Transactions of the Wisconsin State Horticultural Society. Annual report for the year 1888, including addresses and papers, with verbatim discussions specially reported, together with reports from cou...

Wisconsin State Horticultural Society
Madison, Wisconsin: Democrat Printing Company, State Printers, 1889 [covers 1888]

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TRANSACTIONS

OF THE

WISCONSIN

State Horticultural Society

ANNUAL REPORT FOR THE YEAR 1888,

INCLUDING ADDRESSES AND PAPERS, WITH VERBATIM DISCUSSIONS SPECIALLY REPORTED, TOGETHER WITH REPORTS FROM COUNTY SOCIETIES.

VOLUME XIX.

B. S. HOXIE, Secretary.

MADISON, WISCONSIN:
DEMOCRAT PRINTING COMPANY, STATE PRINTERS.
1889.

LETTER OF TRANSMITTAL.

To WILLIAM D. HOARD,

Governor of the State of Wisconsin:

SIR—I have the honor herewith of presenting to you in compliance with law the nineteenth annual volume of transactions of the Wisconsin State Horticultural Society, containing accounts of receipts and disbursements for the year 1888, together with reports from county societies.

Believing that this volume will show progress in the work of horticulture for our state, I subscribe myself,

Respectfully yours,

B. S. HOXIE,

Secretary Wisconsin State Horticultural Society.

WISCONSIN STATE HORTICULTURAL SOCIETY.

OFFICERS FOR 1889.

J. M SMITH, President	Green Bay.
B. F. ADAMS, Vice President,	Madison.
B. S. HOXIE, Recording Secretary,	Evansville.
MRS. VIE H. CAMPBELL, Treasurer,	Evansville.
A. L. HATCH, Corresponding Secretary,	Ithaca.

EXECUTIVE COMMITTEE.

Ex-Officio.

THE ABOVE OFFICERS.

By Election.

Dist.		*Dist.*	
1.	GEORGE J. KELLOGG, Janesville.	5.	HENRY FLOYD, Berlin.
2.	C. H. HAMILTON. Ripon.	6.	DANIEL HUNTLEY, Appleton.
3.	GEORGE H. ROBBINS, Platteville.	7.	C. A. HATCH, Ithaca.
4.	JAMES CURRIE, Milwaukee.	8.	E. G. PATRIDGE, Warren.
		9.	WM. SPRINGER, Fremont.

COMMITTEE ON NEW FRUITS.

A. J. PHILLIPS,	West Salem.
WM. M. SPRINGER,	Fremont.
A. C. TUTTLE,	Baraboo.

COMMITTEE ON NOMENCLATURE.

J. C. PLUMB,	Milton.
CHAS. HIRSCHINGER,	Baraboo.
F. K. PHOENIX,	Delavan.

FINANCE COMMITTEE.

N. N. Palmer,	Brodhead.
J. M. Edwards,	Ft. Atkinson
I. S. Freeborn,	Ithaca.

COMMITTEE OF OBSERVATION.

Geo. P. Peffer,	Pewaukee.
Warren Gray,	Darlington.
A. L. Hatch,	Ithaca.
A. J. Phillips,	West Salem.
Chas Smeizer,	Medford.
Wm. Toole,	Baraboo.
Werden Reynolds,	Green Bay.
A. D. Barnes,	Waupaca.
Mrs. M. D. Arnold,	Galesville.
H. Barnes,	Florence.
Mrs. D. Huntley,	Appleton.
Frank Phoenix, Jr.,	Delavan.
Wm. Alcott,	Brodhead.
M. Plumb,	Milton.
A. S. Crooker,	Ripon.
Prof. E. S. Goff,	Madison.
Geo. H. Robbins,	Platteville.

FRUIT LIST.

APPLES.*

Seven varieties best adapted to Wisconsin — Hardiness, productiveness and quality taken into consideration — Oldenburg, Wealthy, Fameuse, Tallman Sweet, Wolf River, McMahan's White, Yellow Transparent.

Additional list for special locations — Tetofski, Red Astrachan, St. Lawrence, Fall Orange, Fall Spitzenberg, Alexander, Utter, Westfield, Seek-No-Further, Willow Twig, Golden Russet, Walbridge, Orange Winter, Pewaukee, Haas, Longfield, Plumb's Cider and Roman Stem.

CRAB APPLES.

For general cultivation — Whitney's No. 20, Gibb, Hyslop, Sweet Russet, Transcendent.

STRAWBERRIES.

For general cultivation — Wilson, Crescent, Champion (Pistillate), and Manchester (Pistillate).

Special list for light soils — Crescent, Wilson, Manchester (Pistillate).

For trial — Jessie, Bubach, Parry and Warfield No. 2.

For hill culture — Jewell.

GRAPES.

For gneeral cultivation — Moore's Early, Worden, Concord, Delaware, Brighton and Early Victor, on recommendation of Mr. Wm. Fox, Baraboo.

For frosty and otherwise unfavorable locations — Janesville Champion, Moore's Early, and Early Victor.

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* NOTE.— The question of adaptation of varieties is one so largely dependent upon local conditions of soil, elevation and aspect, that a general list will not answer fully the wants of every planter, and at best can only be a general guide in the selection of varieties.

For more specific directions, the following rules are furnished by the committee chosen for this purpose:

1. Locations comparatively elevated and well drained, with a cool northern aspect and limestone clay soil, not very rich, may extend the general list named above to an indefinite extent, with fair prospect of success in southern and eastern districts of the state. But for warm, sheltered location and rich soils, which induce a great growth, no section of our state can safely plant other than those varieties known to be extremely hardy.

2. The best guide in the selection of varieties is for each to plant largely of such varieties as are found successful in locations similar to that each must plant upon. For all unfavorable locations, and extreme northern districts, only the most hardy, well tried apples of the Russian or Siberian types should be chosen for general planting.

3. In the extreme northern districts, only the crown of the hills should be chosen for the orchard, with a firm soil and porous subsoil, and if these materials are wanting naturally they should be supplied artificially.

