripened tree we have an excellent stock for transplanting. The sap is concentrated. A secretion of gum and starch takes place in the parts above ground. It can endure the winter. It has, as you might say, a stock-in-trade which it can draw on when transplanted next season. A tree will not go through the winter safely when there is a superabundance of sap in the body. The freezing in this state will cause an undue expansion which will destroy the texture of the wood. The consequence is, the sap becomes sour and stagnant; the heart wood turns dark; in short, a black-hearted tree is the result.

The pear, plum and cherry do not generally succeed when root-grafted. They are grown the first year in a bed, the same as the apple. The tap-root of the pear is long and very destitute of side roots and fibres. Unless this tap-root is shortened the first year, the trees are almost worthless for any future use. Sometimes we whip-graft the pear stock an inch above the collar before planting in the nursery rows, with about six inches of root, and they succeed fairly well. There is this difference in the planting of the grafts: with the apple, but one bud on the scion is left above ground, whereas on the pear an inch of the stock and whole scion are above. But the plum and cherry are mostly made by budding.

An important operation is the shaping and trimming of the trees which requires familiarity and experience with the different sorts. Those of a sprawling habit are cut close to the ground to ensure a straight and vigorous shoot. With others stockiness and well-ripened wood are taken into consideration and cut back accordingly. Cutting-back is always done when the tree is in a dormant state. On two and three-year-old trees the side limbs are cut close in August before the second growth commences. Trees for the last season in the nursery are trimmed to a whip and cut back to a proper height to set a top. This is done in the spring.

Not to weary you too much with the details of nursery practice I will tell you what I have learned from nearly twenty years of experience in the business; that we can grow as good a tree in Maine as they can in New York or anywhere else; that we can grow as many to the acre and as straight and healthy. I would say to those about to engage in the nursery business, do not use up your capital in experimenting, but go to some reliable nurseryman and make yourselves familiar with every part by seeing it done. I will dismiss this nursery talk here as I have a few suggestions to offer relative to the propagation and testing of new varieties.

We grow very fine fruit in Maine. But the standard of excellence in our fruit is susceptible of great improvements, and we should take pains to bring them about. We need to-day a more intimate knowledge of the many varieties that are adapted to our climate. We want better sorts of apples than we already have—for instance, a sort or sorts that will combine more of the good qualities in one tree. Fruit-growing in Maine is an industry representing a great deal of wealth, and is prosecuted by a very intelligent class of people. But the cause of this slow progress of improvement, is that orcharding differs from other industries. It requires a number of years to bring orchards to maturity, and they are planted only with old and well-known sorts. No seedling orchards are now permitted to grow up and come into bearing. Thus no advancement is to be looked for in this direction.

How shall these valuable and desirable improvements be brought about? They can only result from careful and pains-taking experiments together with an intimate knowledge of the subject. But the propagation and experimenting with new sorts is too costly for one man to do alone. I think that this matter deserves the immediate attention of our legislators. They should make a suitable appropriation for the establishment of a station for the propagation and testing of new sorts. It will meet with the approval of the whole people. They are interested in fruit and want to learn. Experiments and facts recorded by those in charge of such stations will be read with an eager interest. It will give a stimulus to the fruit industry. Fruit gardens will be multiplied. The coming apple and pear will make their appearance. Fruits, that grow in other countries, adapted to our climate, will be tested here, and valuable acquisitions will be the result. This is practicable, and can be immediately put in operation. Our nurseries could lend much aid at a small cost as they have hundreds of young bearing trees, they gladly would devote to the purpose, that could be top-grafted and immediatly brought into bearing so that every feature of tree and fruit could be studied.

In conclusion, whether the State lends its aid or not in this improvement I hope that every fruit grower in Maine will devote himself to the task of bringing out an apple as good as or better than the Baldwin, a later keeper, and a hardier tree. It can be done. It's value would be inestimable.

DISCUSSION.

Mr. KNOWLTON. There is one point in the paper of Mr. Bowman which seems to me of considerable importance, and I rise now to ascertain what is being done, rather than to comment on the paper. Mr. Bowman suggests the importance of laboring in the direction of obtaining better varieties of fruits, and urges that experimenting should be done. The only organized means of experimenting which we have in this State are centered in the Agricultural College and the Experiment Station at Orono, and I rise to ask of Sec. Gilbert what is being done in that direction in connection with the work of the State College at the present time, and, further, so far as he may know, what work is being contemplated by those who have charge of the institution, in that direction.

Sec. GILBERT. We have not, up to the present, done anything in horticultural matters. This has not been for the reason that we have not realized its importance, but we have been placed in the unfortunate condition of being without means to carry out the work in this direction. We have had to do educational work there in the lines that were first called for, and we have extended the work out in other directions from time to time, as the means at hand and the progress made has enabled us to do; but we have not yet taken hold of the matter of horticulture in any department whatever. The professor of agriculture at the institution for two or three years past, in his annual report at the annual meetings of the board of trustees, has pressed upon their attention the importance of doing something in connection with horticultural matters, and establishing a horticultural department in connection with the institution. Acting on that suggestion from him, and in conformity with the judgment of the trustees, we, at the last meeting, decided to ask of our legislature an appropriation for the purpose of starting in the work, and you will find scheduled at the State House, and now before the Legislature for consideration, a request for three thousand dollars in aid of this line of work. We thought that with that small sum we might start out in a way which will lead to something further as we go on. Further than that, we now have established a department of experimentation, a government experiment station, giving us $15,000 per year with which to carry on experimental work in connection with the institution. It is separate and distinct from the educational part of the institution, such as the bill contemplates, still it is a part and parcel of it.

Mr. ATHERTON. Will the gentleman allow me to ask why can not a portion of this $15,000, which is now appropriated, under the Hatch Experiment Station bill, to our State, be used in the direction of experimentation in the line of horticulture, instead of asking the State for an appropriation?

Sec. GILBERT. We have a very good reason for not using it in the way we would the appropriation we ask for, and that is that we are not allowed to do it; the government restrictions do not admit of it. We propose a horticultural department as an educational branch of the institution; the government aid in this direction is for experimental purposes and not educational work; the two are distinct and must be kept distinct entirely.

Mr. D. J. BRIGGS. I am very glad that Mr. Gilbert has given us the interpretation of the law which he has. I always supposed they could do any work and carry it on as they saw fit, not understanding the requirements of the law. I believe in an institution established in the State that should act partially in conjunction with the several associations of the State which are working in the same direction. It looks to me as though in a country like this we could with propriety take a step in that direction. I think if this society would take this matter in hand and carry it along, with the aid of the stipend which has been granted us, that we could accomplish something in the future in this direction. What is the society for? What is the station for? Why, it is to enlighten farmers in their business. I hope that something may be done at this meeting, in this early stage of the experiment station, in this direction, so that we may receive the benefits while we are living. Yankees are impatient and like to see matters going along as fast as possible; we are unlike the English, who can wait forty or fifty years for the results of experiments to be brought before the public.

Mr. J. H. HALE, of Glastonbury, Conn. The experiment station matter was correctly explained by your secretary. The law is broad enough to do any work in the State that the people in the State want; and while this society, or any society in the State, has no authority or power to say that the station shall do this or the other work, I am acquainted with the directors of some of the stations, and know the perplexities they are in to know what the citizens of the different States want done and what they can do to most benefit them. I know that any suggestion that you may make, or

any organization or any farmer may make to the experiment station will be carefully considered at the station. That is what they are waiting for. I know, from talking with the station officers that I have met during the past year, that the real study with them now is to know what the people wish them to do. They are not supposed to know what the State wants. If there are any individuals here who have a special line of experimental work which they believe ought to be carried on in the State, if they will present the case fairly to the station officers, I believe they will take up the work and will be grateful for the hint. The hardy varieties of fruit, suitable to the northern part of your State, ought to be tested in that part of the State, and if the attention of the directors of the experiment station is called to this necessity, I think they will be glad to place the work in the hands of intelligent farmers in different sections of the State. In my own State of Connecticut we are doing that, not especially with fruits, but we have several what might be called sub-stations at farms in different sections where work is being done. Thus the experiment station is practically establishing sub-stations all over the State, to which the farmers in the neighborhood can go at any time, and see what is being done, and make suggestions as to lines of work which they would like to have carried on. I hope some action will be taken here to-day to urge your station to take hold and help the Pomological Society.

A committee consisting of D. H. Knowlton, D. J. Briggs and E. W. Dunbar, was appointed to offer resolutions bearing on the duty of the State Experiment Station in relation to horticulture and pomology. For report of committee see page 19.

HOW TO PLANT AND GROW AN ORCHARD.

By Henry W. Brown

I am well aware that the subject is an old one and also that there are many present who have had a great deal more experience in growing fruit than I have, but perhaps by telling of some of the mistakes as well as the success that I have met with within the past thirteen years may help some beginner to avoid making the same mistakes.

I came to the farm that I am now on thirteen years ago, there was at that time an old orchard on the place set out some forty or fifty years

ago, the larger part of the fruit being natural fruit, or cider apples, as we called them. Wishing to get good apples as soon as I could, I commenced in three different ways at the same time, by grafting the old trees, by planting the seed, and by setting New York trees. Now, in as few words as possible, I will tell of the success that I have met with.

From the old trees which I grafted, I got apples at the same time as from the New York trees; but not so large and nice as from the young trees. Perhaps for two or three years I got more apples from the old trees, but at the present time the larger part of the old trees are dead and the rest of them do not amount to much. The young trees are fine, and doing as well as any one could ask.

The seed that I planted came up in due time and grew quite well, and the third year I set them in the orchard, and grafted them the fourth and they commenced to bear the sixth; that is the sixth year from the time I planted the seed, and at this time I was getting from one-half bushel to two bushels from each of the New York trees. The old trees at this time were doing quite well. The trees of my own growing now are very good trees. Not any better as far as I can judge than the New York trees, and if I was going to set an orchard now, should buy good nursery trees

When desired to plant an orchard the first thing to do is to choose a site. I would select a north, north-east, east or south-east slope if I had such, if not, such as I had, prefer a slope to flat land.

Do not set trees in some old field or pasture, that was never plowed or ever will be, expecting to grow fruit that will ever amount to much; if you do, you will be disappointed.

After selecting a site do not be in a hurry to plant, but thoroughly prepare the ground the fall before. Plow deep, and make it rich by the use of stable manure, ashes or any good fertilizer. Prepare as well as you would for corn, and the next spring plant the trees Look over your neighbors' orchards, and see what do the best on land similiar to what you have selected. When decided what kinds you want, order from some responsible, honest nurseryman who will send what you order. Two, or three-year old trees are large enough, and will thrive better than larger, or older ones. Do not set too many varieties.

When your trees are delivered, be sure and keep them out of the sun and wind, for the little fine roots will dry up very quick. Cover them up with straw or hay, keep wet until planted, and take but a

few into the field at a time. Of course this will take more time, but time that you will get well paid for.

When ready to plant, take a man with you and measure the distance you wish to plant; thirty or thirty-five feet each way is none too far. It may look some distance for so small trees, but later on you will find it none too far.

Dig the holes a little deeper than the trees grew in the nursery and larger over than roots will extend. Do not leave the bottom of the hole hard, but pulverize somewhat deeper than you will set the trees. Set the tree in the hole, straighten out the roots, don't bend any of them,—cut them off sooner. Work the fine soil all around the roots with the hands. After nearly filled up, commence to trample down and fill, so that the tree will set a little deeper than when growing in the nursery. Do not hurry, but do this work thoroughly.

I know of a man who set an orchard, or hired it done. He engaged a man to do it for him, and he set out thirty trees the first day, and he was not satisfied with the amount of work done, and discharged him and engaged a man who could, and did, set one hundred; and was well pleased with this man; but that was his mistake. The thirty trees set by the first man all lived and grew finely, and over one-half of the trees set by the last man died.

Do not think that your work is done now that your trees are all set out. Thorough cultivation is very necessary. Beans or potatoes are a good crop to grow in the orchard, or most any crop that requires good cultivation.

This should be kept up for a few years, or until the trees get a good start and commence to bear quite well, after which I prefer grass, with top dressing every year or two. When top dressing, do not pile up close to the trees, but spread out as far as the limbs reach, or all over the ground is better. Watch close for caterpillars, canker worms, bark lice and borers.

All pruning is best done while the tender growth can be pinched or rubbed off with the hand, but keep a sharp knife with you, and when you see a limb that should come off, take it off. Avoid the saw as much as possible.

My paper is already too long, but I wish to say, don't be discouraged at the low prices that apples are selling for at the present time, for there is profit in apple-growing at the prices they are now bringing. Just compare with the other crops you grow, and see if there

is not more profit in one acre of apple trees than on any other acre of your farm.

DISCUSSION.

J. H. Hale. I will say a word in regard to the paper which the gentleman presented on apple culture. There isn't any danger of overdoing the business if you will grow fine apples, and there is no question but you will grow fine apples if you follow the directions he has given Thorough preparation of the soil is an important point. Too many of us think that after we have set an apple tree it may be left to take care of itself and it will produce something. It is a wonder to me that they produce anything; but they do produce something, but that is not a good quality or marketable apples. But the thorough preparation of the soil as he has suggested, and a thorough cultivation of it after the trees are set will show themselves wonderfully in the quantity or quality of the crops. And I say amen to his idea about care in setting trees, and to his manner of pruning with the thumb and finger and the pruning knife; it is a good deal better than using the saw. The thorough cultivation of the trees after they are set and until they come into bearing is of great importance. I believe in reasonably large apple orchards; I would rather have a large one than a small one, as the proportion of profits is much greater. A man with twenty barrels of apples to sell may have trouble in finding a market for them at a profitable figure, but a man who has 500 or 5,000 barrels of apples can handle them at a much greater profit. I believe that fair sized orchards on most of the farms in New England will bring greater profit than almost anything that can be raised. I would ask your secretary if the Smith's Cider apple has been tested here in Maine. The name would indicate that it was a cider apple, but it is not; it is a Pennsylvania apple originated by a man who happened to be a celebrated cider maker, and hence its name. It is one of our most vigorous and hardy apples in Connecticut. It is a profuse and annual bearer, a bright red apple of fair quality, no better than the Baldwin—only an ordinary apple, but it is a magnificent growing tree, and is hardy and healthy and bears annually; nearly every year you can depend on a good crop of Smith's Cider, which will sell at high prices in any market on account of its fine appearance.

Mr. Knowlton. I will answer the question by saying that I obtained some very fine specimens of that apple grown in Franklin

county. The gentleman from whom I obtained them had only one tree. I know of no others.

Mr. H. W. Brown. I have the same apple. I have half a dozen of them, and two of them bore a few apples this past fall for the first time. By the description that has given they seem to be true to name. It makes a very rugged, thrifty, hardy tree.

MONEY IN SMALL FRUITS.

By J. H. Hale, Glastonbury, Conn.

While we are all somewhat distantly related to Adam of long ago, we more clearly resemble and no doubt are not very distantly related to one Col. Sellers of a more recent date. Every new enterprise that comes to our notice has "millions in it," and many of us have rushed into the small fruit business in the hope of there finding an easy road to wealth; yet the "millions in it" proved to be needs instead of dollars.

However, my subject here to-day, "Money in Small Fruits," has a very pleasing sound, for who of us tillers of the soil does not jump at the chance of any honest industry that there is money in? Not that the gathering or accumulating of money is or should be the chief end of life; yet we all know and appreciate its value in securing for us the comforts and necessities of life, and should neglect no opportunity to obtain enough of this world's goods, that our families may not be denied these things.

"Money in Small Fruits" would indicate the planting and cultivating of these choice gifts of nature was to be carried on for the sale of these products and to this part of the question we will now turn our attention. If any have come here to-day expecting that I am to unfold any great secrets of the business from my own personal experience, whereby large profits have been secured, I will state for their information that nothing startling is to be developed, simply a plain statement of a few of the main points that have been developed by a life of work in small fruit growing for profit, that has not brought a fortune yet has given what is better, a pleasant home and a good comfortable living. Of course you will understand that the term small fruits applies to strawberries, raspberries, blackberries, currants, gooseberries, &c., and not to small or second-class apples, pears, plums, &c. It may well be called one of our infant

industries, for it is within the memory of most of the middle-aged men here, when the first berries were offered for sale in any of our markets, while the principal development of the business has all been within the past twenty years, and it is really only within the past ten years that all small towns and villages of the country have begun to have anything like a fair supply, while there are yet hundreds of towns and villages that are not one-half supplied; and those that appear to be well furnished now would use many more if better fruits were offered in a more attractive style. So there is a chance yet for new beginners, if they are willing to live up to the requirements and demands of the times. However, before attempting the business it is well to know that not all cultivators of berries have found money in small fruits; in fact, there have been some very serious failures.

The requisites for success are: *First*, a love of fruits for their own sakes—a pleasure in their culture. *Second*, a soil fairly well adapted to them. *Third*, good local markets, or convenient access to railway lines which centre in market towns. *Fourth*, extra laborers near enough at hand to be called on in case of emergency in cultivating and gathering the fruits promptly and economically when ripe. Having made sure of these things, if one is starting in the business, care should be taken not to plan for planting more than can be cared for in the most thorough manner or sold to good advantage.

STRAWBERRIES.

Of the various fruits, strawberries will receive first attention as it is from them that the quickest returns may be expected. Any good corn or wheat land will produce fine strawberries, but to secure the best results, it must be very rich in natural fertility or made so by the application of manure in some form. Well decomposed stable manure has always been recommended as the best of all for general garden purposes, and is not to be despised, and we should make, save and accumulate in every honorable way, all we can—use it in the vegetable garden or for the common field crops, but it is not to be recommended for strawberries, if the highest results are to be attained. My own experience has been that any soil rich in organic matter, or commercial fertilizers rich in nitrogenous matter, produce too much foliage growth for the most profitable returns in fruit, and my best crops have come from a sandy or loamy soil, where commercial fertilizers had been used, containing a large percentage of phosphoric acid and potash and lacking in

nitrogen. Pure, fine-ground bone and wood ashes or muriate of potash, have proved to be the cheapest and best forms in which we could buy these manures, always applying them on the surface of the ground after ploughing, and working them in with a harrow before setting the plants, using from 1,500 to 2,500 pounds of the bone, and from 500 to 800 pounds of the potash per acre, or its equivalent in unleached wood ashes.

Land that has been in cultivation for a year or two previous is best. Plough this as deeply as possible early in the spring, then harrow it over and over again till a perfect seed bed is formed. An extra day or two spent by a man and team in a thorough preparation of the land will usually show itself in ease of cultivation later in the season. I make it a rule on my own farm, where I work in company with my brother, if it is so that neither he nor I can be present to attend to the work, to tell the men to harrow it over and over again, until they think they have done it thoroughly, and then tell them to expend just as much more time. I have never had it overdone; I never knew a farm crop to be ruined by over-cultivation of the soil beforehand. When the ground is thoroughly prepared, with a corn marker check off rows three feet apart, and set the plants from twelve to twenty inches apart in the row, according to the vigor of the variety.