4. Better plant but few varieties.

BLACK RASPBERRIES.

For general cultivation — Gregg, Ohio, Souhegan, Tyler (early), recommend with winter protection. Ohio may do without protection.

RED RASPBERRIES.

For general cultivation — Cuthbert, Turner, Brandywine and Shaffer's Colossal, with winter protection. Turner may do without protection.

BLACKBERRIES.

For general cultivation — Snyder, Stone's Hardy, Ancient Briton. (Winter protection is recommended for all.)

For Trial — Taylor, Bartel's Dewberry and Lucretia. (Winter protection is recommended for all.)

PEARS.

Most likely to succeed — Flemish Beauty.

For trial in the lake shore regions — Ananas d'Été, Early Bergamot, Bartlett, Onondaga (Swan's Orange), Seckle, Winter, Nélis, Clapp's Favorite, Beurré d'Anjou, Doyenné d'Été.

PLUMBS.

For general cultivation — De Soto.

For special localities — Lombard, Imperial Gage, Yellow Gage (*Magnum Bonum*), Duane's Purple.

For trial — Cheney.

CHERRIES.

For general cultivation — Kentish (*Early Richmond*), Late Kentish Morello, English Morello.

CURRANTS.

Red Dutch, White Grape, Victoria. Fay's Prolific recommended by J. M. Edwards.

GOOSEBERRIES.

Houghton, Downing, American, Cluster and Smith with Industry for trial.

TREES AND SHRUBS RECOMMENDED.

EVERGREENS.

For General Planting—in order named: White Pine, Norway Spruce, White Spruce, Arbor Vitæ, Balsam Fir, Austrian Pine, Scotch Pine.

For Ornamental Planting—in order named: Hemlock, Red Cedar, Siberian Arbor Vitæ, Dwarf Pine, Red or Norway Pine.

DECIDUOUS TREES.

For Timber—White Ash, Wild Black Walnut, Hickory, Black Cherry, Butternut, White Oak, European Larch, American Larch.

Street Shade Trees—White Elm, Hard Maple, Basswood or Linden, Ashleaf Maple (*Acer Negundo*), Norway Maple, Hackberry.

For Lawn Planting—Weeping Cut-leaved Birch, American Mountain Ash, Green Ash, Horse Chestnut, European Mountain Ash, Wisconsin Weeping Willow, Oak-leaved Mountain Ash, White Birch, Weeping Golden-barked Ash, Weeping Mountain Ash, Weeping Poplar.

ORNAMENTAL SHRUBS.

Hardy Shrubs—Snowball, Syringa, Upright Honeysuckle, European Strawberry Tree, Fringe or Smoke Tree, Purple-leaved Barbary; Lilac, White, Purple and Persian; Black Alder.

Half Hardy Shrubs—Deutzia (*Gracales*), Wygelia (*Rosea*), Flowering Almond, red and white; Spirea, Prunifolio and others, Flowering Quince, Cut-leaved Sumac, Hydrangia Grandiflora.

Climbers—American Ivy (*Ampelopis quinquefolia*), Scarlet Honeysuckle (*Lonicera sempervirens*), Fragrant Honeysuckle (*Lonicera caprifolium*), *Clematis jackmanni*, Virgin's Bower (*Clematis verginiana*), Climbing Bitter Sweet and Ampelpsis Veitchii.

ROSES (with protection).

Climbers—Queen of the Prairie, Gem of the Prairie, Baltimore Belle.

Moss Roses—Princess Adelaide, Luxembourg and others.

Hybrid and June Roses—Persian, Yellow Harrison, Madam Plantier, General Jacqueminot, La France, General Washington.

MEMBERS OF THE SOCIETY.

LIFE MEMBERS.

Geo. J. Kellogg,	Janesville.
F. W. Loudon,	Janesville.
H. S. Woodruff,	Janesville.

HONORARY LIFE MEMBERS.

Dr. Joseph Hobbins, F. C. S., Corresponding Member Royal Hort. Soc., ex-Pres.,	Madison.
O. S. Wiley, ex-Secretary,	Madison.
F. W. Case, ex-Secretary,	Chicago, Ill.
Prof Wm. Trelease,	St. Louis, Mo.
J. S. Stickney, ex-Pres.,	Wauwatosa, Wis.
A. G. Tuttle, ex-Pres.,	Baraboo.
B. F. Adams,	Madison.
F. K. Pheonix,	Delavan.
Peter M. Gideon,	Excelsior, Minn.
E. Wilcox,	La Crosse, Wis.

ANNUAL HONORARY MEMBERS.

J. S. Harris,	La Crescent, Minn.
C. L. Smith,	Minneapolis, Minn.
J. V. Cotta,	Nursery, Ill.
W. B. Lloyd,	Chicago, Ill.
Jonathan Periam,	Chicago, Ill.
Mrs. O. H. Root,	Ripon, Wis.
Orange Judd,	Chicago, Ill.
Prof. W. A. Henry,	Madison, Wis.
Prof. A. J. Cook,	Lansing, Mich.
C. G. Patten,	Charles City, Iowa.
Mrs. Helen M. Charleton,	Brodhead, Wis.
Chas. W. Garfield,	Lansing, Mich.

LIST OF MEMBERS — 1889.

Adams, B. F., Madison.
Adams, H. C., Madison.
Anderson, Matt., Pine Bluff.
Anderson, Andrew, Neenah.
Aker, Geo., Butler.

Barnes, D. Asa, Waupaca.
Bacon, F. B., Millston.
Baumbach, Wm. Von, Wauwatosa.

Coe & Converse, Ft. Atkinson.
Campbell, Henry, Evansville.
Chappel, F. H., Oregon.
Currie, James, Milwaukee.
Cook, Alex., Waukesha.
Childs, Mrs. A. L., Sparta.

Daniels, E. W., Auroraville.
Dennis, A. B., Cedar Rapids, Iowa.