Early spring is the best time in the whole year to plant; yet where one has valuable land that must produce two crops in one season, early vegetables can be grown and cleared from the ground by August first, and the ground planted with pot-grown plants that will get well established before winter, and produce a full crop of fruit the next June. These plants can be grown by plunging two-and-one-half-inch plant pots in the ground along the rows of spring-set plants; and so training the runners that the new plants will root in them. Ordinarily this will take about three weeks, so if we begin the first of July, we shall have a good stock of plants by August first. If pistillate or imperfect flowering varieties are used, plant every third row with some strong, perfect flowering variety, that blooms at the same time. Too many make the mistake of planting a greater number of rows of pistillates before adding the perfect bloomers to fertilize them, and also make the selection of varieties without regard to the time of blossoming. Cut off all blossoms or fruit stalks as soon as they appear, and as soon as growth is well started, begin the summer cultivation, which should be kept up once in two

or three weeks all through the season till weed growth is stopped by freezing in the fall. On my own plantation the last hoeing is usually done in October.

Having been growing berries for market twenty-five years, and testing the various systems of hills, narrow rows and matted rows, as well as studying results obtained by these methods in all the Northern States, I am satisfied that the narrow row system is, on the whole, the most profitable. By this method, each of the spring-set plants is allowed to root a few of their first runners along near the line of the row, after which all the runners are cut off as fast as they appear. The advantages of this plan are that more of the work of cultivation can be done by horse power, as in hill culture, and yet there are always young plants enough to form one continuous row, even if a few do get destroyed in any way. There is abundant room for sunlight and air to reach all the berries when ripening, which assures larger, better colored and higher flavored berries than can be grown in matted rows; also firmer fruit, that stands transportation and sells for higher prices. There is another advantage in this plan,—it costs but little to clean out a bed of this sort after fruiting, and so renew it for another season's crop at little expense, while in matted row culture it is seldom profitable to continue a bed in fruiting more than one year. I will say to any of you who contemplate growing strawberries in matted rows, do not try to get but one crop. While you can get a second crop without much work, it will be small inferior fruit, and a poor crop. If you are bound to grow in matted rows set new beds every year and plow up the old ones right after fruiting. When the ground is frozen in the fall, cover the whole field lightly with a mulch of old hay, straw, corn stalks, or any coarse material that will protect the plants against the alternate freezing and thawing of late winter and early spring. This need not be removed but when growing time approaches pass along the rows and partially uncover the crowns of the plants that the new growth may push through it. Thus the mulch can remain to keep the ground moist and the fruit clean during the ripening season. This question of moisture at ripening time is a most important one. Many a field of strawberries that has received fairly good care through the whole year has failed to produce profitable results, simply for the want of sufficient moisture just at the fruiting season. Therefore, where it is possible without too great cost, irrigation should be provided if the highest results are to be

obtained. There is no other plant that I know of that requires so much water to perfect the crop in the highest state and the greatest abundance as strawberries.

Where the markets are large enough to readily handle year after year the product of five or more acres from one farm I am satisfied that an investment of from one to two thousand dollars for irrigation purposes would pay handsomely. However, as such an amount of capital cannot well be so invested by many planters. and cheaper means of obtaining an abundant supply of water are not to be had, except in rare cases, therefore I urge a thorough preparation of the soil for planting, and frequent cultivation, that the plants may root deeply and thus be able to withstand drouth, which comes so often just when we can least afford it.

In gathering and marketing the crop there should be one picker for each thirty or forty quarts of the daily product, and a superintendent to every fifteen or twenty pickers to assign them their rows and inspect their work from time to time to see that they keep to their rows and do not trample on the vines. Pick the fruit clean, and grade it according to the demands of the market to be supplied. Upon the thoroughness of this superintendent's work will depend a large measure of the success of the business. For keeping tally with the pickers, the best plan I know of is. to give each a picking stand or rack of a size suitable to hold four, six, or eight quart baskets. This should be plainly stenciled with the number of the picker, all of whom should be numbered. On commencement of each day's work the picker is given this rack with its full quota of baskets, no more, no less, and is required to return them, either full or empty to the packing shed when a daily account ticket is given. This ticket is of "tough check" paper, $3\frac{1}{2}$x$1\frac{1}{2}$ inches. Across the top is a space for name and number of picker, day and date of the week, then five upright columns of eight figures representing—1, 2, 3, 4 and 8 quarts or 144 quarts in all—as much as even good pickers are likely to pick in one day

From this is punched with a conductor's punch, a number representing quarts of berries brought in, and given to the picker, who is then given a fresh lot of baskets, and returns to work and continues in this way till the day's work is done. Then the daily ticket is taken up and the number of quarts it represents as having been picked is then punched out of the weekly ticket, which is of the same tough check paper, size $5\frac{1}{2}$x$2\frac{1}{2}$ inches. This ticket has space for name

and number of picker, amount paid per quart, and date of the week, on which it ends, and six columns of figures for a record of the berries picked each working day in the week, column for sum total and cash paid on Saturday, date of ending. These tickets are carried by the pickers through the week, a new daily ticket given each morning and taken up at night, then on Saturday, when we pay off we take up the weekly tickets and file them away, and thus in a simple form have a complete record of all berries picked, and in case of loss of a weekly ticket by a picker before the end of the week, we have the daily ones on hand from which to make a new one without loss to any one, thus there is no chance for a picker to lose pay, or for us to pay only just what is due.

Picking, except for local markets should not begin till the dew is off in the morning, and not continue through the heat of the day, if pickers enough can be had to gather the crop without it,—from four o'clock until dark is much the best time. The packing shed should be a cool airy place convenient to the field, and here all the fruit should be taken as fast as gathered. A general inspection of the fruit should be given by the person in charge, and packed according to its grade each variety by itself. Baskets or boxes should be new and clean, and made of the whitest wood that it is possible to obtain. All should be as rounding full as can be conveniently packed without injury to the fruit. There should be no inferior fruit put in, and that in the bottom and middle of the package should be just as good or better than that on top.

Having made sure of this, these should be packed in clean, bright crates or boxes, and of the size required by the markets where the fruit is to be sold. We in the east mostly use the square quart American baskets, well ventilated at sides and corners and pack them in thirty-two or forty-eight-quart crates that are also well ventilated at sides and ends and are returned when empty. In some sections of Pennsylvania, Ohio, Indiana, Illinois and Missouri, they use shallow boxes about 14x20 inches called a tray. Into these they turn loosely sixteen quarts of berries, and packing four of these, one above the other and a thin cover over the top one, cleats nailed on the sides to hold them together makes a "stand" containing sixty-four quarts. In the market the berries are scooped up and measured out by the quart, more or less mussed, with a shrinkage of about twelve per cent and yet this abomination appears satisfactory to those that have not learned of any better way. Surely no money can be made on small fruits handled so.

In the West and Southwest most of the fruit is sent to market in what is known as the "Hallock" a box five inches square, two and one-half inches deep, bottom elevated half an inch so as not to crush the berries below and no slit or hole for ventilation. These are packed three deep without any slots between them, in cheap twenty-four-quart gift-cases, and sell with the fruit. It is of great importance, if you expect to find money in the small fruits, to pay strict attention, to the careful gathering, packing and marketing of the fruit. Be sure that your crate is packed so that the berries at the bottom will prove as good or even better than those on top. If you are packing a 32-quart crate of berries and you have one quart that is not quite as good as the rest, put that on the top layer, so that the dealer may see it and understand that that is the poorest one there, that when he has seen the top of the crate he has seen the worst there is in it. That might not be good policy if you were only going to sell that one crate of berries, but if you are in the business for profit you must make a name and a reputation, and you cannot do any better than by absolutely honest packing.

In Chicago a year ago last June, just when red raspberries were coming in from Southern Illinois, I was there and visited the markets. They came in 24-quart cases, nailed up. The dealers were opening them and showing them as the truckmen would bring them in from the trains, and the grocers and fruit men were examining them and buying them at six and eight cents a quart. At one place where I was, about half a truck load came in, and the proprietor told the man to set them back in the back part of the store. Several buyers came in and asked what he was asking for them and were told ten cents; and they would take three or four or a dozen crates, and while I was there they were all sold and not one of them opened. I inquired of the proprietor why he didn't open those crates. He said, "You see that name on the top of the crate; that sells the berry; he is a man who has made a reputation in this market; we know that everything that comes from his place is carefully selected before it is packed; it is packed honestly; the boxes are new and clean and they are packed full; the berries are cooled before they are packed, and when they are nailed up we will not open them for any man in Chicago; if they will not buy them without their being opened they may go without them." I had the Yankee curiosity to travel three hundred miles south into Illinois to visit that man's farm, to see what he was doing and how he was doing it. He has won

his reputation by careful, business-like, systematic work in every department of his fruit growing, and by thorough honesty in the packing. It is an old adage that honesty is the best policy. If you are mean and dishonest at heart and want to cheat every man you deal with don't do it, it won't pay; if you are after the dollars and cents, be honest. I am not preaching a sermon now; I am talking dollars and cents.

I am satisfied after several years of careful study of the markets, both East and West, that we are ventilating our baskets and crates too much, and by allowing so much air to reach our berries we are not keeping them in good condition as long as we might. Of course when berries are picked in the heat of the day and packed at once, they must go in ventilated baskets and crates, also, if wet from rain or dew they will dry off and keep longer when well ventilated, but I am clearly of the opinion that if we pick our berries in the cool of the day, or if picked when warm, we will at once send them to a cooling room and when thoroughly cooled pack them in tight boxes or baskets in crates where the air will not directly reach them, berries will keep twice as long and in better condition than they do now in what we call our best ventilated packages. I have stated that strawberries are usually over ventilated in packi g. In support of that, you will notice that when a market man has kept his strawberries about as long as possible, the last thing he will do will be to turn them over, bringing the fruit from the bottom of the box to the top. Why? because the air has been kept from the bottom berries and so they have kept better.

It is usually good policy to conform to the customs of the market whose trade we seek. However, where we find these that have not attained a high standard, it may be well to humor them to the extent of sending second-class fruit in the old style, and market our best in the most approved packages attainable. It will attract attention to our goods, and win favor and custom, especially if we guarantee every package to be as represented. We cannot afford to spend eleven months of careful cultivation of our fruits, and then accept inferior prices, simply for the want of a little care in the details of marketing.

RASPBERRIES.

Raspberries, red, black and yellow, following strawberries as they do, should next receive attention from one who is after money in small fruits. These require much the same soil as strawberries,

except that they may be grown with profit on land that is far richer in nitrogenous matter. The red varieties may be planted either in spring or fall, but the cap varieties or any propagated by layering of the tips should always be planted in spring. Ground should be as thoroughly prepared as for strawberries. For years I have planted in rows, seven or eight feet apart, according to the vigor of the variety, placing the plants two and one-half to three feet in the row, but I am now satisfied that larger, firmer and better berries can be grown by planting in check rows, five or six feet apart, giving the plants more sunlight and air, and admits of more use of the horse and cultivator, thus securing better culture at less cost, while the yield of fruit is fully as large as from hedge rows.

After the ground is properly marked out it is best to take a light one-horse plow and open furrows three or four inches deep, and for late fall or early spring planting of dormant plants of all varieties that are propagated from the roots, the work can be done very rapidly by having a boy to hold the plant in place while the earth can be drawn over the roots with a hoe and trodden down with the feet. No harm will be done even if planted two or three inches deeper than they had naturally grown, except that they will not show signs of growth quite so rapidly. The canes should be cut off even with the surface of the ground, as the only growth of value is what comes directly from the roots. Often have I seen raspberries and blackberries planted with one to two feet of the cane left above ground, the awakening life starts the buds and leaves on these and as it requires all the strength of the newly transplanted roots to nourish this old cane there is little strength left to push the new growth, consequently it takes two years' growth to bring the plants into good bearing condition, while on the other hand if good strong rooted plants are put out and tops all cut away the first season's growth will be strong enough to produce a perfect crop of fruit the next season. The cap varieties and all those that are propagated by layering of the tips must not be planted as deeply, the roots should be carefully spread out and covered with fine earth, with the crown of the plants not more than one-half inch beneath the surface, as deep planting is sure death to this class of plants. If from any cause we cannot plant very early in the spring while the plants are dormant, it is not well to plant a little later when the new and tender shoots are just sprouting from the roots as many of them are likely to get broken off, but a few weeks later when the new growth

is well established the young green plants may be transplanted as readily as tomatoes or cabbages, in fact the finest raspberries I have ever grown have been planted with these green plants, which however cannot of course be as well transported as the dormant plants. Whatever and however the plants are set cultivation should begin early in the season, and be frequent and thorough through the summer months, so as to stimulate a rapid growth early in the season, giving ample time for maturity of wood during the fall. The new growth should be pinched back when fifteen to eighteen inches high. This will cause a strong growth of lateral branches, which should be allowed to grow at will, leaving all further trimming till early the following spring.

Some of our best market varieties, such as Cuthbert and Marlboro among the red ; Caroline and Golden Queen, yellow ; and Carmen and Springfield, Earhart and Sourhegan black caps, are hardy enough when well grown to withstand the frosts of most of the northern sections of the United States with but little injury, except now and then a winter when they get badly nipped, but as we are after the money in small fruits, and the whole profit in the business comes from little things, it is not wise anywhere north of latitude forty-two, to attempt to let them go through the winter without some protection ; plenty of snow will answer if you could be sure of it. However, the present winter has taught us that it is not best to depend on that, and as the next best and cheapest material is earth, plans should be made to cover them late in the fall, just before the approach of winter. This can be done cheaply and rapidly by two men, one with heavy gloves to bring the canes as close together as possible, and carefully bend them down lengthwise of the row, and the other throwing a shovelful of earth at the base on the side towards which they are being bent will prevent them from breaking ; then a few shovelfuls of earth on the tips will hold them in place, and they can pass on to the next plant, and so on over the whole field, after which each can take a shovel and complete the covering the whole at a cost of from five to eight dollars per acre.

Where the rows are far enough apart to admit of it, after the plants have been bent over and the tips held down with earth put on with a shovel, the principal covering can be done with a team of fast walking horses and a plow that will throw the soil well, and so reduce the labor cost somewhat. This is a sure and safe method of insuring the crop as far as the extreme frosts of winter might affect it. As soon as frost is out and ground dry enough in the

spring, uncover, straighten up the plants, thin out and shorten in the laterals from eight to fifteen inches as may be required to form a well balanced bush.

Thorough cultivation may be given up to blooming time, after which it is not well to stir the soil till after fruiting. The gathering and marketing of the fruit should be on the same general plan as for the strawberries, except that half pint and pint boxes or baskets should be used in place of quarts for the most delicate varieties.

BLACKBERRIES.

Blackberries should next receive attention and as they are generally inclined to make too much wood growth, it is well to select land of moderate fertility. The high bush varieties may be planted either in spring or fall, the latter being the best, planting the same as stronger growing raspberries, while the dewberries or trailing blackberries should always be planted in the spring in rows ten feet apart, plants three to four feet in the row, and allowed to form a matted row. Close pruning and winter protection are essential to the highest success in blackberry culture as with raspberries.

GOOSEBERRIES AND CURRANTS.

Gooseberries there is only a limited sale for, but for currants the demand is still far greater than the supply. Strong, rich, fairly moist soil is best for the latter. They may be planted at any time after their leaves drop in the fall, or very early in the spring, in check rows four and one-half to five feet apart. The growth is all made the first two months of summer. It is therefore essential that the cultivation be thorough and liberal early in the season, if we wish to stimulate the best wood growth. The first two years only enough pruning will be required to form a broad open headed bush, with bearing wood evenly distributed but in later years a pinching back of all the new growth when two or three inches long will tend to develop a wondrous formation of fruit-spurs and buds. This has not been the general practice, but is practically a new plan that is worth making a careful note of, even by those having only a few bushes.

GENERAL REMARKS.

In theory it is all very nice to aim to supply only varieties of superior quality and educate the popular taste, but as a matter of business it does not pay. Your efforts will not be appreciated, the

average buyer of small fruits goes about the business as though they were never intended to be eaten, they use the eye only in buying, and fine large showy fruit, sells quickly at high prices regardless of quality, while high flavored fruit sells slowly and at low prices if it is not of showy appearance.

There are a few customers in every town and city who appreciate and will pay for quality, but they are so few in number that their trade is comparatively small, and will hardly attract our attention. We must therefore bow to the popular demand and grow such varieties as will yield the greatest number of quarts of large berries of as good form and color as it is possible to obtain. If with these we can combine fine flavor so much the better, but one who is after profit from the business must not sacrifice fine appearance for quality It is a shame to be obliged to say this here in New England where we are supposed to appreciate the best of everything, yet it is one of those hard facts that we have to face, possibly the time will come when horticulture will be taught in our public schools and our town and village people working in the local horticultural society for the sake of its ornamental feature will gradually learn that there is a vast difference in the quality of our fruits, and in time will buy them on their merits as to quality. Yet, under existing conditions, study the markets that you are to supply, then visit growers in your neighborhood, county and state, and learn from them what are the well tested and approved varieties, and make the largest share of your plantings of these.

On my own fruit farm of some eighty acres the old standard Crescent, Windsor and Downing strawberries, Cuthbert and Sowhegan raspberry; Snyder blackberry, and Victoria currant have always been profitable. Jessie, Bubach, Pineapple and Miami strawberries, Carmen and Scarlet Gem raspberries, Lucretia dewberry and Fay currant among the newer varieties are wonderfully fine, and are likely to surpass many of the old ones, and there are many others that are fast coming to the front, but I am not here to advertise new fruits. The world is improving all the time, and so are our small fruits, yet do not rush headlong into highly praised new ones. Test them all in a small way and you will surely find some that are just suited to your soil and market, thus obtaining for yourself an advantage not possessed by others. The man who is always looking for something better is the one who makes the most out of the old varieties as he gives them the best culture. His neighbors may

think he fools away time and money on a little trial plot of new varieties, yet out of many failures comes one success that pays for all and places him way ahead of all competitors.

With culture such as I recommend, strawberries should yield four thousand quarts per acre, sell in your markets at about eight cents per quart or a net profit of one hundred and fifty dollars per acre. Raspberries about three thousand quarts per acre at ten cents per quart will net about the same profit as strawberries. Blackberries should give rather more quarts than the raspberries but selling for less price, the profit is not so great. A good product of currants is from fifteen hundred to two thousand quarts per acre, and the price I suppose here about six or eight cents; but as a field of currants may be kept in fruiting for an indefinite number of years, it is one of the most profitable of all small fruits, as the cost of culture is so much less than any of the others; strawberries having to be renewed every two or three years, raspberries and blackberries every five or six years for the best results, although there are many fields now eight or ten years old that are yearly giving profitable results.

So much for a hurried run over the field with an eye to producing small fruits for market, but to get at bottom facts as to money in small fruits the family garden is the place to begin and end if we are looking for great results. Every farmer should and will have, when he awakens to a full sense of the duty he owes to wife and loved ones, a small fruit garden of half an acre or more in proportion to the size of his family and his real interest in their welfare, for right here he has a home market that will take at high prices every day in the week, quarts upon quarts of the choicest products of his plants, and the owner of town or city lot can in no way get so complete and satisfactory returns for money and labor expended on it as from a choice selection of small fruits. Here, of course many of the methods recommended for field culture will have to be abandoned, limited space making it necessary to plant more closely and to cultivate with hand implements. Strawberries should be given the most sunny exposure, plants set about fifteen inches apart each way and confined closely to hills which with liberal culture will grow large enough to shade the whole ground and largely check weed growth.

After midsummer a heavy mulching of some material that is most readily obtainable may be put on, between the plants to keep down the weeds and save the trouble of hoeing. This may be added, too, for winter protection, then early the following spring uncover the crowns of the plant only and the new growth will push up through.

The heavy mulching over the ground will make a carpet to prevent weed growth and to keep the ground moist and the fruit clean. Remove this after fruiting and by hoeing often in July and August the plants may be put in condition for another year as before.

Raspberries and blackberries in the small city lot or village garden should each be planted in single rows with plants fifteen to eighteen inches apart and only one or two sprouts allowed to grow from each plant, all others being treated as weeds and hoed down as fast as they appear. The training of the canes so as to be as little in the way as possible is an important consideration in such a garden, the plan that keeps them the most closely within bounds and yet gives room for sun and air is to set at each end of the row heavy posts four feet high and eight to ten inches in diameter, on these stretch three strands of wire on either side of the posts, and training the canes to grow up between these wires they will always be confined within the space of eight or ten inches.

Keep the canes pinched off just above the top wire which should be near the top of the posts, lateral branches may be shortened in according to the room we can spare to them. The shady spots may be given to the raspberries as they will fruit well there if manure and moisture are supplied, although of course the fruit will not be as rich and sweet as that grown in the sun.

Gooseberries and currants may also be planted quite closely in single rows and by close pruning and a wire frame, be confined much the same as the raspberries and blackberries except that the width between the wires should be not less than fifteen inches, however, these little matters of details will largely regulate themselves according to the situation of each plot of ground or the taste and ingenuity of the owner.

There is no great mystery about fruits and their culture, plenty of manure and liberal culture, and almost any manner of pruning and training that will let in air and sunlight, will give abundant returns. That is what we are after, plenty of fine fruit as early and cheaply grown as possible. Its importance as an article of diet is at last beginning to be appreciated. Every dollar expended on the fruit garden will save at least two dollars in butchers' and doctors' bills, and the sooner we understand it the better. Three times a day the whole year, our tables could and should be supplied with these refreshing and health-giving fruits of our own growing. How much better for the boys and girls at school to have a dish of fresh berries, a cluster of grapes, or a cup of raspberry jam and good

nutritious bread and butter than to have the mother slave herself to death from day to day in preparing some health destroying compound of grease and spices in the shape of loaf cake, doughnuts or mince pie to tempt the appetite and destroy the stomach as well as a lot of good flour, eggs and butter that might be used to give health and strength rather than destroy it.

I note with pleasure in my travels about that fruit growers and such farmers as have plenty of fruits very seldom have pastry of any kind upon their tables, its place being supplied with fruit, either fresh or canned, and since the improved method of canning that has been adopted in the past few years it is possible to have fruit at any season of the year, approaching in flavor that fresh from the vines, red raspberries retaining their flavor best of all.

The taste for fresh fruit is growing fast, and while many of our farmers know that they ought to supply it to their families they still fight shy of planting and say they can buy what berries they want cheaper than they can grow them, yet they will not buy one-hundredth part of what their families would use if it could be had for the picking. My own family is not a large one, yet we manage to dispose of from six to ten quarts of strawberries, raspberries, currants and blackberries per day through June, July and August, and the next three months we worry along on peaches, pears and the product of one hundred and sixteen grape vines.

A friend of mine having a half-acre city lot bought his fertilizers, hired the land plowed, planted thereon twenty-six dollars' worth of plants, kept an account of all money paid out for labor for five years, and charged the family at market rates for all fruit consumed, told me that this half acre paid him a profit of one hundred and sixty dollars annually, and such a half acre should be on every farm. Wife and loved ones will appreciate it. Tell the children that on the half-acre lot back of the barn, or not far away from the house, there are twenty bushels of strawberries, ten each of red and black raspberries, five bushels of currants, ten bushels of blackberries, five of Lucretia dewberry, a bushel of gooseberries, a ton of grapes, a wagon load of delicious canned fruits. How their little eyes would open, and with what shouts of joy and gladness would they rush out after such a rich treat; and all are there, even if the little ones do fail to find them on some farms.

Farmers, open your eyes! Why be blind to the fact that these delicious articles of food and home comforts may be found on many good half acres of your farms, and it only requires a light expendi-

ture of money and some intelligent labor to unfold them. All are there and to be had for the asking. Will you accept them? If so, you will see that there are health and happiness as well as money in small fruits.

There is nobody in the world that can live so well as the farmer; no one that has so splendid an opportunity for good living as the New England farmer. But, after all, as a matter of fact, we do have less variety than our city cousins; our friends in the city have more vegetables than the average farmer and a greater variety of fruits. It is a shame that we who can live so well do not live any better than we do. You sometimes hear a man say that he will not raise small fruits because he can buy all he wants cheaper than he can raise it. Did any of you ever know a farmer to buy all the small fruits his family wanted? There is a man that nods his head. I am very glad to know that there is one farmer in Maine who buys for his family all the small fruits they want. I don't believe there is another one in the United States. Occasionally you will find a man who thinks he does, but when you come to inquire into it you will find that he buys, perhaps two or three quarts a day, while a good-sized family will eat six, eight or even ten quarts a day.

DISCUSSION.

Mr. Luce. I would like to ask how much any one can afford to pay for wood ashes to use in strawberry raising.

Mr. Hale. That depends upon where he is situated, and what other fertilizers he can get, what his fruits are worth, etc. As I am situated, I should be glad to pay thirty cents a bushel for all the unleached wood ashes I could find. We do not buy them, because we find it difficult to get them unleached; and therefore we buy muriate of potash; that is the cheapest form of potash we are able to find at the present time. It answers the purpose not quite so well as the sulphate, but it is so much cheaper that we use it instead. I think perhaps the sulphate of potash gives a higher color and perhaps a little sweeter taste.

Mr. Starrett. After the raspberry crop is gathered do you cut off the canes?

Mr. Hale. That is a good question. Writers on fruit culture say that we must cut away the old canes after the crop is taken; that is the theory advanced by all writers on the subject, and I sup-

pose I ought to tell that in order to keep along with the procession. But really that is all nonsense. Just leave the old canes right where they are. It is an awful job to cut them out in the summer when the new growth is there. I am growing fruits for dollars and cents, although I love the business and I have no money except what I have dug out of the farm. In practice we leave those canes right where they are all summer long and all the fall. They help sustain the new growth. When the new growth is young it is very tender, and if a high wind comes up they are liable to be all broken down. Leave the canes there for a support to the new growth through the summer, and in the winter they make a grand protection; they help catch the snow and hold it there, and they help support the new growth against the wind. If you lay down your raspberries and blackberries in the fall you want to get the old canes out at the time you lay the new growth down, and they are so brittle then that you can almost break them out without cutting. But when we do not lay them down we do it in the spring; when I am trimming around the bushes and using my hands and eyes for that operation, I use my feet to break down these old canes and kick them out of the way. I have never carted any out of the field. There is no trouble about it. I have visited men who were new in the business and who had read in the books that the old canes must be cut out in the summer, and I have seen them working through a mass of briers in mid-summer, when they ought to be doing something else.

Mr. KNOWLTON. Do you treat blackberries in the same way?

Mr. HALE. Yes.

Question. What variety of strawberry would you plant for pollenizing purposes for the Crescent?

Mr. HALE. I plant a variety that is worth but very little for fruit—the old Ironclad. It is a shy bearer and not a very desirable fruit, but it is a strong growing plant, absolutely hardy; it blooms very early, and it has very strong stems. I had rather plant one row in three of the Ironclad with the Crescent and never pick a berry from the Ironclad; I will get enough fruit from the Crescent so that I can afford to go without any from the Ironclad. I can do better that way than to fertilize with the Charles Downing or any of the other varieties whose fruit is more valuable.

Mr. POPE. Do you protect your blackberries by laying down?

Mr. HALE. You must with all the tender varieties. You can grow the Snyder, I suppose, anywhere in Maine, almost, without

any winter protection; there are but few other varieties that are valuable for market or table but that would be tender here. Possibly the New Erie will stand your climate, and I am not sure but that the Minnewaska will, but they have not been tested here, I presume. Any variety that you are not absolutely sure about I should protect.

Mr. Briggs. What are one or two of the best red raspberries?

Mr. Hale. The Cuthbert is as hardy, perhaps, as anything except the Turner. If I was to grow it in Maine I should give it protection, I presume; but we grow it without protection. It is the best red raspberry, all things considered that there is in the country. Of course there are higher flavored berries, but there are none that will prove more satisfactory in all respects. It is the Concord-Baldwin-Bartlett stock of the raspberry.

Question. In the cultivation of currants, I would like to inquire how you conquer the currant worm?

Mr. Hale. There is very little trouble about that; the currant worm need not affect currant culture hardly a particle. Watch closely for their first appearance and dust the vine with white hellebore. That is sure destruction. If you do not clean them all out with one application try another one in a week or so. By watching the field carefully it need not make an expense of fifty cents per acre to keep the currant worms under subjection. Paris green or London purple may be used; but we use the hellebore because it is less dangerous and will do the work. I have been recently informed by an expert gardener in Duchess county, New York, that where he had applied iron filings about his currant bushes, in a field that had been over-run with currant worms for several years, he was entirely rid of them. He applied the iron filings and chips about the base of his bushes in September or August five years ago and there has not been a currant worm in the field since, while a neighboring field, where they were not applied, is still afflicted. I have never tested it myself, but that comes from very reliable authority. I shall most surely try it next year.

There is one thing that I desire to say emphatically to the farmers of Maine, and that is, do not go into the growing of small fruits for the market until you have a splendid farm garden. I would like to inquire how many men here are using five acres of land or more. Nearly all of you raise your hands. Now, how many of you have a good small fruit garden that is giving your families a good supply? Only two! How many are growing a full

supply of strawberries and raspberries? Three! How many a full supply of strawberries? Four! How many dislike strawberries? Not one! How many like them? [Everybody raises his hand.]

It is a shame to us that we don't live half as well as we might. We don't get as many comforts out of life as the city people do, and to some extent it is our own fault. If we like these fruits we are at fault if we do not raise at least enough for home consumption. They are so easily grown; there is no great mystery about it. You can grow a bushel of strawberries almost as cheaply as a bushel of potatoes and just about as easily. Which had you rather have in your family, a bushel of strawberries or a bushel of potatoes? You would rather have 29 quarts of strawberries than 32 of potatoes. If you set out a little patch of strawberries in a shady corner of your garden and don't half cultivate your land and let the weeds choke them out you will think it doesn't pay, and it doesn't if you go about it in that way. But take it right out in the open field; plant them in long rows, just as your vegetable garden ought to be planted in rows 4, 6, 8, 10 or 12 rods long and do almost all the work with your horse cultivator, and there is no part of your farm that will begin to give you such returns at so little expense.

Mr. Starrett. What is the value of the yellow raspberries? what are they good for?

Mr. Hale. In the first place they are good to eat. If you refer to the yellow cap variety; they are very yellow, dry as a chip and hardly fit to eat, but take such a variety as the Brinkle's Orange and there is no raspberry than can compare with it for fine flavor. It is rather a slow grower, but the fruit is excellent. The Caroline is a hardy variety; it is a cross between the red raspberry and the cap variety of very good quality, hardy, a profuse bearer and ripens extremely early. It is only fit for home use, being too soft for the market. Then we have another one of a more recent introduction, a sport from the Cuthbert, the Golden Queen, a very large orange colored raspberry of delicious flavor, a profuse bearer and a hardy plant. But yellow raspberries and white currants and things of that kind never have sold well in the market. The Golden Queen has only been recommended throughout the country as an amateur berry, a family berry; but during the last few years it has been put upon the market to some extent and it has been a matter of surprise to all fruit growers how it has sold. It has sold very readily and at high prices on account of its beautiful appearance. It is firm and

keeps up well and is a valuable market berry and should be in every fruit garden. It compares with the Cuthbert in its vigorous growth and general good qualities.

Mr. ATHERTON. It would please me very much to have a nice small fruit garden. I think I could easily devote half an acre to one, but the difficulty would be to get the time in the summer when my other work is so pressing, and the expense that would be incurred in setting out and caring for a half acre of the different varieties of small fruits. I do not know how much the expense would be, but nearly every farmer is pretty busy in the spring.

Mr. HALE. Busy in doing what?

Mr. ATHERTON. Attending to our field crops; we have to get the money out of them to pay our taxes.

Mr. HALE. A half acre of small fruits will bring in enough money to pay one hired man all summer and it will not take half his time to attend to the half acre. As to the expense of starting I would advise a man who hasn't any small fruit garden to invest two or three dollars this coming spring in a few plants and set them out in good rich soil and propagate his own stock for the next year. Plants sufficient to set a half acre would cost fifteen or twenty or twenty-five dollars according to the selection of varieties. But by investing three or four dollars in the desired varieties of plants this spring he could propagate his own stock and the following year set out his half acre and then when he needed to renew it he could do so without expense.

Mr. ATHERTON. I did not have reference simply to the expense of purchasing the plants; but time is money and this fruit garden would require time from the other farm work.

Mr. HALE. The actual profit by using the fruit in your own family in place of more expensive kinds of food, I think we may set at $100 for the half acre. Are you growing any crops on your farm that are netting you $200 per acre profit?

Mr. ATHERTON. No.

Mr. HALE. Then why talk about the cost of a fruit garden. It is the most profitable thing you can put on to your farm. After the ground is plowed and prepared I would agree to set out the plants for half an acre in a day and call it fun. And after they are set out in rows as they should be, the old horse and cultivator will do the most of the work.

Mr. Atherton. Another objection is that we cannot continue to grow the fruit on the same half acre but must change it from place to place; so we have got to devote more than the half acre to it.

Mr. Hale. You can shift from your fruit garden to your vegetable garden and in various ways you can get around that difficulty. You are Yankee enough to work that out.

THE CULTURE OF SMALL FRUITS.

By A. J. Tolman.

The subject I am about to treat is a well worn one, and one that has been handled in a masterly manner by good authorities on the subject, at the present and at previous meetings of this Society, so that I doubt my ability to give you any new information in regard to it, or present an article that will be of much general interest. The culture of the small fruits is an important branch of our horticulture, and in favorable locations has proved a very profitable business. I have been an enthusiast on this subject in the past, and still have great faith in the business, and advocate their general cultivation for the Maine farmer. It is a matter of surprise that so little attention, as a general rule, is given to the fruit garden. Many neglect it entirely, and but a few give it the prominence it deserves. The farmer is better situated to have upon his table everything in the way of small fruits than any one of every description. Though the most luscious strawberries can be raised in any garden at a small cost, and the free use of them during their season saves many doctors' bills, yet not one farmer in a hundred will devote his time to them. Even the few old currant bushes are neglected and grown up with grass and weeds, although the currant is one of the most desirable fruits we grow. But this is a busy world. Neither time nor money is plenty. There are many families who would be pleased to have upon their tables every day the delicious berries in their season, and if they knew how easily they could be grown, would certainly cultivate them; but having made some unsatisfactory experiments, with but partial success, they give up the attempt and think that the business requires too much expense, or special instruction. However, Nature is kind to all who have an appreciation of, and make a proper use of her gifts, and like

other products of the soil, she places small fruits within the reach of all who own or occupy a few rods of land. The march of progress in the line of introduction of small fruits has been very marked and rapid. And now, with the numerous varieties we have to select from, adapted to every taste, for every purpose, for the table, for market, for canning, with different modes of cultivation, and a climate suitable for every variety, there is an opportunity for all classes to enter into the full enjoyment of the excellent fruits, which an indulgent Providence has been pleased to provide.

To enjoy the different kinds of small fruits in their greatest perfection requires a considerable amount of care in their growth and training, and this excuse is offered by the average farmer against their general cultivation. It is true that the farmer in the cultivation of general crops, the care of his stock and general management of the farm, must spend the larger portion of his time. Yet there are always some opportunities when a few moments might be expended in this work that would otherwise remain unimproved. A little time spent at the blacksmith shop or at the corner store, discussing the tariff or in some other equally unprofitable manner, would be sufficient to give all necessary care to a collection of small fruits that would furnish an agreeable succession during the average fruit season, and when the undertaking is once fully entered upon, the new beginner is frequently surprised at the small amount of time actually required in the production of that which furnished so large a share of gratification and comfort to the family. But there is a higher consideration than the gratification of appetite in this question, and that is the health of the family.

Physicians are agreed in according health producing and health giving qualities to well ripened fruit. Then, as a matter of economy alone, how much better it would be for the farmer even to spend a little extra time in the cultivation of fruits for the use of his family when diseases are prevalent or likely to occur rather than be obliged to make an expenditure of money to pay the family doctor for accomplishing the cure which perhaps his fruit would have rendered unnecessary. Sickness is caused no doubt during the summer season by an improper use of fruits, but it is generally brought about by using those in an over-ripe or decayed state, and frequently it is our own boy who has been sampling the cherries or green apples. There are many families within our State the head of which may be a mason, carpenter, blacksmith, mill-hand or day

laborer, who have a little place of their own, or one that they occupy, on which can be found a small plot of land which might be devoted to the culture of small fruits. Many of these little garden spots are grown up to grass and weeds and allowed to run to waste. If the owner would devote a little spare time to the preparation of a fruit garden, set a few grape vines a foot or two from the fence on the sunny side, eight feet apart, plant a row of blackberries and raspberries on the one side, of currants and gooseberries on the other, with the strawberry bed in the center, or any other arrangement to suit the taste, in a year or two with the proper care of the same he would have fruits to adorn his table fit for a prince. They will last about three months in the year, or perhaps longer, as we pick the first strawberries in June and blackberries long after the first frost makes its appearance in September. The most delicate and luscious kinds can be grown. They are not found in the market because too soft for transportation, and may be picked fresh from the vines at any time the owner chooses to use them. It would cost a few dollars to make a start in this direction at first, and will be attended by some failures and discouragement, but with the experience of a season or two, with an observance of the habits and proper training of the plants, vines and bushes, success is assured. The work of an hour or two each day will soon become one of pleasure. As the growing vines flourish and develop, the children when home from school can lend a helping hand and feel that they have an interest in the little fruit garden. The surplus can be sold and add not a little to the family purse, and frequently will pay many times over for the trouble and care of the plants.