Evans, Wm., Onolaska.
Eastman, A. A., Collins.
Edwards & Son, J. M., Ft. Atkinson.

Fox, Wm., Baraboo.
Fenelen, C. M., Weyauwega.
Field, S. F., East Troy.
Fisher, L. S., Sparta.

Gray, Warren, Darlington.
Gilmore, H., Georgetown.
Gale, Isaac, Waukesha.
Gale, A. I., ———.
Goff, Prof. E. S., Madison.
Gould, Mrs., T. G. Sparta.

Howie, John, Waunakee.
Hunt, Samuel, Evansville.
Hamilton, C. H., Ripon.
Hoxie, B. S., Evansville.
Haines, Geo. H., Baraboo.
Hirschinger, Chas., Baraboo.
Huntley, Daniel, Appleton.
Hatch, A. L., Ithaca.
Hanchett, Geo. E. & Son, Sparta.
Hanchett, Miss Ruth, Sparta.
Hanchett, Mrs. C. E., Sparta.

Jeffery, Geo., Milwaukee.
Jewett, Z. K., Sparta.

Kellogg, Geo. J., Janesville.
Keepers, J. B., Ripon.
Kellogg, L. G., Ripon.

Loudon, F. W., Janesville.
Libby, S. D., Madison.

Morrison, W. H., Madison.
Mills, Simeon, Madison.
Meissner, F. A., Cashton.

O'Zanne, James, Somers.

Plumb, J. C., Milton.
Philips, A. J., West Salem.
Peffer, Geo. P., Pewaukee.
Palmer, N. N., Brodhead.

Reynolds, Werden, Green Bay
Robbins, Geo. H., Platteville.

Skillman, Mrs., Sparta.
Smith, J. M., Green Bay.
Seymore, Asa N., Mazomanie.
Spry, John, Ft. Atkinson.
Spencer, R. C., Milwaukee.
Smith, D. P., Madison.
Stickney, J. S., Wauwatosa.
Springer, Wm. Fremont.
Stokes, Mrs. Frances, Sparta.

Toole, Wm., Baraboo.
Thayer, M. A., Sparta.
Tuttle, A. G., Baraboo.
Tuttle, A. C., Baraboo.
True, J. M., Baraboo.
Tyler, Mrs. T. C., Sparta.

Warren, A. A., Green Bay.
Wait, M. C., Baraboo.
Witt, Luther, Plymouth.
Williams, Daniel, Summit.
Warfield, B. C., Sandoral, Ill

Young, D. S., Monroe.

CONSTITUTION AND BY-LAWS.

As amended February, 1885.

CONSTITUTION.

ARTICLE I. This society shall be known as the Wisconsin State Horticultural Society.

ARTICLE II. Its object shall be the advancement of the art and science of horticulture throughout the state.

ARTICLE III. Its members shall consist of *annual* members, paying an annual fee of one dollar, which shall entitle the wife of such member to the privileges of full membership; of secretaries of local horticultural societies reporting to the state society, who shall be considered members *ex-officio;* of *life* members, paying a fee of ten dollars at one time; of *honorary life* members, who shall be distinguished for merit in horticultural and kindred sciences, or who shall confer any particular benefit upon the society; and *honorary annual* members, who may, by vote, be invited to participate in the proceedings of the society.

ARTICLE IV. Its officers shall consist of a President, Vice-President, Recording Secretary, Corresponding Secretary, Treasurer, Superintendent, and an Executive Board, consisting of the foregoing officers and additional members, one from each congressional district of the state, five of whom shall constitute a quorum at any of its meetings. In addition to the foregoing officers, the presidents of all local horticultural societies reporting to this society shall be deemed honorary members and *ex-officio* vice-presidents of this society. All officers shall be elected by ballot, and shall hold their office for one year thereafter, and until their successors are elected; provided, the additional executive members may be elected by the county or local horticultural societies of their respective districts.

ARTICLE V. The society shall hold its annual meeting for the election of officers, commencing on the first Monday in February. It may also hold a meeting in December of each year, at such place and time as may be decided upon by the society, or the executive committee for the exhibition of fruit and for discussions, and such other meeting for discussions and exhibitions as the executive committee may direct, at such time and place as the executive board shall designate.

ARTICLE VI. This constitution, with the accompanying by-laws, may be amended at any regular meeting, by a two-thirds vote of the members present.

BY-LAWS.

I. The president shall preside at meetings, and with the advice of the recording secretary, call all meetings of the society, and have general supervision of the affairs of the society, and shall deliver an annual address upon some subject connected with horticulture.

II. The vice-president shall act in the absence or disability of the president, and perform the duties of the chief officer.

III. The secretary shall attend to all the correspondence, shall record the proceedings of the society, preserve all papers belonging to the same, and superintend the publication of its reports. He shall also present a detailed report of the affairs of the society, at its annual meeting. He shall also endeavor to secure reports from the various committees, and from local societies, of the condition and progress of horticulture in the various districts of the state, and report the same to the society. It shall be the duty of the secretary to make an annual report to the governor of the state, of the transactions of the society, according to the provisions of the statutes for state reports.

IV. The treasurer shall keep an account of all moneys belonging to the society, and disburse the same on the written order of the president, countersigned by the secretary, and shall make an annual report of the receipts and disbursements, and furnish the secretary with a copy of the same, on or before the first day of the annual meeting. The treasurer elect shall, before entering upon the discharge of the duties of his office, give good and sufficient bonds, for the faithful performance of his duties, subject to the approval of the executive committee.

V. The executive board may, subject to the approval of the society, manage all its affairs and fill vacancies in the board of officers; three of their number, as designated by the president, shall constitute a finance committee.

VI. It shall be the duty of the finance committee to settle with the treasurer, and to examine and report upon all the bills or claims against the society which may have been presented and referred to them.

VII. The standing committees of this society shall be as follows: 1st, Committee on Finance, consisting of three members; 2d, Committee on Nomenclature and New Fruits, consisting of three members; 3d, Committee on Observation, as now provided. Said committee to be appointed annually by the executive committee of the society.