Sometimes immense yields are given on these gardens, that would be almost impossible to get at the same rate per acre from plants grown in the open field. Some of the best patrons of our agricultural exhibitions and readers of the agricultural papers are these amateur fruit growers, who are enthusiastic in their work and always interested in the claims of new varieties for public favor. In regard to discussion on the different berries that we designate as small fruits. I do not claim to advance any new ideas or offer any special instructions. It is a subject upon which many of you could throw more light than myself. It has been discussed every year at our fruit growers' conventions, so that it is difficult to bring out any new points. I can only tell you in my practical way something of my experience with the different varieties, with now and then some

figures as to the yields, and prices of the products, as I have found them in our own State. Strawberries can be grown on any soil that is rich enough to produce corn, or potatoes. There are some unprofitable modes of cultivation. One is to set aside old, well tried and reliable kinds, and invest in every new variety that is offered for sale at exhorbitant prices, nine cases out of ten such varieties prove worthless and unworthy of cultivation. Another bad plan is, to buy and set out cheap plants, that are sold for a less price than good pure first class plants can be produced, for either of these methods will result in failure. In order to make the cultivation of small fruits of *any kind* pleasant and profitable you must devote your time and attention to it. In setting out strawberry plants the ground should be prepared by plowing, or spading deeply. The proper soil, everything taken into consideration, is a sandy loam sufficiently loose and porous, so that it will have the excellent quality of drainage which is not only favorable during a wet summer, but also making a marked difference in the winter season. A porous soil, lessens the tendency to smother the plants from heavy snows and favors an early start in the spring and early cultivation.

Mr. Chas. Downing tells us, that no fruit was so affected by varying soils and climates as the strawberry. I have come to the conclusion that soil, locality and climate make such vast differences, that unless these variations are carefully studied and understood, books will mislead more people than they will help. My plants are mostly on a clayey loam and give good yields of fruit, but the ground heaves badly, and I think they are more liable to winter kill than they would on a lighter soil. There are many ways of cultivation ; I have always advocated the matted row system, for in field culture there must be plenty of room to work with a horse cultivator. In the garden there is not always room to do this and a better plan where you wish to economize space would be to set them in hills about twenty inches apart, or two feet each way. The fruit is much larger, the crop larger, and on most soils the work is much easier with less labor by hand picking the weeds. There are sorts that must be grown in hills to produce well, and there are none but what do better grown in this way.

I have used any and all kinds of fertilizers and find that my strawberry bed needs a heavy application to give the best results. Much depends upon the condition of the soil when the plants are set. If a hoed crop has been grown on the piece the previous year,

about ten cords of stable manure or 2000 pounds of phosphate per acre would not be too heavy. After the first year I prefer a commercial fertilizer for a top dressing as it contains no foul seeds, is much easier to apply, and just as good results are obtained as by using stable manure. The latter is preferable on a heavy clay soil, as by constantly mixing it with the soil and working with the hoe, it changes its nature and becomes more porous. A strawberry bed should be set where it is sheltered. If in the garden located so that the snow will fall upon it, and remain on the ground the larger portion of the winter, making a most excellent covering. Do not set plants where they will be shaded; the fruit will be later of inferior quality and not as productive. With most sorts the beds get exhausted and run out when two years old and should be spaded up and re-set. Though I have seen a bed of Wilson's on the same piece of ground seven years and still bear abundantly. This was done by spading up the old plants each year and taking them out after the runners were well rooted. Of course this is about as much work as it would be to set and cultivate a new bed. My practice has been to take two crops from a bed, sometimes three before ploughing them under.

All growers do not believe in this practice, and say that there is more money in producing *one good crop* and then turn them under. I should say that that would depend on the situation, the condition of the plants, *entirely*. If the plants *all grow* when they are set the first year, and a perfect matted row is formed, and they survive the winter all right, yield a large and full crop, then I should advise ploughing them under as soon as the fruit was taken off. But I have never been able to get a perfect set of plants the first year. Many of them die out. The cut worm destroys many more, and by the time that new plants are set in these vacant spaces and rooted well the season is too far advanced for them to send out runners enough to make a perfect row, consequently I do not consider it a perfect or full crop the first year under these conditions and believe that it will pay to run them the second year, when by that time the rows are wider, there are many new plants formed, and from these we look for the bulk of the crop the second year. It is much more work to keep them clear from weeds the second year than it would be to care for a new bed. Sometimes, however, the yield is the largest the second year. A large grower of small fruits of Palmyra, N. Y., has made the statement that he

expected as large a crop the second year from his strawberry beds as he did the first year. But the fruit is much larger and finer the first season. This has been very nearly my experience growing them in Maine. During the season of 1884 we had an acre piece that yielded a little better than 100 bushels. The next year it produced at the rate of 84 bushels to the acre, with but little care. I should not think of cultivating a bed of Wilsons the second year if a large yield was given, say at the rate of 125 bushels to the acre. It certainly would not pay to do it. The Wilson fails after giving a full crop, and does not seem to have the vitality possessed by some other sorts, like the Crescent, for instance, which has been grown three years successfully.

My plants are set about one foot or fifteen inches apart in the row, and the rows three and one-half feet apart. They should be hoed every ten days if possible, the weeds kept down and not allowed to start. Brush, straw and meadow hay are used for covering the plants during the winter. Brush is preferable, as the limbs do not pack close around the plants when covered by heavy snows, and the ventilation is better. Straw contains many foul seeds, and should be avoided if you can get anything else to cover with. Now as regards varieties, there are none more profitable with me than the Wilson or Crescent. These are strictly market berries, and although they have been grown for many years, the former about thirty or more, it still holds the lead as a firm berry to ship. For family use, the Wilson is inferior in quality, and there are many others that are better. The Captain Jack is a very fair market berry, and one that remains in bearing a long time. Miner's Great Prolific is a large, fine berry, productive, and one of the best. The Windsor Chief is an excellent berry, of good size and quite productive. The Sharpless is one of the largest berries grown, and none will compare with it as regards size. The Big Bob is nearly as large and of better flavor. The Manchester is productive, but in our section mildews badly. The Mount Vernon promises well, and is considered by all who have tried it an excellent variety, large and productive.

Perhaps this list is long enough. The amateur hardly knows what to select. The best plan is to visit your neighbor's or nurseryman's grounds in the height of the season, when the different sorts can be seen in full bearing. A personal inspection will show which varieties are the most desirable, whether they are to be grown

for your own table or for market. Next in importance to the strawberry, and as a paying small fruit for market, is the delicious, indispensable and very useful fruit, the raspberry. A few years ago the wild berry was very abundant. It was found in plenty on the timber choppings all over the State. They were brought to market by the bushel, we might say by the ton, as they were sold by weight, and our markets in the past have been glutted with them, the price being as low as four cents per pound some seasons. In some localities they are abundant at present, but nearly all of the favorite clearings have yielded their last crop. The bushes have been browsed down by the cattle or choked out by a growth of bushes and weeds, so that we must depend largely upon the cultivated plant in the future. It is not only an excellent fruit for the table, but one of the finest for canning and preserving. Raspberry jam is an important article of commerce, has a ready sale, and the right sorts, properly grown, will prove a paying crop near a good market.

It is most regular in bearing, does not require a large amount of labor, and nearly always brings good prices and compares very favorably with ordinary farm crops as a matter of profit, while soil must be good and well worked to produce good vegetables, it is not requisite with the raspberry. Many kinds of small fruits yield the heaviest and are much more hardy on poor soil than on highly cultivated lands, while a little compost or commercial fertilizer thrown close around the plant once a year will keep up productiveness, even if this is not done, thorough cultivation will do nearly as well. In fact in our northern States it is safer to plant on a rather poor or new soil than on one that has been richly fertilized for this reason. Nearly all varieties run less to plant or bush and more to fruit, they are more hardy, and stand our winters better. The weeds and suckers can be kept down on a poor soil by thorough cultivation, and hoeing without injury. While with the same practice on rich land, we force the plant into a rapid growth and make them very tender, so that they winter kill easily. There is another point, plants on a poor soil generally produce the earliest fruit. This does not seem consistent with Nature, but we always get the first strawberries on our old worn out beds, and find the wild raspberry in the market before we have picked a berry from our cultivated plants in the garden. This rule applies more particularly to raspberries and blackberries. I have rarely seen a soil too rich for strawberries.

It takes about two years to secure a full crop of raspberries to have the spaces filled up so that the rows are perfect. Mine have been grown in rows six feet apart (I think seven would be better) and the plants set as close as you wish, one or two feet apart, the thicker the plants the sooner will a perfect hedge be found. Some varieties sucker much more freely than others. The Turner will produce a fair crop the second year.

Some growers advocate hill culture, grown in stools about five feet apart, and run the horse cultivator both ways. I have not practised this method, as I believe the plants stand our winters better in the matted rows, and as the land contains more plants a larger crop is realized. As soon as the young wood is about eighteen or twenty inches long the end is pinched off, and within a few days the operation repeated, pruning them three times during the season is generally sufficient. This produces a strong, stocky plant that will stand up against heavy winds, and will bear double the crop of those allowed to grow up in the ordinary way. This pruning should not be neglected, especially the first year, so as to give the plant a strong growth of roots and a good start Too much wood and too much fruit the first bearing year is a great drawback, if you wish to produce long lived stocky plants. After the first crop has been taken off the old wood, *the canes that produced the fruit* should be cut out as soon as possible, so that the strength of the plant will be given to the growing canes for the future crop the following season. In regard to varieties, there are many fine ones. I do not like the black caps; they bear abundantly and are firm about marketing, but it is hard work to sell them. They bring a lower price than the red sorts, and are of inferior quality. The Gregg and Mammoth Cluster are probably the best black caps. The Highland Hardy, or Kirtland, is an excellent red sort, and about the earliest with me. The Clark is a fine berry, large, of good flavor, but rather soft. The Herstine is an excellent and very large berry, but I have not found it as productive as some others. The finest of all to my taste is the Brinkle's Orange, a handsome white berry, large but very tender. The above I consider all tender sorts, except the Kirtland, that need protection during the winter. The Turner and Brandywine are hardy sorts that need no covering, and are recognized as standard market berries. The Cuthbert is at present the most popular red sort, large, productive, of excellent

flavor, and bids fair to exceed them all. The culture of the blackberry does not differ materially from that of the raspberry. They are set about the same distance apart and the same course of setting, pruning and cultivating will apply equally to both. Most sorts are quite tender. I have found but one or two kinds that can be grown in this State without winter protection. They are a fine fruit, coming at a time when they are most needed and staying with us until the early frosts take them. The wild berries are abundant in some localities. We are not growing enough of them to supply our home markets, and hundreds of bushels are brought here, so that we have an abundance of them. I have had some very good crops, having at one time a half acre in cultivation, half of them the Wilson early, the balance Kittatinny and Lawton. These are all tender varieties requiring protection. They were a paying crop at first, the first berries selling at 25 cents per quart, while the wild ones were sold at 8 and 10 cents. I have had good crops some seasons; at others they were killed in spite of all precautions, until I became discouraged and ploughed them all under and planted the ground to cabbages. Since then I have tried sorts that have proved more successful. The Snyder stands our winters pretty well, also the Agawam and Western Triumph. The Snyder is my favorite and will succeed two-thirds of the time without covering. Blackberry bushes are not pleasant to work about, the sharp thorns scratching the hands and face, tearing the clothing, which is not pleasant. One of the best of all of our summer fruits is the currant. They are both useful and ornamental; they take up but little room, bear abundantly and unquestionably add to the attractiveness of the garden.

There is no plant that will bear so much neglect, and yet produce a crop of berries year after year, like the old currant bush. Nearly every garden in the land contains a few plants sometimes a little compost is thrown around them, but the weeds and grass are allowed to grow, and it struggles on for an existence when other plants would have given up long before. It seems to be a fact fully established in the minds of most people, that the currant is a hardy plant, after being once transplanted, and will do well enough if left to take care of itself. They are not pruned unless it is done by the browsing of domestic animals, instead of a proper use of the knife at the right season. Grown in this way it is small and insipid. How much better it would be if the plants had better care, and how much larger the crop. The currant is propagated by cuttings. As a

general rule they should be taken off late in autumn and buried in deep mellow soil hilled up on the surface, so as to throw off the rain. They should be set early in the spring in good rich soil with the earth pressed closely around them. They should be six or eight inches long, cut off close to the old wood and planted two thirds or three quarters of their length in the soil, with one bud above the surface. They soon take root, and form young plants by autumn. If well managed they will grow when cuttings are taken off very early in the spring, but will not strike roots as soon, or make as strong plants as those cut late in the fall. As a general thing they are rather uncertain, and probably not more than fifty per cent will grow. One of my neighbors who cultivates them quite extensively, thinks, that not more than two cuttings out of five will form plants, of either currants or gooseberries. The old Red Dutch is the variety grown for market all over the land, and there is none better for a paying crop, so far as I can learn. The White Grape and White Dutch are both excellent of finer flavor, but not as productive, and do not sell as well as the red sorts. Fay's Prolific is one of the newer red varieties and said to be one of the very best. I am unacquainted with it and have never seen it in bearing. Many are deterred from growing this fruit on account of the ravages of the currant worm. I know of no remedy to prevent their work, lime dust shaken on the plant every morning while the dew is on is sometimes effective. Gooseberries are growing more popular every year, there is not the same profit realized from the cultivation of these, as there has been in years past yet they will now return a fair profit, when carefully attended to, and well supplied with fertilizers. They will produce heavy crops for many years under these conditions. The gooseberry is always sold in the green state and when they are of fair size should be marketed. The vines or bushes do not get exhausted as much as other plants, which have to ripen up their fruit before it is gathered.

A young orchard is an excellent place for them, as they delight in a partial shade. If the piece selected be a moist one (not wet) so much the better for large fruit. It is folly to plant them in very dry land or where they will be exposed to the hottest sun during the summer. We cannot grow the fine varieties that they do in England, as they are affected by the mildew. The Houghton Seedling gives general satisfaction and is the berry we find in our markets. It is very productive and under good culture gives

abundant crops. With grapes I have had some experience and have at present about seventy nice vines, all the way from three to seven years old; nearly one-half of them are the Concord, and for the past two years the early frosts have taken them before they were ripe. It is called the grape for the million, and is a fine sort when well ripened. I have some varieties that I think are much better suited to our climate. The Champion is one of them; it will ripen every year, sometimes in August. It is not of the finest quality, but a very fair grape, a strong, healthy grower, and as productive as the Concord. Its chief point is earliness, and since I have grown them have never failed to ripen. They are very hardy, the vines being tied up to the trellis all winter and the wood as a general thing green and uninjured, sound to the end of the branches. There are some others that will ripen with us every year; the Janesville is one of them. I name the Champion first as I consider it of better quality. These two ripen at about the same time, from the last of August until the middle of September. The Brighton is not as early as its patrons have claimed; it is not hardy, but an excellent grape. The Lady is a fine white sort that ripens every year, quite productive, and one of the very best. The Delaware is excellent, of fine flavor, productive, and ripens before the Concord. The Salem is very good, while the Hartford is a week earlier; this sort drops from the vines when ripened, which is a bad fault. Moore's Early is a promising variety of large size, early, of fair quality and quite productive. The cultivation of the grape would pay in many localities no doubt, but they are sold very low in the height of the season; good fruit, much better than we can produce of all of the choicest table varieties, when natives would have no sale at all on account of their inferior quality. If our season was two weeks longer it would make a vast difference; as it is, fine fruit can be brought to our very door long before ours commences to change color.

And now, ladies and gentlemen, I will draw my article to a close. I hardly dare to advise the general cultivation of small fruits on a large scale for all localities as a money making business, for in many places it has been overdone. The decline in, and the low prices received for the past three or four years has driven many out of it. At one time the product of thirty acres of land set with strawberries were being sent to market from Knox county alone, one of the smallest in the State. At present I doubt if there are

ten acres in good condition. The past season the crop was nearly a failure and high prices were the result. The culture of strawberries for the future has a more promising look, and thousands of plants will be set during the coming spring if they can be obtained. I have given more attention to the strawberry in this article, not that I understand their culture any better than many of the others, but I have grown them more largely, and consider them the most important small fruit we grow, the one most certain to succeed in our climate. Commission men and freight handlers on nearly all of the transportation lines tells us that in the amount shipped, strawberries head the list, with grapes second. And, now, if any one desires to make a start in this direction my advice is to select those varieties best suited for your purpose. As a general rule those sorts best suited for market or for profit are not usually of the finest quality. Bear in mind there is always some leader in its class, some variety that gives general satisfaction, the Wilson among strawberries, the Concord among grapes, the Red Dutch currant, etc. Many varieties that succeed well in other sections of the country, are worthless here in our own. Small fruits require as much pruning and trimming and as much care as do our apple and pear trees. In closing I quote the following extract from the work of the late Rev. E. P. Roe, the eminent author who was largely interested in their culture: "Small fruits pay many people well, unless location, soil and climate are hopelessly against one. The degree of profit will depend chiefly on his skill, judgment and industry. The raising of small fruits are like other callings in which some are getting rich, more earning a fair livelihood, and not a few failing. It is business in which there is a sharp, keen competition, and ignorance, poor judgment and shiftless, idle ways will be as fatal as in the workshop, store or other industries."

PICKING, STORING AND PACKING APPLES.

By John W. True.