ACT OF REORGANIZATION

AND LAWS RELATING TO THE

STATE HORTICULTURAL SOCIETY.

CHAPTER 151, LAWS OF 1879, AS AMENDED BY CHAPTER 14, LAWS OF 1887.

SECTION 1. The executive committee of the Wisconsin State Horticultural Society shall hereafter consist of the president, secretary and treasurer of said society, and of one member from each congressional district of the state, said members from the congressional districts to be chosen annually by the county and local horticultural societies in the respective districts.

SECTION 2. The present officers and executive committee of said society shall hold their respective offices until the Tuesday next succeeding the first Monday in February, 1880, and until their successors are appointed.

SECTION 3. It shall be the duty of the said society to aid in the formation and maintenance of county and local horticultural societies, to promote the horticultural interests of the state by the holding of meetings for discussion; by the collection and dissemination of valuable information in regard to the cultivation of fruits, flowers and trees adapted to our soil and climate, and in every proper way to advance the fruit and tree growing interest of the state.

SECTION 4. The annual meeting of the society for the election of its officers, the transaction of general business, and the consideration of questions pertaining to horticulture, shall be held at such time and place as may be determined at the last preceding annual meeting. In case of the failure of such meeting to so determine, the executive board may call such meeting by giving at least thirty days' notice to each member of the society.

SECTION 5. All vacancies in the offices of said society may be filled by the executive committee; and should there be a failure to elect a member of the executive committee in any district, the vacancy may be filled by a two-thirds vote of the members of the society present at any regularly appointed meeting.

SECTION 6. It shall be the duty of the secretary of said society to make an annual report to the governor of the state of the transactions of the

society, including an itemized account of all money expended during the year, in addition to such matters as are now specified in the law relating to the same.

CHAPTER 526, LAWS OF 1889.

SECTION 5. And further, there shall be printed annually upon the approval and order of the commissioners of public printing, ten thousand copies of the transactions of the Wisconsin State Agricultural Society, the same to embrace the reports of the county and other agricultural societies, and such matters pertaining to the agricultural industries of the state as shall be deemed important, provided the whole number of printed pages shall not exceed four hundred. Seven thousand copies of the transaction of the Wisconsin State Horticultural Society; the same to embrace such abstracts of reports of county and other horticultural societies, and such matters pertaining to the horticultural interests of the state as shall be deemed important, provided that the whole number of printed pages shall not exceed two hundred. Eight thousand copies of the transactions of the State Dairymen's Association, the same to embrace such other matters pertaining to the dairy interests of the state as shall be deemed essential, provided that the whole number of printed pages shall not exceed two hundred. Twelve thousand copies of the report of the Agricultural Experiment Station of the State University, provided that the whole number of printed pages shall not exceed two hundred and fifty. Two thousand copies of each of said reports to be bound separately in cloth, all others singly in paper.

SECTION 6. The reports provided for in the preceding section shall be distributed as follows, through the superintendent of public property: Fifteen copies to each member of the legislature, fifty copies to the State Horticultural Society, ten copies to each county agricultural society, and district industrial association, which embraces two or more counties and furnishes the State Agricultural Society a report of its proceedings, to each of the four societies named in the preceding section, fifty copies of each of the reports of the other three societies, twenty-five copies of each of the reports to the library of the state university, to the governor, lieutenant governor, secretary of state, state treasurer, attorney-general, state superintendent of public instruction, railroad commissioner and insurance commissioner, twenty-five copies each; to the state superintendent of agricultural institute, fifty copies; to the superintend ent of public property, commissioner of labor statistics, adjutant-general, quartermaster general, state board of health, each ten copies; to each public library in the state two copies; to each state normal school, two copies; to each of the state charitable and penal institutions one copy; and the remaining copies to the respective societies for distribution by their secretaries.

SECTION 7. In no case shall the number of printed pages in any report provided for in the act exceed the maximum number specified, except upon written request of the officer submitting the same, and then only upon pre-

vious written approval of a majority of the commissioners of public printing, such application and approval to be filed with the secretary of state.

CHAPTER 417, LAWS OF 1889.

SECTION 1. The governor is hereby authorized to set apart by proclamation one day in each year to be observed as a tree planting or arbor day, requesting all public schools and colleges to observe the same by suitable exercises, having for their object the imparting of knowledge of horticulture, in the department known as arboriculture, and the adornment of school and public grounds.

SECTION 2. This act shall take effect and be in force from and after its passage and publication.

Approved April 16, 1889.

JOINT RESOLUTION NO. 19, A.

WHEREAS, The Wisconsin State Horticultural Society has many valuable books which it is desirable shall be preserved; and,

WHEREAS, Many such have heretofore been lost in moving from room to room; therefore,

Resolved by the assembly, the senate concurring, That room number twenty-seven (27) in the capitol, is hereby set apart for the permanent use of said horticultural society; provided, that nothing herein contained shall be construed to prevent its use by the clerical force of either branch of the legislature durlng any session thereof.

REPORT

OF THE

TRANSACTIONS AT THE SUMMER MEETING

OF THE

Wisconsin State Horticultural Society,

Held at Ripon, June 28 and 29, 1888.

Meeting called to order June 28th, 11:30 o'clock, A. M.
President J. M. Smith in the chair.
Business session, appointing of committees, etc.
Adjourned until 1:30 P. M.

AFTERNOON SESSION—1:30 P. M.

Opening by the president, J. M. Smith, Green Bay.

Ladies and Gentlemen:—Four years ago this month the members of the State Horticultural Society met in this city, and in this hall, if I am not mistaken. We had an exceedingly pleasant convention, one that we thought was valuable; it was valuable to the members of the State Society who were present, and we hope that it was valuable to you.

Four years have passed away and we are here again through your invitation; we are glad to come, we are glad to meet you, we are glad to see so many of you present; we are very glad, indeed, to see this exhibition of your flowers, plants and fruits.