The subject before us is one that may well engage the attention of all orchardists as competition grows sharper and sharper, and the question of profit or loss becomes more and more a vital one, so that every point must be studied and looked at in all its bearings to find out the best methods and the cheapest way of executing them. An orchardist may raise a very fine crop of apples and that, too, at a decided profit, and then by improper handling and marketing, the balance after all may be on the wrong side of the account. In the first place, we must begin at the foundation in order that we may start aright, for if we begin wrong it makes it more difficult for us to work out the per cent. of profit in our business. In setting our orchards see to it that all the trees of a variety are in one locality or nearly so, for it makes it very inconvenient. It takes time, and "time is money," especially at the harvest season, to have a dozen or twenty trees in one locality and have them of as many different varieties. I have in my mind an orchard of five or six acres in extent, that the varieties are mixed, thoroughly mixed, so that a man going into that orchard to gather the apples has got to go all over the ground for each variety; therefore I say, have each variety by itself as far as possible, then you can go yourself or send your help and every step will count. After the trees are properly set then they are to be taken care of, see that they make a good growth every year, and in order for a tree to do that it must be fed in some way either by top dressing and mulching or by cultivation. The experience that I have had teaches that where it is practicable the better way is to cultivate them, having some other crop on the ground while the trees are growing, and in order to do that you will be obliged to remember that you must put on dressing enough for the crop and the trees, and an orchard treated in that way from the time it is set out until it is in full bearing condition, will produce fruit that is worth harvesting even at our present low prices, not forgetting all this time to prune and shape the tree for the purpose for which it has been grown.

Now, that we have got the trees properly grown, it will be seen that they are in a first-class condition for the operation of picking

the fruit. At the first thought it would seem as though very little could be said in regard to picking an apple. You may go out to employ a man to help you; you ask him if he knows how to pick apples; he will invariably answer, "Oh, yes; I can pick apples." I don't think you could find a man that would acknowledge that he did not know how. I have seen these men start for a tree, set their ladder up and let it come down on to the limbs loaded with fruit, at an angle of about 45 degrees, bringing down more or less apples at the first charge; then they will go up the ladder or *onto* it, hang up their basket and go at it with both hands, seizing the apple with the points of all their fingers and thumb, pressing with all their strength so as to be sure of their hold, then give a *yank*, and either the limb, fruit spur or the stem of the apple has got to come; and a barrel of apples, especially if they are of a light skinned variety, will look as though they had been *kicked* rather than picked off. It is unnecessary for me to say that *that* isn't the way at all. That man doesn't know how to pick apples.

In the first place, you should be properly equipped with ladders and baskets. The best ladder that I have ever used for a light person like myself for small trees was made in about fifteen minutes, and I have used it for the past ten years; it was made of two spruce poles not more than two inches through at the butt and about 14 feet long, straight and holding their size well; they were slightly spotted on one side. I then nailed on short pieces for rounds, longer at the bottom than at the top, with two clinch nails in each end, making a very light and strong ladder. I have other kinds but this is the favorite with both myself and my men. The basket should hold about half a bushel with a handle that will tip down with a hook firmly attached to the center. Place your ladder carefully against the limbs as nearly perpendicular as possible and allow of a man ascending it; go up carefully, hang your basket securely on the ladder or a limb and begin by picking those apples under and nearest to the ladder, taking the apple full in the palm of the hand, with the fore finger or thumb placed against the stem then with a sharp *cant*, it is severed from the limb or fruit spur at the joint. After they are well picked, different varieties require different treatment. All light colored fall apples should be picked directly from the basket into the barrel so as to save all the handling possible. All colored fall fruit may well be put into piles upon the ground to be sorted up and put into barrels, by an experienced hand, as you

want that part of the business done in as even a manner as possible. Varieties like the Northern Spy require very careful treatment; it should never be poured from the basket for in doing so the stem of one apple will break the skin of another and that apple is bound to decay in a very short time. Our practice with *Baldwins* is to have a cart set near the trees into which the apples are carefully turned from the baskets, and then before storing are carefully sorted.

There is a question and a serious one in regard to the advisability of storing apples at all, but it seems to me that the most of us here in Maine should hold our winter fruit into the winter months. A few can sell, perhaps, in the fall directly from the orchard and get as much, counting the extra cost of handling and the shrinkage, as others to store them, but the question would be different if every fruit grower should force his stock upon the market at the same time; therefore it would appear to be necessary for a large majority of our fruit growers to provide a proper place for storing their fruit, giving a man a much longer time in which to find a market, and not being obliged to take the first offer that is made. Where a person has large quantities of fruit it is probably best to build a regular fruit cellar, in that way relieving the house cellar of one of its many duties. In the first place, apples can be kept to advantage at a lower temperature than potatoes, and having ventilation enough to keep the cellar at thirty degrees above zero would keep the rooms above uncomfortably cold, and as a rule a special fruit cellar can by a little planning be made much more convenient to get the fruit both in and out than is usual with the house cellar, and as time goes on and the march of improvement reaches one after another each house will be furnished with its furnace, thus heating the common cellar to such a degree as to be unfit for the storage of apples, but for the present the majority of farmers have no other place than the house cellar, and it would seem best that the apple bin should be put in that corner that can best be kept the coolest and darkest, taking care that it does not get below thirty degrees above zero. The best cellar for the purpose is a very moist one, and in such a cellar my opinion is that there is little danger of putting too many in one bin. And the Baldwin may be kept in this way until April and even into May, and usually at an advantage, as by that time the bulk of the apple crop has been consumed or has gone to decay, leaving the market short of good, bright fruit. Not that I think it advisable for every orchardist to

hold his fruit until spring, but that it is best for him to put himself into such a situation that he can hold them if he thinks it best, and the farmer above all others should keep himself informed in regard to the market so that he may know when he gets a fair price offered for his produce, and it is usually wise to accept such an offer rather than to hold for extreme prices.

In packing the fruit the first thing in order is to see that we have good, clean barrels to put them in, and in my experience, if good new barrels can be procured at from five to ten cents more per barrel than the ordinary flour barrel it is policy to do so, for unless a great deal of care is taken in cleaning the flour barrels, the fruit will be dusty and will have a very dull and dingy appearance when opened for inspection or sale, and usually there are more or less of the hoops out of repair or missing and it takes more time to cooper them, and finally the fruit will sell for enough more to pay the difference in the cost of the barrels, but in using either old or new barrels great care must be taken to see that they are perfectly clean and free from dust. In putting in the apples I shall simply give you my usual way, and my reasons for so doing, although I shall probably differ from many of those present. I think it is the most practical and the best method for me. I begin by putting in two layers of apples, stem downward, said apples to be bright, fair specimens, not the largest, so that the barrel may have a presentable appearance that it may attract the attention of the person looking for a barrel of apples. You may say that those apples that are sent to Europe are sold only on their merits, a sample being turned out in sight of the purchaser, so that it makes no difference whether they are faced or not, but we must remember that they are not sold to the consumer in that way. The buyer in Liverpool will pay more for a lot of fruit that is slightly inferior, take them as a whole but put up in an attractive form, than he will for a better lot put up in a slovenly manner, that is, putting the apples in all alike and pressing in the head. Now, when that head is taken out the apples will present a bruised and homely face to the purchaser, you may tell him that it is really better than it looks, they are better as he goes down, but he takes the *other barrel* just the same then after facing, the barrel is filled with good, sound apples, not all strictly No. 1 fruit, for when you warrant a barrel of apples to be all strictly No. 1 you have got a barrel of *very fancy* fruit, and it should bring at least twice as much as the ordinary quotations. Therefore, I say fill with good, sound fruit, and I have

very few No. 2 apples for sale. That question hasn't troubled me as yet.

Different varieties must be sorted differently in packing. Such varieties as the Hubbardston Nonsuch you should not put up any specimens that you would avoid if they were set on the table at the hotel as they are a purely dessert apple, while the Baldwin and other varieties like it are more of a cooking apple, and many specimens that would hardly be suitable on account of being off color or perhaps a little under size to be set upon the table are very nearly as good for culinary purposes.

To illustrate, about eight years ago, I had 75 barrels of Baldwins for sale. A man from Portland buying apples in the vicinity called and looked them over and offered $3.00 per barrel for the No. 1's and a much less price for the No. 2's, he to help put them up. I got his estimate as to the number of barrels of No 2's, and he thought about 10 barrels. I told him *no*, those apples should not be divided in that way at that price. In a day or two one of the present members of a large firm in Boston called and looked at them and wanted to buy. I told him my price was $3.00, taking all the sound apples. He says, all right, I don't see any No. 2's there and I will take them. He came with his man and put them up and did not leave a peck of sound apples.

While filling the barrels they should be well shaken down, then fill nearly an inch above the top; the head is placed on and pressed down and well nailed. That is to be the bottom of the barrel when it gets to market as it is marked on the other end. I have for a number of years sent my apples to Boston to be sold on commission, and I have never failed to get full quotations and usually a little more.

Mr. Pope. I will just make this remark, that I think it makes considerable difference what variety you are putting up and where you are going to send it; whether it will pay to take extra pains in packing. If you have some fancy fruit that you are going to send to the Boston market it will pay, and pay well to sort very carefully. If you are going to ship apples abroad, the size makes but little difference as compared with what it does in the fall apples sent to the local or Boston markets. A small sized hard apple is acceptable in England. When we are packing our Kings and Gravensteins and Fameuse for the Boston market the better they are sorted the better the price.

Mr. Briggs. There are many kinds of machines for picking apples. There is a long pole with an adjustment on the end for detaching the apple and a bag to receive it. The object of it is to prevent climbing out on the limbs and knocking and shaking the apples off. That may be a good instrument to have; but I have never seen anything that I thought it would pay me to adopt for this work.

Mr. Blossom. In the first place in picking, all the wind-falls should be removed from the ground before any are taken from the tree, because if you leave them until the apples are picked from the tree you will have a bad mixture on the ground. All the machine that I have ever seen that is fit to go into an apple tree to pick apples is the human hand attached to an honest careful man.

H W. Brown. I have a hundred crates made out of laths, on purpose to use in picking apples. I carry them into my orchard and distribute them around. I have my apples, No. 1's, sorted in the orchard and then put into these crates. The crates will hold a bushel. When the crates are filled I take them in my spring wagon to the house and carry them into the cellar. I lay down an old quilt or comforter in the bin and turn the first crate-full on to that; then raise it carefully and place it on top and turn the next crate-full on to it, and so work until the bin is full. When I visited my Baldwin bins last I did not find any rotten apples.

Mr. Pope. This Talman Sweet, taken from the exhibition table, which I hold in my hand, was not handled roughly, simply dropped into the basket, and yet you can see the difference between it and this other, which was carefully handled. A barrel of them handled as this latter one was, will bring at least a dollar more in the market than a barrel of those which are dropped into the basket when they are picked. I came home one night, and the boys had packed some Kings to send to Boston. I looked at them and was not satisfied with the sorting. The next morning I helped them re-sort the Kings, and put up two barrels of No. 1's and one barrel of No. 2's from the three barrels which they had packed for No. 1's. I sent them on, and they sold for $4 a barrel. My neighbor heard of it and sent his Kings to Boston to the same party. They arrived a few days later, and sold for $2 a barrel.

NEW FRUITS.

By L. H. Blossom.

Read at State Fair Meeting.

Those who have looked over the long tables of fruit that are on exhibition at this time on the upper floor of this building, have noticed many new varieties that have come in from year to year, and the question may be asked what of all this countless number of varieties shall I select for my own orchard? I will call your attention to the selection I have made for this occasion, specimens of which are now before you.

While these varieties may not be the best apples for all of you to raise, still I believe they have succeeded over a larger area of our State than any other varieties that have been brought to our notice of late years, quality and hardiness to be considered.

Beginning with the season, the first that I wish to call your attention to is the Yellow Transparent. This is of Russian origin; it was imported from that country in 1870 by the department of Agriculture, and is recommended very highly for its hardiness. It is the earliest apple we have, ripening its fruit some two weeks ahead of the Tetofsky, and of much better quality. The fruit is, as you all see, of good, fair size and of most beautiful appearance, and bids fair to become one of our best early fruits.

The next apple that I wish to call your attention to is the Russell, originated in Franklin Co., this State. It is of large size and beautiful appearance, and to those who have not tested this apple I wish to say that they have missed a treat, for certainly I think it is the best apple when in its prime that I have ever had the pleasure of eating. Season, early autumn.

The next apple I wish to call your attention to is the Wagener; while it is not strictly speaking one of the newer varieties, yet I think it is well to call your attention to it as an apple that has been boomed in this State, too much for its own good. It is an apple when well grown and ripened that has few if any superior as an eating apple, but it has too many outs to be a profitable market apple for us to raise. Tree of slow growth and apt to be black hearted, an enormous bearer of small irregular fruit if not kept thinned out while growing, which in an orchard of any size would be too much work

for profit, and, as we are all the time having new varieties brought to our attention, I would say try something else.

For another new variety of great promise, I wish to call your attention to the McIntosh Red, an apple of Canadian origin, said to be a seedling of the Fameuse to which it bears quite a resemblance. Tree is hardy and a vigorous grower, bears young and has this peculiarity about it, it bears its fruit close to the larger limbs instead of on the little twigs which gives them some protection from the winds; fruit of good size, fair and handsome. In some localities it is a little inclined to spot the same as the Fameuse, but not as bad. It is in its prime as an eating apple from December to February. I consider this a first-class variety and it deserves a place in every orchard.

The next one on the list that I will mention (and it is a good one, too) is that famous apple of the Hon. Peter M. Gideon, the Wealthy. This apple originated in Minnesota from seed sent from Bangor, Maine. I know of no apple that has as many good qualities with so few poor ones as this apple has, in fact all the fault I can find with it is that it drops from the tree quite badly, and to remedy this pick early. As you all can see it is a handsome, rich red apple, of good flavor; season January to February; tree perfectly hardy and, I think, succeeds over a larger part of our State than any other one variety with which I am acquainted.

Now, as I have called your attention to a few of the varieties that are worthy of a place in every man's orchard, I wish for a moment to call your attention to two varieties that have no place whatever in the orchard, and these are the Walbridge and Winesop, both of which are inferior in every respect, and I have called your attention to them at this time so when the tree agent comes around and wants to sell you a few of this kind at a dollar apiece that you may be prepared not to bite.

NEW PEARS, PLUMS AND GRAPES.

By D. P. True.

Many of the fruits new in some sections are old in others; others are new only in name. In pears we have Keiffer's Hybrid, Indian Queen and Eastern Belle. The two latter are natives of our own State. The Eastern Belle has proved quite an acquisition, the other two are very hardy and fruit well, but like the Ben Davis apple lack fine quality. The improvement in new pears has not been so marked in the past few years as in some other fruits.

In plums we have the Kingston, Niagara, Weaver, Shropshire Damson and Moore's Arctic; the last in the list originated in this State and is a plum of medium size and hardiness; fruits well, but lacks somewhat in quality. The Kingston and Weaver are very large but have not been fully proved.

The Shropshire Damson is somewhat larger than the common Damson; quality best, and does not rot on the tree (a very important quality in the plum.) It brings the highest price in the market.

For new grapes we have Brighton, Jefferson, Lady Washington, and Moore's Early. The important point in a grape for Maine is early ripening qualities, one that sweetens its fruit before our early frosts. Moore's Early develops that quality the best of the list, but in a season like the present (1888) even that grape in most locations is little better than a failure. I think here is a profitable field for our intelligent propagators. Much has been done in this direction in the past twenty years with a prospect of a great advance in the next.

Cole in his fruit book published within the memory of many of the pomologists in the State does not mention any grapes that are on our lists at the present time—will the same length of time produce the same wonderful change?

REPORT OF COMMITTEE ON NEW FRUITS.

Made at Winter Meeting.

Your committee recommend that in consequence of the large number of new varieties being sent into the State from time to time that the fruit growers report to the society the value they place upon these fruits. In this way we may be able to compare them with our standard fruits, and so far as their qualities are known the results may be placed before the public.

The attention of your committee has been called during this meeting to the fine specimens of Dudley Winter, of which Mr. J. W. Dudley of Castle Hill, Aroostook county, says:

It is far ahead of the Duchess, I think; it is not as tart an apple; it is a mild apple, juicy and quite crisp; it is what I call a nice tasting apple; it probably would taste nicer to me than to the rest of you.

I have kept them until nearly the last of March. I have not tried to see how late I can keep them. I have sent half a bushel of them to Chase Bros. The tree does not require very rich cultivation to get a nice apple. It is a more sturdy tree than the Duchess of Oldenburg, which you all know is liable to split down. I have never seen any of that in mine. The apple is quite well colored; half of some of the apples is quite red. Many people have taken the apple for an Alexander at first glance. They are considerably larger than the Duchess.

I will say in regard to my apple that it is a seedling from the Duchess of Oldenburg. The way I happened to get it was this. A neighbor of mine and I were in my garden, where I had two Duchess of Oldenburg trees and a Hyslop Crab—I suppose you all know that it has been but a few years since we have raised any apples in Northern Aroostook, and our orchards are now very small compared with those in this part of the State. I had a few apples on my Duchess of Oldenburg trees and I was quite proud of them because they were the first apples I had ever raised. My friend and I ate an apple, and I said to him, "I guess I will plant the seeds from this apple"; so we each planted the seeds to see what we would raise. The seed came up and I got a tree that commenced bearing in five years from that time. The first year it bore I got five nice apples. The tree from the commencement had

a very vigorous, strong growth; the leaves were dark, and I used to say to my brothers, "That looks like a Duchess of Oldenburg." I transplanted the tree, and it has continued to bear every year since. I have had six crops of apples from it, and it has been loaded. This year it bore over a bushel, although it is a small tree yet, of course.

Another variety on the exhibition table has attracted the attention of your committee in consequence of its remarkable beauty. It is a chance seedling, originating on the farm of Mr. Ephraim R. Lord, of Farmington. Mr. Lord says of this apple:

"This russet apple originated on my farm. The tree seems perfectly hardy. It is an upright grower, very thrifty and a great bearer. It has been in bearing about ten years, and bears very heavy every year so that I have had to prop the limbs every fall. They keep well with me until May. They are very thin skinned and require careful handling, but do not drop from the tree as badly as the Baldwins. The specimens exhibited are an average in size, being a trifle larger than the American Golden Russet. It is of excellent quality." Your committee recommend that it be named 'Lord Russet.'

Report of Committee on Revision of Fruit Catalogue.

At the first winter meeting of our society held in Augusta in 1874 a committee on Catalogue of Fruits, consisting of Z. A. Gilbert, S. L. Goodale and H McLaughlin was appointed. This committee prepared and issued a circular of inquiry to Maine fruit growers, and from the returns received made up the list of varieties as presented in their report. This catalogue of apples contains the principal standard varieties the grown in the State to any considerable extent, the object further being to recommend only such as were deemed worthy of propagation. The State was divided into three sections in order that the recommendations might so far as possible cover the entire State. The plan of the catalogue was that adopted by the American Pomological Society. The report as presented was discussed during the winter meeting, and the catalogue as revised was published in the "transactions" for the year 1874. This list contained as published 87 varieties of apples, 20 of pears, 18 of plums, 12 of cherries, 20 of grapes, 3 of blackberries, 5 of currants, 3 of gooseberries, 8 of raspberries and 4 of strawberries. There accompanied the catalogue an excellent description of the apples named and many of the other fruits.