Thirty-four years ago this month, I was through here for the first time, and remained over night. I was then crossing the state with a horse and buggy; it took me nearly a week, the route which I took; we can get through in as few hours as I then spent in days. Your town was then a very small one, and so far as I could then see, with no prospect

of its being a great one; you have not become great in population, but you are noted far and wide for the sobriety, purity, the liberality and the generosity of your people. Also for their education, for their general intelligence. I may say safely that no town, no city of this state, stands higher, and there is perhaps none in the northwest more noted for these qualities mentioned than is your city of Ripon.

But I will not take your time, I am not prepared to talk, and you will probably hear enough, if not more than you want to hear from me before I get through, and I will therefore ask your choir to favor us with some music, which I know they are prepared to do. That always makes us feel good, and I know that some fine music will help us very much.

After singing by the quartet choir, "A Farmer's Wife I'd Be," Judge L. E. Reed, of Ripon, gave the following

ADDRESS OF WELCOME:

Mr. Smith, President of the Wisconsin State Horticultural Society, Mr. Mayor, Common Council, and Citizens of Ripon: The opportunities this occasion brings to our doors should make us proud. We are permitted the honor of welcoming to our city the representatives of a state society which has for its purposes and aims the development and encouragement of an industry pre-eminently adapted to the soil and climate of the beautiful country within and surrounding this city, which I assure you, horticultural people, we most heartily do.

We have also the pleasure of allowing our distinguished visitors to look upon some of the finest sections of land in Wisconsin; and if you have any doubt of this we will ask that you do not leave us before looking it over, from the top of one of our college bildings, and if you then have doubts we invite you to ride about the vast fields of growing fruits in this locality. We cannot pile before you pyramids of oranges that takes a good sized journey to walk

around, and tall ladders to reach the top as greeted American horticulturists last winter in southern California, but we place before you strawberries in quantities that no one locality in California can excel, and in size and flavor, that cannot be outdone in the whole state. A few weeks later we can say the same of blackberries. We can show you results from the cultivation of small fruits and vegetables in this locality which are in your province to foster with which, had we also that superb climate west of the Sierras, we would compel Californians to acknowledge us lively competitors in their phenomenal march to the front as the fruit garden of the continent.

What I say of any feature of horticultural industry will be more in the line of profit which our people are now reveling in than that of beauty or adornment which is a wide and interesting field of itself. The raising of small fruit as a business in this locality is comparatively a new departure. It is but a few years ago that farmers and nearly all who tilled the soil for a living about here treated lightly the idea of raising berries or vegetables for the market. Wheat was king with them. More acres could be cultivated with the amount of help required for berries and vegetables, and it seemed to them, business on a larger scale. They liked to see when they rose in the morning and retired at night their vast fields of waving grain. So they followed it until their land failed to respond with profit as in earlier days, and many longer, till they were financially unable to stock their farms as the more sagacious ones did. Those who foresaw in time the approaching necessity and acted, are surrounded with rich fields and properous homes. But, now to properly get a start at farming, to equip a farm as it should be to make money out of the soil requires more means than the average man has who is forced to choose that pursuit. So the horticulturist come to his rescue and opens up a field of refuge directly in line and within the reach of such, as well as the man of more means who already has realized its profits. A few in this city have long followed raising small fruit as a business, and with unexceptional success. But within the last few years it is be-

coming more general, until its proportions are properly receiving attention throughout the northwest. The figures running up among the tens of thousands of dollars paid for berries, plants and cucumbers each year in this city will, I understand be furnished you during your present session by one of Ripon's principal horticulturists, from which you will see, ladies and gentlemen, it is not the number of acres of land a man tills, which determines the amount of his income, or the prosperity of a city partly dependent upon those products.

It matters not so much whether a man harvests a berry, vegetable, plant or a wheat kernel, as it does the profit he realizes from his acres, the home comforts he can surround himself and family with, and the bank account he can foot up at the end of the year as a result of following the one channel or the other. This idea that your society is encouraging shows that you are marching along with the necessities of the times, keeping pace with the changing requirements of the agriculturist. All who have to dig in the dirt cannot be rich, cannot own large tracts of land if they would. It is this idea of yours that is making California to-day, attract the world's attention. A few years ago, wheat was their king. Those beautiful valleys, which lift a man's soul toward the tops of her mountains from which you can look down upon ripening fruit twelve months in the year, were but a little time ago owned in vast tracts by a few men who mostly lived in cities, and instead of expensive buildings and improvements, which characterize Wisconsin farms, only insignificant buildings were generally seen on their wheat or herder's ranches. And the farmer unable to buy a large tract and run it on a high pressure scale, with an army of hired laborers, had but litto show, and their country was slow in settling up. But that kind of farming is there nearing its end. The passion for great wheat fields and cattle ranches is subsiding, and those charming valleys are now being cut up into small fruit farms, within the reach of the poor man's means as well, and the vast immigration to that state of late, catch-

ing the inspiration your idea encourages, has gone into fruit raising until that is now her king.

A few years ago you could ride through her valleys and scarcely see a decent improvement in a day's journey. Now riding through them on a railroad train hardly does the smoke of the engine lower over the suburbs of one village or city before it rises ovr another. Your idea puts the industrious poor man on an enviable footing with the possessor of larger fields and soon enables him to have comforts his neighbors can not have. It gives the poorer a chance to earn wages portions of the year. Five fruit or vegetable acres in this locality keep more fingers busy, fill more hungry mouths, clothes more naked backs, bring more home comforts, reverse the debtor and creditor side of your bank book, keep the wolf farther from your door and the hearthstone warmer in our frigid winter days than the average 160 acres of wheat fields. It makes thrifty towns, fortunate enough to be located in a section where the soil and climate is available and a market always at hand. It enables a rich and fertile country like ours to furnish homes and employment for as dense a population as the agricultural and fruit growing country of the old world. So horticulturists, of Wisconsin, city officers, Ripon horticulturists, and the citizens of Ripon wish you a God speed and most cordially extend to you the right hand of welcome and encouragement in your laudable mission, and hope your visit among us may be pleasant to you, as it is most gratifying to us.