The following winter meeting the catalogue was again taken up and revised after discussion, and the number of varieties of apples was lessened by two, pears increased to 26, two varieties of quinces were added, cherries increased by the addition of Governor Wood, Early Purple Guigne and Belle Magnifique; one more variety of grapes was added, one currant, one variety of raspberry was struck out, and two of strawberries were added. Portions of this catalogue were carefully discussed and the information proved of great

value to the fruit growers of the State. This catalogue was published in "Transactions" for 1875.

The same catalogue was again published in the "Transactions" for 1876, there being few if any revisions.

No further effort was made to revise the list for ten years, when with a few revisions made by individuals it was published in the "Transactions" for 1885.

During the annual winter meeting of the society held in New Gloucester in 1888 on recommendation of President Pope, a committee to revise the society's fruit list was chosen, consisting of D. H. Knowlton, Farmington; D. J. Briggs, South Turner; D. P. True Leeds Centre; Henry McLaughlin, Bangor; E. W. Dunbar, Damariscotta. At the recent meeting of the society in Damariscotta, the committee reported progress and were granted further time to complete their labors.

Believing the experience of our own fruit growers should be made the basis on which to form a fruit list, the committee prepared the following questions, and sent them to fruit growers in all parts of the State:

GENERAL QUESTIONS—Where do your people obtain their nursery stock? Are the trees purchased from canvassing agents proving true to name, and are the dealings of the agents generally satisfactory so far as you know? To what extent is fruit growing carried on with you? How does the fruit crop compare with other crops raised for the market? Is fruit growing in your county profitable? Are the small fruits raised in your locality? What market is there for the small fruits? How many farmers do not raise fruit enough for their own use?

APPLES—What varieties of apples are the most profitable in your town and county? Do local buyers prefer the same apples as foreign buyers? What apples are successfully grown in your locality? Please draw a line under those you would recommend for planting. What objections, if any, are there to the Baldwin? If you were going to set 1000 trees, what varieties would you set? Please give the number of each kind as well as name. Are many trees being set in your county? Is the codling moth injuring your fruit, and to what extent? Is Paris green or London purple used to destroy the codling moth? Has the apple maggot (*Trypeta pomonella*) troubled your fruit any? If so, to what extent? Please give us any information you can in regard to this troublesome insect. Do you think the outlook for apple growing in Maine is good? What do you do with your No. 2 and No. 3 apples?

PEARS—Are many pear trees growing in your county? Is pear culture profitable? If so, what kinds pay the best? Are your pear trees healthy?

Did the past winter injure many trees? Which kind of stock does the better, home-grown or foreign? Have any pears grown in your locality been sent out of the State to market? What varieties would you recommend for home use? For market?

PLUMS—Are plums grown in your locality for market? If so, is plum culture found profitable? What varieties do you recommend? Is the black-knot injuring the trees to any extent? To what extent is the fruit injured by the curculio? Do you use any remedies to destroy curculio?

CHERRIES—Are cherries successfully grown by you and your neighbors? What difficulty, if any, do you have in raising them? What varieties do you recommend?

STRAWBERRIES—To what extent is the strawberry grown by the farmers for home use? When do you find the best time to set out the plants? Name varieties you know to be good for Maine. Do you mulch the vines?

RASPBERRIES—Which do you prefer, the Red or the Cap varieties? Name the Red varieties you consider best for Maine. Do you protect bushes in winter? If so, how? Name Cap varieties you would recommend.

BLACKBERRIES—Name the varieties you prefer for Maine. Do you have any special difficulty in raising them? Do you protect bushes in winter? If so, how?

GRAPES—Are your people raising them for market? Are the vines troubled any by insects? What varieties do you recommend for Maine? Do you protect vines in winter? If so, how?

CURRANTS—Is the fruit (not foliage) injured by insects to any extent? Are currants a profitable crop to raise? What varieties do you recommend?

GOOSEBERRIES—Is the gooseberry grown for market with you? What varieties do you recommend?

THE GENERAL QUESTIONS.

Returns were received from about 100 fruit growers, representing all the counties in the State as follows: Androscoggin 6; Aroostook 6; Cumberland 4; Franklin 17; Hancock 4; Kennebec 6; Knox 11; Lincoln 11; Oxford 6; Penobscot 1; Piscataquis 3; Sagadahoc 4; Somerset 8; Waldo 3; Washington 1; York 1. They are from representative fruit growers, and the information they gave has proved of great service to the committee in reaching their conclusions. A brief summary of the information received follows:

So far as the returns indicate the source from which the nursery stock is obtained, 75 per cent comes from New York, and 25 per

cent. from Maine and other sources. Canada, Vermont, New Brunswick and Connecticut are mentioned as furnishing some. In several counties trees do not prove true to name, and some complaint is made of tree agents. It is gratifying to note that little or no fault is found with the stock grown in the State.

Fruit growing is successfully carried on in the larger part of the State now settled. In Androscoggin, Cumberland, Franklin, Kennebec, Knox, Lincoln, Oxford, Penobscot, Sagadahoc, Somerset, Waldo and York counties, the fruit crop is one of the most important products from the farm. In Androscoggin, Cumberland, Franklin, Kennebec, Oxford, Somerset, York and Penobscot there are numerous individual farmers who are each producing more than 100 barrels of apples for the market, and in several cases the past year the quantity has exceeded 1,000 barrels each; and with only one or two exceptions fruit growing is reported as profitable, in many instances paying better than any other farm crop.

It is a surprise to your committee to learn that there are still many farmers who do not raise their own apples. So long as this state of affairs continues no one will question that our society has work to do. In some localities there seem to be very good reasons why apples are not raised, but when we know how easily the small fruits are grown in all parts of the State, it is a matter of surprise to learn that less than 10 per cent. of the farmers in Maine raise enough for their own family use. Near the cities and villages the culture of small fruits for the market is found to be profitable, but it does not appear that the small fruits are sold to any extent away from the local markets.

APPLES.

The varieties of apples most profitable in the State are really few, though they are not the same in all the counties. There are several reasons for this; the most important of which are that the same varieties do not flourish equally well in all parts of the State and the markets for fruit are different. In the larger fruit growing sections the apple crop is either sent to the large cities or shipped to Europe, while as yet the local markets in other parts of the State call for all produced in their vicinity. Those found the most profitable are: Baldwin, R. I. Greening, Roxbury Russet, Hubbardston Nonsuch, King Tompkins, Yellow Bellflower, Nodhead, Northern Spy, Talman's Sweet, Wealthy, Ben Davis, Fameuse, Deane,

Duchess of Oldenburge, Early Harvest, Gravenstein, King Sweet, Orange Sweet, Red Astrachan, Somerset, Williams Favorite, Alexander, Porter, Harvey Greening, Twenty Ounce, Pound Sweet, Spitzenburg, Golden Russet, Granite Beauty, Hunt Russet, Rolfe Starkey, Stark, Milding, President.

In the fruit growing sections of the State nearly all varieties of apples are successfully raised, though some varieties do not thrive as well as others. It is also true that in no part of the country are better Gravensteins, King Tompkins and Harvey Greenings produced. The same may be said of several of the earlier varieties, particularly the Williams Favorite.

The Baldwin has been the most profitable apple when it can be raised successfully. The objections to it made by fruit growers are: The tree is not hardy enough to endure our severest winters; the codling moth attacks the fruit badly; in recent years the apple scab has injured the fruit. Since receiving the reports from fruit growers the committee have learned of neighborhoods where thousands of barrels of the last (1888) year's crop were ruined by the apple scab.

For general culture for market the majority of the reports favored the Baldwin as the best variety to set, though many other kinds were recommended. Many trees were set the past season (1888) and fruit growers generally advocated setting more trees, while a few, seeming to realize fully the situation at the present time, recommended raising *better* apples.

During 1888 insects were not very troublesome, and though recommended by fruit growers in other States, as yet few have made use of Paris green or London purple for the destruction of the codling moth.

It is much to be regretted that the apple maggot (*Trypeta pomonella*. is injuring much of our earlier fruit, and to some extent the winter varieties. Its ravages, however, though extending over a large part of the State, seem to be confined mainly to sheltered areas, and have not yet generally injured the fruit grown in the larger orchards. As yet little is really known of the habits of this troublesome pest. Entomologists in various parts of the country are studying the insect. Prof. Harvey of the State College has learned many of the habits of the insect during the past year, and it is hoped remedies may soon be found that will enable the fruit grower to protect his fruit from its ravages.

Many have sold the No. 2 apples to buyers, who have not been over scrupulous about what they were buying, but in most cases little has been realized from the No. 3 apples. Some have evaporated them, others have made them into cider, and others have fed them to the stock.

PEARS.

Although there are few pear orchards in Maine, there are many pear trees, most of which have been set during the past twenty years, though here and there are trees thriving that have borne their annual burden of fruit during the past half century. The testimony of fruit growers indicates that many varieties of this delicious fruit flourish in the State. Our recent exhibitions have also borne witness to the possibilities of pear culture. Pear culture cannot, as yet, be said to be profitable to any great extent, though some who know how to handle the fruit find its sale a source of revenue on the farm. When good strong stock has been set the trees have generally been found healthy; at any rate it may be truthfully said there are no diseases prevalent.

PLUMS.

Plums do not receive much attention at the hands of the majority of farmers, though it may be said a great many have more or less trees. The black-knot in the past has been so destructive, that the trees now growing are unhealthy and unsightly to the beholder. In this connection we call special attention to Prof. Maynard's excellent lecture on "Diseases and Insects Injurious to Fruits," which is published as a part of the society's annual transactions. The plum-curculio has proved another annoyance in raising plums, and this same lecture refers to several methods of holding them in check.

CHERRIES.

Cherries are generally raised though they are subject to the attacks of black-knot, and the rapacity of the birds. Inasmuch as few are giving special attention to the culture of cherries, the loss does not seem so great. In favored localities raising cherries for the market has proved profitable.

THE SMALL FRUITS.

The small fruits may be successfully grown in all parts of the State, and it is a cause of regret to learn that by far the larger part

of our farmers do not raise the small fruits at all, while very few raise enough for their own families.

The directions for their culture are set forth in the excellent papers presented at our winter meeting and to which reference is made. It is gratifying to note that the influence of our society is being felt in this direction, and that there has been a steady increase in the quantity generally produced in the State. Grapes alone have come the nearest to being a failure, but in the southern portion of the State the earlier varieties have been raised quite successfully.

THE FRUIT LIST.

The important duty assigned to the committee is the preparation of a list of fruits that may be recommended for culture in Maine. The committee have made careful inquiries, and though the list they propose is not a large one, it is believed to be a good one for Maine. There are local conditions affecting different varieties which we are unable to incorporate into our report.

As previously stated nearly all varieties of apples are found to flourish in those portions of the State where fruit growing is developed. No pretense is made that the list is complete, or that under varying conditions from year to year it may not be necessary to add to or take from the list according to circumstances. It is believed the list will cover a large part of the State except perhaps Aroostook county and the northernmost sections.

Several varieties are recommended "for trial" in the hope that we may be able to find an apple or apples that may have more desirable qualities than those now generally raised. By "trial" we do not mean setting an orchard with any untried variety, but one or two trees till it is fully determined whether such variety is deserving of culture in Maine. In this direction any information the fruit growers of the State may be able to give the society will be of great value to the interests it represents.

The names of apples, pears, plums and cherries in *italics* are regarded as the *best* in quality, while the *most profitable* are marked with a star (*). The names of the varieties are arranged in alphabetical order and not with reference to the preference of any grower.

APPLES.

SUMMER—Duchess of Oldenburg, *Early Harvest*, Golden Sweet, *King Sweet*,* Large Yellow Bough, (sweet), *Red Astrachan*.* *Russell*, *Tetofsky*, *Williams Favorite*.*

AUTUMN—Alexander, *Deane*, *Fameuse*,* *Garden Royal*, *Gravenstein*,* *Munson Sweet*, *Porter*, *Pound Sweet*,* Wealthy.

For trial, Montreal Peach, Somerset, Gloria Mundi.

WINTER—Baldwin,* Granite Beauty, Harvey Greening, *Hubbardston Nonsuch*, *Jewett's Fine Red*, *King Tompkins*, *Milding*, *Rhode Island Greening*,* Rolfe, Stark, Talman's Sweet,* *Yellow Bellflower*.

For trial, McIntosh Red, Minister, Sweet.

LATE WINTER—American Golden Russet, *Northern Spy*,* Roxbury Russet.*

AROOSTOOK COUNTY—From reports received there are several apples that thrive here, among which are Red Astrachan, Duchess of Oldenburg, Fameuse, Alexander, Wealthy, Yellow Transparent. The Dudley, a variety originating in Castle Hill, is also recommended by those who have tested it. Several others of New Brunswick and local origin are also mentioned.

DESCRIPTION OF FRUITS.

Many of the older varieties have already been described in previous volumes of the society's transactions. In connection with the fruit list some of the newer varieties are described. There may be found also under the "Reports on New Fruits," more or less regarding recent fruits of various kinds. The descriptions are taken from various authorities, and so far as possible made to apply to the fruit as grown in Maine.

ROLFE—We are indebted to Mrs C. J. Herring of Foxcroft, for the following sketch of this Maine variety, which is certainly gaining in popularity among fruit growers:

The ROLFE APPLE is a seedling from the variety known as Blue Pearmain. A lady in the town of Abbot sowed the seeds in a nursery on her farm Some time afterwards a man known throughout the vicinity as "Uncle Rolfo" purchased the place. When the trees from those seeds were large enough for transplanting "Uncle Rolfo" gave Rev. Thomas Macomber—the first minister in the town of Guilford—twelve of them. The Elder set eleven on the place he occupied at the time, giving the twelfth

to his son, who lived on an adjoining farm. Changes in the family brought the son's farm into the Elder's possession, where he resided until his death. When this twelfth tree came into bearing the superiority of its product over any variety at that time was very marked, and Grandmother Macomber found that to secure the fruit from the uncontrollable appetites of the young masculines of the neighborhood required eternal vigilance. The tree is hardy and finely developed, having a round spreading top; is a good bearer, producing heavily on alternate years. The fruit is large and smooth, round in shape (corresponding to the shape of the tree), is beautifully colored, being mostly a lively red, fine grained, sub-acid, skin glossy and firm but thin, core very small, season fall and early winter, excellent for eating, cooking and selling. There is an eager demand for it in the local markets at a figure considerably in advance of other varieties. It sold readily the present season (1888-9) for 95c. to $1 a bushel. The original tree is dead, being one of the pioneer trees of the town of Guilford, but—thanks to the hogs—a broken root sent up a sprout that has developed in tree and fruit the fac-simile of the parent, proving beyond question that the old tree was a seedling. This child of the mother-tree still continues to bud and blossom and bear fruit on its native soil. The eleven trees, with one exception, bear quite large, fair, pleasant flavored apples. Mr. G. D. B. Herring of Guilford was the one to propagate the Rolfe by grafting, and has also furnished scions to parties in Maine and several other states. Mr. H L. Leland of East Sangerville has introduced the Rolfe quite largely into his orchard and has been instrumental in bringing it into favorable notice in different sections of the State. At the Farmers' Institute held at East Sangerville, November, 1888, Secretary Gilbert pronounced the Rolfe an acquisition to the State. A basket of specimens presented at the State Grange at Bangor, December, 1888, met with a very *tasty* reception, and the verdict rendered was "good enough."

An excellent illustration of the Rolfe appears in this volume of the transactions.

YELLOW TRANSPARENT—A Russian variety, imported by the Department of Agriculture, Washington, D. C. It promises to be valuable as an early fruit of good quality, ripening before Tetofsky, with more tender and delicate flesh, but does not continue long in use. The tree is said to be hardy, moderately vigorous, upright, an early and good annual bearer. Fruit medium, roundish oblate, slightly conical, slightly angular; skin clear white at first, becoming pale yellow when fully mature, moderately sprinkled with light and greenish dots, somewhat obscure; stalk short to medium, rather slender; cavity rather large, sometimes a little greenish; calyx closed; basin medium, slightly corrugated, sometimes small protuberances; flesh white, half fine, tender, juicy, slightly subacid; quality good to very good; core medium. Season early in August, and a week or two before Tetofsky.

MCINTOSH RED—Originated in Ontario over seventy years ago The tree is hardy, long-lived, vigorous, with a spreading head; a good annual bearer of fair, handsome fruit of excellent quality, valuable for home use and market. Fruit medium or above, roundish, oblate, regular; skin whiteish yellow, very nearly covered with dark rich red or crimson, almost purplish in the sun, moderately sprinkled with light dots; stalk short, rather small; cavity medium; calyx closed; basin rather small, slightly plaited; flesh white, fine, very tender, juicy, mild, subacid, refreshing, peculiar slight quince-like flavoring, core medium. October to February.

WEALTHY—A variety raised from Maine seeds by Peter M. Gideon of Minnesota. Tree hardy, healthy, vigorous, spreading, very productive; a beautiful and excellent fruit. Fruit medium, oblate or roundish oblate; skin smooth, whitish yellow,

shaded with deep rich red in the sun, obscure, broken stripes, splashes and mottlings in the shade, sometimes entirely covered with crimson and many light dots; stalk short to medium, slender; cavity large, green russet; calyx partially closed; basin deep, abrupt, uneven; flesh white, fine, sometimes stained with red, tender, juicy vinous, lively subacid; very good; core small; October to February. The chief objection to it is that it drops badly.

MUNSON SWEET—Origin uncertain, probably Massachusetts. Tree vigorous, spreading, an annual and abundant bearer. Fruit medium, oblate, pale yellow, sometimes with a blush. Stem short, cavity large, calyx closed. Basin small. Flesh yellowish, juicy, sweet. Good. September to February. One of the most desirable for family use.

BEN DAVIS—The committee do not deem it advisable to place this variety in the Society's Fruit list at this time, for while the apple sold well in 1886, 1887, and 1888 in the foreign markets,—better than the Baldwin in fact,—it is of inferior quality. It is said by our pomologists that those grown in the southwest are superior to those grown in Maine. The tree is hardy, blossoms late, a regular bearer, and to give a succession of fruits through the year for family use one or two trees are desirable, but for commercial purposes it is thought by many that its quality will not warrant growing them in Maine. For the information of the public we give the following description of the tree and fruit abridged from Downing:

"The origin of this apple is unknown. The tree is very hardy, a free grower, with very dark reddish brown, slightly grayish young wood, forming an erect round head, bearing early and abundantly. In quality it is not first-rate, but from its early productiveness, habit of blooming late in spring after the late frosts, good size, fair even fruit, keeping and carrying well, it is very popular in all the Southwest and West. Fruit medium to large. Form roundish, truncated conical, often sides unequal. Color yellowish, almost entirely overspread, splashed and striped with two shades of red, and dotted sparsely with areole dots. Stalk medium, rather slender. Cavity narrow, deep, russeted. Calyx partially open. Basin wide, abrupt, slightly corrugated. Flesh white, tender, moderately juicy, pleasant, subacid. Core medium to large. Good to very good. December to March."

Maine grown Ben Davis are not as good as those described above; in fact it is inferior to many of our best apples in quality. Its season in Maine is from February to August.

MILDEN OR MILDING—Origin, Alton, N. H. Tree hardy; a strong, vigorous, upright grower, forming a large, round head; very productive alternate years of large, fair fruit, which is highly esteemed where known for market and family use. Fruit large, oblate, slightly conic, slightly angular; skin smooth, whitish yellow, shaded, striped, splashed and mottled with light and dark bright rich red nearly over the whole surface and a few light dots; stalk rather short, slender; cavity broad, deep, sometimes thinly russeted; calyx closed, or nearly so; basin broad, moderately deep, furrowed; flesh whitish yellow, rather coarse, brittle, tender, juicy, sprightly, subacid, slightly aromatic; core medium. December, January.

PEARS.

SUMMER—*Bartlett*, Brandywine, *Clapp's Favorite*, Osband's Summer.

AUTUMN—Belle Lucrative, Beurre Superfin, Eastern Belle, Goodale, Louis Bonne de Jersey, Nickerson, *Seckel*, *Sheldon*.

WINTER—*Beurre d' Anjou*, Lawrence.

LAWRENCE—Originated in Flushing, Long Island. Tree hardy, a moderate grower, an early and abundant bearer; young shoots dull yellow brown; a valuable sort for orcharding, and unsurpassed in its many good qualities among our early winter pears; ruit medium size, obovate, obtuse, pyriform nearly regular, color lemon yellow, with traces and occasional patches of russet, and thickly dotted with minute brown dots; stalk of medium length and rather stout, set in an irregular russeted cavity; calyx open; segments shut, persistent; basin broad, shallow, uneven, or slightly corrugated and thinly russeted; flesh whitish, juicy, melting, sweet, and aromatic, very good or best. December.

OSBAND'S SUMMER—Origin, New York State; tree moderately vigorous, upright, an early and prolific bearer. Young wood rich yellow brown. Fruit small, roundish ovate, obovate pyriform, clear yellow, thickly dotted with small greenish and brown dots, with a warm check on the side of the sun, and some traces of russet, particularly around stalk and calyx. Stalk of medium length, rather strong, inserted in an abrupt cavity; calyx open, set in a broad, shallow basin; flesh white, juicy, melting, with a rich, sugary flavor, and pleasant, musky perfume. Very good. Ripens early in August.

EASTERN BELLE—Originated with Henry McLaughlin, Bangor, who says: "It is a moderate grower and perfectly hardy. The fruit is of good size, peculiarly rich and spicy, color yellowish, occasionally tinged with red, good shape, with long stems, very evenly distributed over the tree, and never rots at the core. The tree is an upright grower. Downing says it is one of the best."

PLUMS.

Bradshaw, Greeley, *Green Gage*, Jefferson, Kingston, *Lombard*,* *McLaughlin*, Moore's Arctic, Niagara, Pond's Seedling, Prince's Imperial Gage, Purple Gage, Rivers' Blue Prolific, Shropshire Damson,* *Washington*, Yellow Egg.

MOORE'S ARCTIC—Originated in Aroostook County on the grounds of A. T. Moore, Ashland, for whom it was named. It is perfectly hardy; tree healthy, an early and abundant bearer; branches smooth, olive brown, grayish. Fruit below medium size, roundish, slightly inclining to oval; suture nearly obscure, apex a dot; skin purplish black, thin blue bloom; stalk medium, rather slender; cavity small; flesh greenish yellow, a little coarse, juicy, sweet, pleasant flavor, but not rich, adheres a little to the stone; season first half of September.

CHERRIES.

Black Heart, Black Tartarian, *Common Native*, *Early Richmond*, Governor Wood, Mayduke, Ox Heart, Rockport.

THE SMALL FRUITS.

STRAWBERRIES — *Crescent*,* Downing, Kentucky, Manchester,* *Sharpless*, Wilson. The following are recommended for trial,— Bubach,* Pineapple, Ohio,* Jessie, Belmont.

Those in *italics* are early, and those marked with a star (*) are pistillate and require some of th · perfect-flowered varieties set near them to pollenize the flowers.

CRESCENT*—Modium to large, conical, slightly depressed at the apex; color bright scarlet; flesh soft, quite acid; plant very vigorous and hardy, and for productiveness has scarcely an equal; very profitable for home market; season early to late.

DOWNING—Fruit large, conical, pretty regular; scarlet; firm, juicy, sweet, rich; plant vigorous and productive; a very valuable sort for family use and for market; like the Wilson, adapted to a great variety of soils; season medium.

KENTUCKY—A tall, rank grower, somewhat inclined to rust; is, however, a valuable late variety for light soils, moderately productive of large, conical berries; pale scarlet color; soft and delicate in texture, and of rich, sub-acid flavor.

MANCHESTER*—Medium to large; oblate conical, quite uniform, scarlet; flesh pink, melting, firm with a pleasant, sub-acid flavor; quality good; plant vigorous and very productive; stalk short. A valuable variety. Season medium to late.

SHARPLESS—This variety originated in Pennsylvania, and was introduced eleven years ago. Has been fruited extensively over since, and is still regarded as one of the very largest and best strawberries in cultivation. Plant very hardy, enduring both heat and cold without injury. To secure the best results "Hill Culture" is advised.

WILSON—Medium to large; dark red; very hardy, vigorous and productive. The most widely known and universally successful strawberry grown. Holds its own wonderfully.

BUBACH*—Fruit large and handsome, roundish conical, bright scarlet, rather soft of fair quality. Plant a strong grower, with large, healthy foliage, and very productive; succeeds on light or heavy soil. One of the most promising of the later introductions. Season early to medium.

PINEAPPLE—The plant is a remarkable grower, strong and healthy, making runners quite freely; very broad dark green foliage that grows very tall and rank. Fruit averages large and is said to be a good shipper; dark crimson color; flavor is said to be the most delicious of any berry in cultivation. It is a new variety received in 1887-8 from Maryland.

OHIO—Somewhat similar to Kentucky in growth, is even more productive; fruit medium-sized, nearly round, and of good quality, *ripens late*, and is of special value on that account.

JESSIE—Large, handsome, roundish, conical, dark red, firm and of good quality; plant vigorous, healthy and productive; season early to medium.

BELMONT—Originated near Boston The plant is more vigorous than Sharpless. On heavy, rich land, it is very prolific, of large, rich scarlet berries, conical in shape and of good quality, firm and good for canning.

RASPBERRIES—*Red*—Cuthbert, Turner; *Yellow*—Golden Queen; *Black*—Gregg. Ada and Carmen are recommended for trial.

CUTHBERT—A chance seedling in the garden of the late Thomas Cuthbert, Riverdale, N. Y. Nearly all the nurserymen pronounce it hardy, but it is not an "iron clad" in Maine, and, unless protected, is likely to be more or less injured during the cold months, especially when the canes are not thoroughly ripened. On account of its size and beauty, it is a valuable variety for market and family use. It is very productive; canes strong, vigorous, upright, sometimes branching; spines short, stout, purplish, rather numerous; it suckers freely, though much less than the Turner. Fruit medium to large, scarlet, crimson, roundish, obtuse-conical; grains rather small, compact, separates freely from the stalk; flesh quite firm, juicy, sweet, sprightly, having a slight flavor of the common red, which is probably one of its parents.

TURNER—A hardy variety. It succeeds in more localities than any of the red varieties and is less subject to changes of heat and cold. The canes, foliage and fruit possess many characteristics of the native red berry, and it suckers quite as freely; canes vigorous, light reddish on the sunny side; upright, seldom with branches; very few short purplish spines; foliage quite large and abundant; very productive. Fruit medium or above, roundish, conical, bright scarlet; grains of medium size, compact; flesh rather soft, sweet pleasant, but not rich; a good berry for home use and thoroughly hardy.

GOLDEN QUEEN—A seedling or a "sport" from the Cuthbert, found growing in a field of that variety in 1882; equal to that noble berry in every respect of plant growth, vigor, hardiness, and productiveness; *berries of largest size*, of rich creamy yellow color, firm and solid, and of *rich sweet flavor*. It is also a *superb market berry*, its fine appearance commanding for it a ready sale at high prices.

GREGG—*Largest and latest* of all. Valuable for family use and for such markets as can profitably handle late fruits; not quite hardy at the north.

ADA—A strong, stocky growing plant that has thus far proved *absolutely hardy* as far north as Connecticut, productive of *very large* berries, with slight bloom, firm and solid: ripens late; equal to the Gregg in all respects, and being much more hardy, is far more valuable as a late market variety, or to supply the family table after all others are gone.

BLACKBERRIES.—Agawam, Snyder. For trial, Bangor.

AGAWAM—A hardy and popular variety among Maine growers. Not as vigorous in growth as the Snyder.

SNYDER—The Messrs. Hale in their annual catalogue say of it: "It is *the one great blackberry* for market in the far north." It is vigorous, hardy, productive and reliable; has never been known to winter kill even in the northwest; fruit of medium size and good quality; ripens medium to late.

BANGOR—This variety is of Maine origin and, as we are informed, was propagated from canes growing on the farm of Henry W. Brown, in Newburg. It is said to be hardy and a desirable variety.

LUCRETIA DEWBERRY or Creeping Blackberry, though not yet tested in Maine, is offered by nearly all the nurserymen. The plant is said to be hardy, and the fruit large and of excellent quality. As most of the descriptions mention "winter pro-

tection" we mistrust it may not be entirely hardy. It deserves, however, a fair tria in Maine.

CURRANTS—*Red*—Fay's Prolific, Red Dutch, Victoria; *White*, —White Grape; *Black*—Lee's Prolific.

FAY'S PROLIFIC—All are familiar with the other varieties, and we offer only the description of this one:—Has been carefully cultivated for the past nine years alongside of all the popular varieties, and proved by far the most prolific of all. Color, rich red. "As compared with the Cherry Currant, Fay's Prolific is equal in size, better flavor, with much less acid, and five times as prolific; also, from its peculiar stem, less expensive to pick." It is one of the few good things that will sustain all the claims made for it. It is one of the strongest and most vigorous in growth, and is deserving a place in our fruit gardens.

GOOSEBERRIES — Downing, Houghton Seedling. Smith's Improved is recommended for trial.

SMITH'S IMPROVED—Plant a more slender grower than Downing, and much less thorny. Very productive of large, yellowish-green berries, of most excellent quality. A delicious berry for eating out of hand, and fine for cooking purposes.

INDUSTRY—Produces fruit of the very highest quality, in flavor equal to a fine plum The fruit is red, of great size and produced in enormous profusion. It is a recent variety, and some complaint is made of its mildewing.

GRAPES — Brighton, Champion, Delaware, Hartford Prolific, Lady, Moore's Early. True's Early, a Maine Seedling, is recommended for trial.

MOORE'S EARLY (Black)—Bunch medium to large; berry large, round, black, with heavy blue bloom; good quality; vine hardy and vigorous; fairly productive; ripens early. Valuable for the table or market.

BRIGHTON (Red)—One of the best varieties of recent introduction; as large and beautiful as Catawba, which it resembles in color, form of bunch and berry, and is fully equal to the Delaware in flavor; vine vigorous, hardy and productive, making it one of the most valuable. The best red grape in America.

LADY—Extra early white grape; seedling of Concord; vine vigorous, hardy and productive; flesh rich, sweet and sprightly; very valuable for family vineyard.

TRUE'S EARLY—Mr. D. P. True of Leeds Centre, with whom this variety originated, sends the following description: "True's Early grape, a native of Maine; bunches medium, berries round; size medium, color black; its flesh tender, flavor vinous and sprightly. It ripens extremely early—two weeks before the Hartford Prolific. Valuable for its hardiness and early maturity."

THE SECRETARY'S PORTFOLIO,

CONTAINING

Original and Selected Scraps, Composed by Fruit Growers and Others, and Gathered from Various Sources.

"O painter of the fruits and flowers!
We thank thee for thy wise design,
Whereby these human hands of ours
In Nature's garden work with thine.

"And thanks that from our daily need
The joy of simple faith is born,
That he who smites the summer weed
May trust thee for the autumn corn.

"Give fools their gold, and knaves their power;
Let fortune's bubbles rise and fall;
Who sows a field, or trains a flower,
Or plants a tree, is more than all."

THE SECRETARY'S PORTFOLIO.

PETER M. GIDEON'S SEEDLINGS.

In one of the papers read at the Winter Meeting, and the discussion following, reference was made to the new varieties of apples propagated by Mr. Gideon from the experimental fruit farm in Excelsior, Minnesota. As giving some idea of this work we take the following from Mr. Gideon's report to the Minnesota Horticultural Society:

"Twenty-three years ago I planted a few cherry crab seeds obtained of Albert Emerson, Bangor, Maine, and from those seeds I grew the Wealthy apple; in seven years it fruited, and that fruit convinced me that the true road to success was in crossing the Siberian crab with the common apple, and on that line I have operated ever since, with results surpassing my most sanguine anticipations. I did not suppose that in the short space of sixteen years, the time since the Wealthy first fruited, that I should have more than twenty first-class apples, as good as the world can produce, in succession from the first of August to March, and in hardiness of trees surpassing all known varieties of the common large apple. But it is done, and in the doing the problem is solved as to what to do and how to do it, with the material at hand with which to attain yet greater results. At the outset it was test and try; but now that the problem is solved, it is onward, with great results certain.

"When I say we have twenty first-class apples, that does not include all that are worthy of cultivation by any means. And now, with such results, and only a few thousand trees fruited at the end of sixteen years, what may we not expect at the end of the next sixteen years, with 20,000 or 30,000 choice, selected trees from the very best of seed, which are not yet fruited, and the seed of over one hundred bushels of choice apples planted this fall, all to fruit in a few years?

"To get the desired cross we plant the selected varieties in close proximity, so that the natural fall of pollen will the more surely do the desired fertilizing, and the seed thus produced being planted, the most promising of the seedlings selected and set in orchards for fruiting, and, after fruiting, the best in tree and fruit being selected from which to grow seeds to try again, and so on, at each repetition I find there is a gain. The young trees that fruited this year for the first time gave a larger percentage of first-class apples than any lot ever fruited before."

A CARGO A DAY OF BANANAS.

The necessity for improving the quality of our fruits was never more potent than at the present time, for to compete with tropical fruits ours must be the best possible. An item from the newspapers emphasizes this when it says a New York firm has secured an island near Cuba, where they have succeeded in developing the finest bananas ever seen in the United States. Some of the bunches are nearly as large as flour barrels. Beginning with September 1st, the firm proposes to land a cargo in New York every day.

SUSPICIOUS PLUMS.

The Secretary has received several inquiries regarding the Niagara and Greeley plums. They were both introduced as distinct varieties but their similarity to the Bradshaw has led many to question whether they may not be the same. The Secretary of the American Nurserymen's Association reports that "few can see any difference between the Niagara plum and the well known Bradshaw."

A writer in the *Maine Farmer* of recent date says:

"Bradshaw is one of our best plums, but to sell it by a false name at double its regular price is a fraud, and the trees have undoubtedly cost the farmers of this country many thousands of dollars more than they would had they been sold by their true name. Brother farmers, let us profit by our past experience, and ever beware of the new-fangled fruit trees. In my opinion, the Greeley plum, which is introduced by the same treeman that humbugged the farmers by the Russian mulberry tree, will turn out, like the Niagara, to be some old standard variety."

The similarity between the Niagara and Bradshaw has been noted by some of our fruit growers, but there are others raising both who claim they are distinct varieties.

A NEW DEPARTURE IN CURRANT CULTURE.

A writer in *The Country Gentleman* recently described his method of currant culture. Whether good or not, it is peculiar and may deserve more than a passing notice. He writes; "I allow each year from four to six new shoots to grow from the ground surface on each bush, keeping the soil well fertilized and cultivated clean, destroying the currant worm when it appears by a careful dusting especially of the under surfaces of the leaves with powder of white hellebore applied while the dew is on When the currants are sufficiently ripened (and for perfection in making jelly they should hardly all be red or ripe) the pickers cut off with a corn-knife or grass-hook every branch which is in bearing, lay the branches carefully in the garden barrow, wheel them off and dump in the shade, where they afterward sit and strip the branches at leisure. As all the currants under this treatment grow on new wood the fruit is finer and more abundant, and the dread of picking while 'squat like a toad' in the boiling heat of July has vanished. After six years of this apparently severe treatment my old bushes are more vigorous than when I commenced, and in better condition than the new planting which I then made in the expectation of killing out the old ones and relying on the new."

THE FORESTRY QUESTION.

I do not think that it is yet proven that forests increase the rainfall, or equalize the flow of our streams. Neither do I think it proven that there is the least danger of a scarcity of wood and timber in this country for the next century. But I do consider statements upon forest subjects made in the census reports and by high officials at Washington, exceedingly erroneous. If the statements made at the American Forestry Congress at Boston in 1885, by the then highest official authority, are correct there will be no forests in the United States in the year 1894. And if the last United States census estimates of the spruce timber in New Hampshire are correct more than one-tenth of the whole amount standing was being cut each year. So you see, that by this time our last spruce is being

cut, yet one party authorizes me to sell cheap one accessible lot from which experts say forty million feet may be cut yearly for the next fifty years, even if timber grows none during the time. Yet I believe there is both profit and pleasure in growing timber, and that the subject of forestry is one of vast importance to your State and mine as well as to the country at large.—*John D. Lyman, in Lewiston Journal.*

A NATIONAL FLOWER.

Professor Thomas Meehan, the botanist, and also poets, scientists and others, support the idea of adopting a national flower for the United States—just as Ireland has the shamrock, Scotland the thistle, England the rose, and France the fleur de lis. Suggestions of choice include the sunflower, the golden rod, and *The Philadelphia Ledger* favors "the noble plume and tassel of Indian corn—the fruitful, widespread Zea mays. Possibly that may be matched, but it cannot be superseded."

L. Prang & Co., art publishers, Boston, have issued recently a floral design in the form of a folio inclosed within ornamental covers. There is a full page chromo of arbutus and another of the golden-rod. Each purchaser is allowed to send in to the publishers on a postal card furnished for the purpose his preference for the national flower. The golden rod would be a good one.