Mr. Smith — We had expected to have had with us on this occasion, one of our members, Hon. B. F. Adams, of Madison. He has been detained by circumstances over which he had no control; therefore I will call on Mr. Hoxie to make a few remarks in response to this address of welcome so generously given us by Judge Reed.

RESPONSE BY B. S. HOXIE, EVANSVILLE, SECRETARY OF THE SOCIETY.

Mr. President, Ladies and Gentlemen: You see by what our president has said that I am simply a drafted man, and am looked upon in the same light as drafted men were at the time of the late unpleasantness down south. So I am here simply to fill a space, not to do the shooting which our friend Adams would have done if he were in my place.

I am heartily glad to be with you this afternoon. Reference has been made to the meeting of four years ago. I joined you at that time on my way home after a trip to Dakota, having just fled from the treeless desert of that region to this beautiful city of Ripon, where I saw fruits and flowers as I see them here to-day. The name horticultural does not simply refer to the setting out of an apple tree; I mention this because in my travels round the state I hear some of our farmers say, "The apple trees are all dead, what have you to work upon now?" This industry of small fruit growing is becoming more and more successful, and Ripon is no exception in this line. But we have more to do than to plant an apple tree. We have to look after the education of our children, the training of the young mind, the home, and surroundings, the school and the school grounds. We want to look after these things, and let us see that our school grounds are so set out with trees and plants that they may serve as an object lesson, right before the children, one which may be a benefit to them.

A few years ago our pleasure was in the waving wheat fields, but when the chintz bug came it took all the buzz out of that business. Out in the western part of the state, where I was last fall, I saw a farm of 140 acres in wheat, 100 hundred acres were never fit to reap and the farmer got nothing at all owing to this pest. This is not so with our strawberries, or any of our other berries; there is no state in the Union, let me tell you, equal to Wisconsin in the production of small fruit, no state produces a larger crop or better flavored berries, and we have all the varieties and

some that others have not. We have the Jessie, originated in Rock county, spoken of as the very best berry among this queen of fruits.

We have been much pleased in listening to the remarks made by the Judge in welcoming us to your beautiful city of Ripon. We hope that we shall form pleasant acquaintances, that we shall carry the recollection of them, their faces and what they may say to the grave, and while we are here for these two days, we hope that you, and that we, representing the Wisconsin State Horticultural Society, may learn something that will benefit posterity, benefit our children; that is what we are to live for, to make our lives pleasant and make other lives more bright and beautiful by teaching them the lessons of the trees which we see, of fruits and flowers, which nature has so bountifully given us for food and enjoyment.

THE FRUITS WE CAN GROW.

BY GEO. J. KELLOGG, JANESVILLE, WIS.

Mr. President, Ladies and Friends: As we pass the mile posts of horticulture, do we learn anything new? Is the world and the work we represent any better today than it was a year ago? What have we done besides get up and eat and toil and sleep for the past year?

This season has been favorable for all agricultural and horticultural work, but for the five frosts in June, we could not have made better weather. The continued failures of fruit, shade and ornamental trees, reminds us of the two years of drouth and the four hard winters we have passed. Many trees will not yet recover, and on light soil, midst grassy surroundings, it leaves us the necessity of protection by mulch and cultivation. The apple crop this season, is promising, as is also the crop of bugs and worms. The leaf blights that struck our transcendent and light foliage apples, June 1st and 2nd, causing so sudden a check of growth, dropped most of the fruit from these half hardy foliage

trees, and but again urges us to look to the Russian varieties for better success in apple growing. While we have faith like a mustard seed, in the Russian, we need a mustard plaster to keep up our courage. I can not account for the failure of certain varieties of trees transplanted in my grounds, in nursery rows, two years ago. I submit specimens of the wood, cut from these trees this month. I also submit specimens of a section of a tree received of E. W. Daniels, purporting to show the hardiness of N. W. Greening, also sections of five N. W. G. trees, received at the same time. Greater deception could not be sent out in the same bundle. The part of the tree looked as if it had always been kept in the house winters, while the trees all showed rottenness at the heart, and I wish to protest against the circular sent out by E. W. Daniels, last winter, of the garbled statement over my signature; the only redeeming feature in that recommendation was left out, that was, "if it was hardy enough." I have some faith in the N. W. G., for our lake shore belt as a profitable keeper of a fourth class quality. I had thought it fair quality, but eating the fruit last May, I class quality below the Willow Twig. The severity of the last three winters, leads us to try the Russian cherries, hoping to find some good, that will prove more hardy than the Early Richmond in blossom bud.

I have been testing Yellow Transparent apple grown south and find it has winter killed badly for the last two years, proving that hardy varieties must be grown near where they are wanted, and yet this variety grown at Baraboo shows the effects of the last winter.

The getting down to the best ten varieties of Russians, led me to procure the lists of best ten from five best posted; the result about forty varieties as best ten. This shows we are very much at sea yet in getting down to a satisfactory list.

Of the old varieties, Oldenburg, Alexander and Tetofski are the only hardy ones, and only Oldenburg is profitable in all locations. The only profitable winter apple with me is Willow Twig, which is tender in the nursery. Haas, Fameuse, Wealthy, Red Astrachan, Talman Sweet, Golden

Russet, St. Lawrence and some others will pay to plant on good locations.

I struck a new seedling last winter, propagated first by Dr. Tinker; it is with him the most profitable apple in his orchard, and the name is so appropriate to a small portion of humanity I am trying it myself. It is called "lying Bill."

I have not mentioned McMahon in my list; trees grow well in the nursery, and once established in the orchard, but in transplanting many of them blacken, become rotten-hearted and fail. I have a section of one to show. I am more than ever convinced that the best and surest way to grow an orchard is to plant the root grafts where the trees are to stand, and shade them from the burning sun of summer and the heat of winter on the southwest side.