THE CULTURE OF WILD FLOWERS.

At a recent exhibition of the Massachusetts Horticultural Society one exhibitor showed thirty-eight varieties of native asters. They were given good culture and bore a fine display, both in hue and form. Beautiful specimens of gentian were also exhibited. A lady enthusiast also made a display of native plants and flowers. There are more than sixty different golden rods and many more of the asters. We have frequently seen scattering plants of these, growing along the edges of cultivated fields, and they seem to take kindly to cultivation, and, in fact, are improved wonderfully by it.

NURSERY FRAUDS IN THE WEST.

It matters not where a tree is grown, whether east, south or north, that tree is best that comes to the planter in the best con-

dition, if true to name, but with the great mass of tree planters the smooth-tongued agent with his rubbish and frauds is the one thing needful. Though fleeced a score of times they patronize him the twenty-first time as freely as ever, and the bigger the price of the fraud the more greedily they swallow the bait. The fact is notorious that tree agents have sold one hundred trees of the Gideon apple at one dollar per tree, where I, the originator, have been able to sell one at twenty-five cents. They have been swindled so often, and paid so dear for it, that they have come to love to have it so. They are wedded to the agent; it is love's union, and dead trees, plants and grape vines cannot separate them.—*Peter M. Gideon.*

TREES ENHANCE AND BEAUTIFY.

Trees, the most beautiful objects in nature, should not be overlooked. The average farmer has so much to do with trees as lumber, or as objects to be removed to fit the land for cultivation, that he regards them as too trivial, commonplace or weed-like to be esteemed as objects of superlative beauty, to be planted and carefully tended for their looks. But nothing adds more to the pleasantness of a home than trees judiciously planted about it. A few near the house may break the fury of the winter blizzard or the summer heat, in addition to their æsthetic uses. Trees are particularly appropriate by the roadside. How charming they are, rising from the smooth green! Why should not the roadside trees, enchanting mankind and wooing the birds with the charm of their rich foliage and symmetrical shape, be the rule instead of the exception? Many a farmer who calls himself enterprising, and who does raise good crops, forgets that with a few hours' work he could plant a dozen trees that would greatly enhance the value of his estate, and continue to yield blessings of beauty long after he has passed away. Here, too, common varieties possess as many elements of real beauty as those more rare. There are no more beautiful trees than the common maple, elm, spruce or cedar. There is a row of hemlocks in front of my residence in the country, and my personal attachment for that kind is very great. Some writers, combining æsthetics with the material, advocate the hickory and chestnut for roadside planting. It may seem a little thing to bring a sapling from the woods some cloudy day, and plant it near the house, but it will prove a pleasing and profitable investment.

Humboldt says: "Trees have about them something beautiful and attractive, even, to the fancy. Since they cannot change their places they are witnesses of all the changes that go on around them; and, as some reach great age, they become, as it were, historical monuments, though, like ourselves, they have a life, growing and passing away; not being inanimate and unvarying like the fields and rivers.—*Geo. M. Whittaker, before Mass. Hort. Society.*

PLANT A TREE.

He who plants a tree,
Plants a hope.
Rootlets up through fibers blindly grope;
Leaves unfold into horizons free.
So man's life must climb
From the clods of time
Unto heavens sublime.
Canst thou prophesy, thou little tree,
What the glory of thy boughs shall be?

He who plants a tree,
Plants a joy;
Plants a comfort that will never cloy;
Every day a fresh reality.
Beautiful and strong,
To whose shelter throng
Creatures blithe with song.
If thou couldst but know, thou happy tree,
Of the bliss that shall inhabit thee!

He who plants a tree,
He plants peace.
Under its green curtain jargons cease.
Leaf and zephyr murmur soothingly;
Shadows soft with sleep
Down tired eyelids creep,
Balm of slumber deep.
Never hast thou dreamed, thou blessed tree,
Of the benediction thou shalt be.

He who plants a tree,
He plants youth;
Vigor won for centuries, in sooth;
Life of time, that hints eternity;
Boughs their strength uprear,
New shoots, every year,
On old growths appear.
Thou shalt teach the ages, sturdy tree,
Youth of soul is immortality.

He who plants a tree,
He plants love;
Tents of coolness spreading out above
Wayfarers he may not live to see.
Gifts that grow are best;
Hands that bless are blest;
Plant! Life does the rest!
Heaven and earth help him who plants a tree,
And his work its own reward shall be.

—*Lucy Larcom.*

DUTCH METHODS.

In Holland, when it is desired to produce blooms of the greatest excellence for exhibition, great care is given to the preparation of the beds. The natural earth is removed to the depth of eighteen inches; six inches in depth of manure is first put in and the bed is then filled with a mixture of old manure, loam, and sand, which has been turned frequently in sunny weather to kill the worms. Sifted sharp sand surrounds the bulbs, which are planted in October four inches deep. Before being set the skin is slightly raised from the base of the bulbs to permit the roots to escape more freely. As the season of flowering approaches, a raised covering is put over the beds so that the flowers are protected from injury by rain and direct sunlight. In this way they are made to last in bloom as long as carnations, and their size and color are enhanced and intensified. The history of the tulip is an interesting one; and, though the time is long ago past when fortunes were spent in the purchase of a few coveted bulbs, their real beauty and worth have never been more generally acknowledged than at the present time.—*Robert Farquhar, before Mass. Hort. Society.*

SWEET PEAS.

A row of sweet peas planted where one would hardly think of planting anything, next an alley, in a soil mostly sand, ashes and rubbish, produced such magnificence of glory and sweetness, from early summer until November frosts, as to repay a thousand times the few cents' worth of seed and slight attention bestowed upon them. A prodigality of blossoms, from delicate pink to deepest purple, loaded the vines all the season through, their beauty and

fragrance rejoicing the hearts of those who plucked them, and delighting also the passers by. A nook or border thus planted brings a rich return.—*Chicago Advance.*

FLOWERS AND POLITICS.

Another way of purifying and ennobling the national life is through its political life. Flowers and politics—what incongruous elements! How can flowers be made to benefit politics? In the political strife of England known as the "War of the Roses," we find the angry Duke of York wearing the white rose as his emblem, while his opponent, the haughty Duke of Somerset, plucked from the bush a red rose to be worn as his badge. Later on, we read that the primrose has been favored by some of England's lords; and from certain associations connected with it, might almost be called a political flower. The Primrose League, which numbers more than four thousand members, is an order of conservatives founded in honor of the late Lord Beaconsfield and takes the primrose as its badge. So we see that flowers have figured conspicuously in English politics. It has been urged that if women were allowed suffrage, the voting places would be purer and that her presence would have a tendency to refine her brothers. We need not wait for that day to come, but may commence now to make the atmosphere healthier and purer in these voting halls. Decorate them with flowers as you do your churches until the perfume of these gifts of nature is more pervading than the odor of tobacco, and even the coarsest natures will feel their influence. Teach them that as the flower is pure so the ballot must be kept pure, and that it is a sacred trust to elect officers for city, State or nation. Do you say this is a sort of millenial doctrine—a condition that can never be obtained? I believe that there is something within the heart of nearly every man or woman, even though he or she be a hardened criminal, that would in time respond to the influence of flowers, as surely as it would respond to the kind act of some near friend.

In all receptions given to prominent personages, flowers are used profusely. Whether it be an ovation to our President, or to the representative of royalty, we welcome him with flowers, adorn his carriage, and strew his pathway with the choicest blossoms, and let the flowers utter our adieux. Thus the people cause the flowers to express most beautifully, though silently, the respect, the love even

of the nation. There may have been, in some instances, political ambitions to be promoted by their outlays for flowers, but we wil hope that these cases have been rare.

Use, then, the flowers for inspiration in your mass-meetings, in your elections, and, other things being equal vote for the men whose characters have become ennobled in part, at least, by a love of flowers.—*Mrs. Fannie A. Deane, before Mass. Hort. Soc'y.*

HOW TO BUY NURSERY STOCK.

A speaker before the Michigan Horticultural Society recently gave the following caution:

"Do not buy of an agent who has some extraordinary new fruit, curculio proof, iron clad, and of wonderful size and extra quality, for which, on account of these superior qualities, he is obliged to charge five or six prices."

He also advised against buying of a nurseryman for the reason that he offers a little under the price of most others, but of whose standing you are ignorant. Of small fruits he advised to buy as near home as practicable.

SPRAYING FOR THE PLUM CURCULIO.

Experiments conducted at the Ohio Agricultural Experiment Station for the purpose of determining the effect of spraying the trees with London purple seem to indicate that it may prove an efficient remedy for the curculio. A half acre of bearing cherry trees was set aside for the purpose, and a part of it was treated while the rest was left as a check. The London purple was applied just after the fruit forms in a water spray, mixed in the pr. portion of one-half pound to fifty gallons of water. An examination of the fruit showed that three applications saved 75.8 per cent. of the fruit liable to injury from the curculio; that four applications saved a very much larger per cent. of the fruit. Two quarts of the ripe cherries from each lot were chemically examined and no trace of the poison could be found upon any of them.

A SENSIBLE LAW.

The following law appears in the statute books of the State of Michigan: "Every overseer shall cause the noxious weeds within the limits of the highways within his district to be cut down and destroyed twice each year, once before the first day of July, and again before the first day of September, and the requisite labor shall be considered highway work; and once in every month, from the first day of April to the first day of December, shall cause all the loose stones lying in the beaten track of every road within his district to be removed. Any overseer who shall refuse or neglect to perform the duties required by this section shall be liable to a penalty of twenty-five dollars."

WHAT APPLES TO PROPAGATE.

Maine is a large State in territory, and contains so many kinds of soil, and has so great a variation in temperature, it would be folly to lay down any definite rules in relation to the best varieties of apples to propagate throughout the State The only way I know to settle the question of what varieties will pay best, is to experiment with the leading varieties, and propagate those that succeed best. I will briefly consider the merits and demerits, of a few of the leading varieties of late keeping apples that are now raised with more or less success in a large portion of Maine, for it is the late keeping varieties and those only that can be profitably grown in a large portion of our State.

Orchardists may differ from me as to the most profitable varieties to raise, and the kinds of soil best adapted to the different varieties. No doubt many will, but I have arrived at my conclusions from practical experience and close observation in this particular section of the State.

The Wealthy is said to be gaining favor in the markets, but it is a variety I am not acquainted with, and can say nothing in favor of, or against its propagation. The Fameuse is a good bearer, though a little under size. It sells well in the late fall and early winter, frequently higher than the Baldwin, but after the middle of January is taken with much caution by apple dealers on account of its habit of rotting by specking under the skin while it still looks all right on the surface. The Bellflower is a beautiful bearer in

many parts of the State, sells well but requires extreme care in handling. The Spy is an excellent apple, but requires a long time to come to profitable bearing, a good variety for us to plant for the benefit of the next generation. The King sells high in the English market, but as far as my information extends is a shy bearer and not profitable to raise. The Roxbury Russet, although not a good cooking apple, and only a fairly good eating apple, fills a space in the year when most other kinds are gone, and for a short time sells high and is a profitable apple to raise on the right kind of soil in a limited amount, but if as many were put on the markets as there are Baldwins large quantities of them would perish. The R. I. Greening is a hardy tree, an abundant bearer, and usually sells at the same price of the Baldwin and is gaining favor in the English markets notwithstanding its objectionable color. It has the habit of falling from the tree before maturity, and should be planted where not exposed to the wind. It thrives wonderfully planted at the base of a hill where its roots extend in one direction into stony land and the other into moist or swale land.—*S. R. Leland, before State Fair Fruit Growers' Convention.*

DISPOSAL OF NOS. 2 AND 3 APPLES.

When I commenced raising quite large quantities of apples I was sorely puzzled to know how to manage to get any money out of them at certain times. Nice No. 1's were no trouble to me at any time. Once in a while a gale just at harvest time would strip the trees of a nice crop and ruin them, for No. 1's and No. 2's were not worth barreling and sending to market, neither was fall fruit. I would sometimes sell them for a few cents per bushel. I next tried making cider; that did not pay much, and besides it was too mean a business especially the selling of it. Making pure cider vinegar does not pay when competing with acid vinegar. I tried feeding to stock, but was not satisfied with that. When evaporators first came into my vicinity, I sold to them and that paid me some better. Then I got one of my own and that does better still. Consumers demand that everything we have to sell shall be placed on the market in the best possible shape and as nearly ready for use as it can be, and also in condition that it can be kept so for a length of time without becoming damaged. The most successful producers of any article are those who are alive to the necessity of keeping up with the demand

of the times and looking well to the business end of their affairs which is the disposal of their products. It takes a very smart person not to make some mistakes. After many years of experience in the business I have come to the conclusion that orcharding, to be profitable in a business point of view, like all other farm operations, must be conducted in an intelligent business-like manner, and that means constant care and good management both in getting up an orchard and the disposal of the fruit. For any one to say that apple raising cannot be made a profitable business in Maine shows ignorance of the capabilities of the State in that line. Untold wealth lies concealed in thousands of our granite hill farms and no surer, easier or better way to extract it can be found than by means of the roots of fruit trees intelligently managed. In raising large quantities of fruit we must necessarily have much that in many years will not pay a profit to market in a green state. In the older fruit growing sections, New York especially, evaporating all such has become a very large business, each of several counties producing much more than the whole State of Maine ever did, and in many instances, single factories evaporate more. There is no year but that unmarketable fruit is worth something for evaporating and some years it will pay extra well, and what little of the Maine product has found its way into market is preferred to the western article, and at a better price and will continue to do so if we will only put up a nice honest thing. The market for it is extending and more and more is steadily disposed of in the market and it is the only way that apples can be dried to obtain a fair price for the labor required.

I make it a rule to evaporate all the apples I raise that will not sell for $1.25 delivered at the depot and quite often it is better to evaporate them at a higher price. Some years some varieties will grow to be scabby. It is useless to try to keep such ones any great length of time for market, and I find the best thing to do with them is to evaporate them together with all of my fall fruit. When the market is glutted, I make three qualities of my winter fruit, No. 1's extra. The No. 2's are those that are wormy only in the blossom end and those a little under size for No. 1's, and all others go for No 3's if not too small to evaporate. These last I always dry, and watch the markets to determine whether to evaporate the No. 2's or not after having got through with all others. My No. 1's will generally bring $1.00 per barrel extra and such No. 2's as I make sell pretty well up to the ordinary price of No. 1's. I find this to be the

best way I can manage to dispose of my apple crop at a profit. Without an evaporator I should think I was losing a considerable of the benefit of my orchard, and in hard years for selling green fruit it is quite a relief to have such a resource for disposing of surplus and unmarketable fruit and putting it in good shape to keep for a better sale.—*Phineas Whittier, before State Fair Fruit Growers' Convention.*

EXHIBITING PLANTS.

This matter of exhibiting plants is a very important one, and it is our intention to try and explain how window plants should be prepared for exhibition. In the first place, the pot in which the plant is growing must be clean. Not only the sides but the inside of the top rim and the bottom. This applies to the saucer as well. The earth in the pot should be entirely free from weeds, and all stones and other matter should be carefully removed. The pot should be filled to within one-half to three-quarters of an inch of the brim, according to the size of the pot, as it looks badly to have the pot heaping full, or on the other hand, not over half filled with earth. The plant itself should be erect and symmetrical, with all the broken branches and dead leaves carefully removed. If the plant be a climber, it should be trained either on a plant stake or trellis.

To make a plant symmetrical it is necessary to turn the pots often as they grow in the window, as, if the pot is left for any length of time in one position and not moved, the plant will become one-sided, that is, it will grow toward the light. Of course, where plants like ivies are trained especially for a window, to be seen from the outside, the case is different, but this is one of the exceptions.

It was only the other day that the writer saw a window of plants which on all accounts was probably as fine a collection as one often sees, with the exception that the pots were covered with a thick green mould which destroyed what would otherwise have been the perfection of window gardening. It is these little points which make up the perfect window, and whether one intends to exhibit or simply to grow flowers for home decoration, these little essentials should be attended to. Have the pots clean, turn the plants often, take off all dead leaves, and by observing all the other little matters mentioned, although they may seem insignificant details, the desired effect will be obtained, namely, a beautiful window of plants.

Perhaps in this connection it may be well to say a few words regarding the exhibition of wild flowers. If one is gathering them regularly it is well to have a case made for this purpose, either of wood or tin, as desired, as the flowers must receive as little handling as possible. Wild flowers are exhibited in glass bottles, and it is desirable that the common and botanical names should be written on some permanent label, either cardboard or thin wood, and attached to each specimen. — *Window Gardening.*

DOUBLE ICELAND POPPIES.

The *Gardening World* describes specimens of a double form of the Iceland poppy recently sent to its editor who says, "It first appeared amongst a batch of the orange or saffron-colored variety about two years ago, and has maintained its character since. The flower is perfectly double, and consists of the outer or true petals, which are undulated and crumpled in the usual way, and form a guard to the numerous linear or lance-shaped segments occupying the center of the bloom. There is no question as to the origin of these small petals, for although they are of a deep orange almost to the base, most of them are surmounted by the yellow anther lobes. Mr. Caudwell makes no statement as to whether it can be raised from seeds; but seeing that the ovary is perfect, and that many of the petaloid stamens bear pollen in the anther cells, there seems no reason why this variety should not produce fertile seeds like other double poppies. When once a double variety has been obtained, we may soon expect to get double white and yellow, as well as orange, and there can be little doubt that the public will appreciate them. Double Iceland Poppies would have a more refined appearance, because smaller than the doubles of *Papaver Rhœas* and *P. somniferum.*"

ITEMS PICKED UP.

The Orchard Committee of the Illinois Horticultural Society disfavor use of apple seed from the cider-mills, if thrifty trees are wanted, and advise touching the Russian varieties "lightly."

Over 5000 plants in pots were given to children by the churches of Massachusetts on Easter Sunday.

Increased attention is being given to the study of botany in our public schools. We learn of several high schools that have done excellent work the present (1889) season.

A garden containing an acre, and even less space, will amply supply ten persons with the luxuries of the season. * * * * Each family can easily plan the size of the garden suited to its needs by taking this estimate for ten persons as a basis, and planting more or less as they may require.—*M. B. Faxon, before Mass. Hort. Society.*

The centennial of the chrysanthemum in Europe will be celebrated by a brilliant exposition at the Casino, at Ghent, from November 24 to December 1. Not only will it include other Chinese and Japanese flowers besides chrysanthemums, but also an exhibition of pictures and representations of the chrysanthemum on silk, china, etc.

Following the example originated by the Royal Society of Agriculture and Botany of Ghent, the Royal Societies of Flora and of Linnæus unite at Brussels, on November 17, 1889, in an international exhibition of chrysanthemums.

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