The success of grape growing last year has given a new impetus to this branch of horticulture. The list is too large to enumerate—location, soil, care, culture and adaptation are the keys that unlock the mysteries—profit and satisfaction in this fruit.

Of small fruits a volume would not tell the tale. Gooseberries and currants are more profitable now than when we had no currant worm. A little white hellibore just as soon as he makes his appearance, will be all he wants.

Strawberries at 1,000 bushels per acre would make them so cheap that farmers would not plant a berry, and while they can be grown to yield equally with potatoes, how few there are who have them as plentiful. In the market you will find more Crescent to-day than all other kinds, and many who ought to be better posted are trying to raise Crescent alone.

How much talk does it need to convince a man that pistillates are unprofitable. Two rows of these and two of perfect flowering kinds will make failure a glorious success.

The queen of strawberries is the Jessie—this season will settle its adaptation on all soils, the fruit speaks for itself; there is no doubt about its being the finest large berry in cultivation. The only question is, will it bear equally well with the Crescent? Of some pistillate varieties there is nothing I have seen equaling the Bubach and Ontario for

size, productiveness and quality. We are disappointed in Jewell, a few large berries, of poor quality, and no plants. Belmont is a failure, not worth standing room. Parry is holding its own, although it lacks foliage in the burning sun. May King does not come up to size of Crescent, although it is a good pollenizer and the berries are very near alike and will do to pick together. Manchester with its rust, I think, will give place to Bubach, which has grand foliage and great vigor of plant.

Some of our best growers are using Wilson only for its pollen; it certainly has deteriorated.

I think we shall use Jessie for pollen for Crescent, and go back among the old varieties and take up Capt. Jack.

Miner still holds a worthy place among old varieties. Logan, Itaska, Haveland, Lida, Gandy's Prize, Monmouth, Warfield and many others we are fruiting for the first time, and if we live long enough and don't forget faster than we learn, shall know more in the near future.

We have not found any marked improvement among new raspberries or blackberries. The Snyder and Stone's Hardy remain equally profitable with Briton among blackberries and are more hardy; none of them are entirely safe without protection in hard winters, although Snyder and Stone's Hardy are loaded to the ground that were left out the past winter.

We can grow plenty of crab apples, a few Oldenburg, a few Russian, a few varieties of the old standard sorts in favoring locations with proper care and protection; a few pears along the lake shore; a big lot of native plums once in a while, some years nearly half cherries enough for one bite for a part of the dear little birds—all the small fruits we choose. All this needs is the right kind of soil, money, muscle, brains, common sense, sticktoativeness; a judicious selection of varieties and proper culture.

DISCUSSION.

A member — I want Mr. Kellogg to give us five kinds of grapes which are most profitable.

Mr. Kellogg — The best is Moore's Early, next the Worden. Next for general culture is the Concord; the best red grapes, Brighton, and Deleware; the best white grape, I think, is the Lady. There are three that are claiming the lead, but the Niagra which was planted at Richland Center have not made a ripple in horticulture yet. With me it is doing very well.

Mr. Hoxie — Friend Kellogg makes one statement which certainly needs some remark from some member of our society in relation to the Wilson as being only worthy of a place in the garden to pollenize other varieties. Now President Smith is able to state the fact that the Wilson has not deteriorated as much as friend Kellogg has thought.

The Wisconsin State Horticultural Society stands head and shoulders ahead of many of the horticultural societies. It is surprising how our transactions have been called for, the letters come, "we prize the Transactions of the Wisconsin State Horticultural Society more than any other; send us a report;" that is the universal testimony, and I want to caution the members of our society to qualify such statements. I therefore call upon Mr. Smith.

Mr. Kellogg — I said that some growers were using the Wilson only as pollenizers.

Mr. Smith — I want to speak in regard to the Wilson deteriorating; it is the growers who have deteriorated, not the plants, that is the simple fact of the case. I got the Wilsons in 1860 or 1861, I have grown it from that time to the present. The Wilson with me to-day is a strong plant and I think more vigorous than when I first received it. I have no doubt of that. We have grown it in the following manner:

We take but one crop of berries, because of the fact that if you cultivate it well, put it on the right kind of ground, it will bear itself to death the first season, and I find that it will not yield what I consider another paying crop. I mean by that 200 bushels to the acre.

Some growers are accustomed to set out a bed, pick a big crop from it, and then take runners from this bed, the plants will make a few weak runners; they take runners from these exhausted plants and set them out the next spring and raise more, allowing them to bear two or three years, and then take more plants from them and set again, and the only wonder is to me that the plant is not entirely exhausted and gone out of existence long ago. My plan is about as follows: we set the the plants in the spring and when the blossoms come out we go through and pick them off, not allowing them to bear fruit; when the runners became long in the summer, we go through and train them right round the parent plant, like the spokes of a wheel round the hub. That will not let the plant become choked; they will all make strong, healthy plants, and fill up the ground. The next spring we set the new beds; as I told you we set every year; we go through these plants and take the best, not always the largest ones, and not the smallest ones; if we find one that is small and weak we simply throw it into the alley. The next spring we take plants from these and go through the same process again. The result is that we have never failed for nearly thirty years. I commenced this plan in 1860 or 1861, and have not failed once to get a good paying crop. Two years ago the yield of my ground was, without watering, 255 bushels to the acre. I do not remember exactly, but it was something over 250 bushels. Last year I measured off an acre of my ground and with no rain from the time of the breaking up of the ground, the yield was still 223 bushels to the acre, and I am perfectly satisfied that it is the growers who have degenerated, not the plants. I have sent to all the noted growers of the Wilson plant, but I have failed to procure as good a crop from those as from my own plants, and I have therefore destroyed those plants. I have taken a great deal of pains to keep my berries pure. If you allow the same plants to continue bearing they will surely bear themselves to death, the old beds will become choked to death. If you put Crescent next to them it is almost sure to kill them within a very short time.

Mr. Huntley—I wish to corroborate that statement. I visited the grounds of Mr. Smith and I do not think I ever saw a better, stronger growth than I saw there of the Wilsons. He said they were the most profitable berry he had. He had several varieties, nearly all that Mr. Kellogg has mentioned.

Mr. Hoxie—There is one point in this discussion which I want to fix, that is this: it is the growers and not the fruit which deteriorates. Horticulturists as well as farmers when they get a new variety are apt to put special work on that. Then it is a wonderful plant. You know this with new varieties of corn sent out; I believe there is as much in thoroughbred plants as in thoroughbred corn, and Mr. Smith has demonstrated it with the thoroughbred Wilson strawberry. Two years ago I saw a gentleman who made the very best selection, gave it the best care, and saw to it that it was rightly and properly fertilized with the right kind of pollen; then it was the very best variety for him. I believe that if we would continue to give the best of care to a variety which has once proven successful with us, and continue year by year in the same method, we will succeed. There are some varieties which are not adapted to certain climatic conditions which we can not alter; those we must let go.

Mr. Plumb—I wish to corroborate Mr. Kellogg's statement with regard to the Wilson in our section of the country. It has not done very well with us for the last few years.

The Piper has done well with me, but the Wilson had rusted so that it was almost worthless. That is just the difference. Mr. Smith and perhaps some others can make their ground just rich enough and not be troubled with leaf blight or rust. If planted on rich ground the Wilson will rust; if I am not correct I wish to be corrected. That is a peculiar disease to which the leaf is subject. There are other differences.

It takes more than one swallow to make a summer and I want to say a word about what friend Hoxie said about corn. The two do not run parallel. The strawberry has

never been reproduced in the seed, and therefore the effect of careless growing is not noticed in just the same way. Some of our very best men say to-day that it is extremely difficult to modify a plant unless it is reproduced from the seed. I have abundant evidence on that point which I will introduce to-morrow.

Mrs. J. M. Smith—Mr. Hoxie, speaking about corn, called to mind an incident of an old cousin of mine. He said he had a sweet corn which he had grown for some time, a great many years, and from his manner of saving seed he could get it from ten days to two weeks earlier, and had improved it in that way.

Mr. Periam—That varieties propagated and originated from seed and then propogated from the cuttings or from any other way can deteriorate I do not believe. Then in relation to grafted fruits, of course the stalk does breed upon the scion. If we got the strawberry or any other plant which is propagated by cuttings which have once shown any health and vigor, I do not believe there is anything like running out. It does not stand to reason. I do not believe that it will.

Mr. Smith—There is no doubt but that it does so, but the only question is do they do so because of their native vitality, or is there a law by which the good Father in Heaven says make your strawberries better than they have ever been, but for all that you shall not have them live only a few weeks for I shall kill them. I do not believe that there is such a law, but I know that they do deteriorate, but believe that it is because of their culture and not because of any law of necessity.

Mr. C. H. Hamilton— I do not know that I have adopted any new plan to produce the large berries—the Jesse, which have been spoken of. The Jessie is a seedling raised in the State of Wisconsin, and we, as fruit growers, have been looking over the list of new varieties in hopes of finding something which would supercede the the Wilson. Therefore, all, or very many of the fruit growers throughout the state, are trying this new variety. One year ago last winter I had great hopes from the reports that came from the

different horticulturists which had seen the Jessie growing upon the grounds of Mr. Loudon, of Janesville. Still I felt that we should handle them rather carefully and I was obliged to on account of the high price of the plant. Nevertheless, I bought some of them and as far as extra cultivation is concerned, I have not put them on what I consider rich ground. It is not the best land, I should consider it good corn land. I set two or three feet apart, and put them two feet apart in the rows. Along in the middle part of last summer, during the time of that drought, I felt that I should loose every one of them, but the later rains caused them to throw out a greater growth of plants and I have watched them this season with considerable anxiety to see the large berries which have been growing upon them. I have not cut off the runners, I have given them plenty of land to grow in, and I am very well satisfied with its strong growing qualities, the size and quality of its fruit, and I hope that if it does not supercede the Wilson, that it will help us to keep up a good line of fruit, which we are all looking after, and I feel encouraged that we shall some day find something which will take the place of the Wilson, and the man who does originate that strawberry is going to be a great man.

Mr. Smith—Mr. Hamilton, what other variety have you that you consider as growing favorably?

Mr. Hamilton—I have the Lida, which, in some respects, is a little more pleasing to me than the Jessie, a little smoother berry and a little heavier bearer, it pays more attention to the putting on of fruit upon the plant; a little more of that quality of the Wilson. I have also the Bubach, which by some, is claimed to be a new and valuable variety, but I do not think from the appearance of my fruit and the growth of the plants that our soil here is just the kind for that variety. The Jewel is another variety which I have tested; I would say of that, strike it from the list for our soil.

Mr. Kellogg—Mr. Hamilton, are there as many berries formed on your plants of the Jessie as you have on the Crescent?

Mr. Hamilton—No, I think not.

Mr. Smith—Have you as many as on the Wilson?

Mr. Hamilton—I do not think there are as many berries formed upon the Jessie as upon the Wilson, but I am inclined to think that they would measure out about the same amount.

A member—Could you not sell the Jessie a little higher in the market?

Mr. Hamilton—I might in Ripon, but I think not in Janesville.

Mr. Kellogg—I put my plants close; I have a dozen rows twenty rods long. They are fruiting very satisfactorily.

Mr. Kellogg—In buying new plants I want to see the blossoms, but sometimes we find that the blossoms are taken off. I bought Wilsons this year from three different parties and I want to see every plant blossom if it will. I want to know if it is a Wilson or not. As Mr. Plumb said I don't believe it is the growers fault, it is the location and the rust. Now along the lake shore they are doing better with the Wilson than in the southeastern part of the state. The grower whom I referred to when I made the remark that some used the Wilson for the pollen was I. N. Stone of Fort Atkinson.

A member—Mr. President, will you name same vareties to be used for pollen ?

Mr. Smith—The Jessie, in my opinion is a very good fertilizer; the Sharpless is also a good one. If it be a fact that the pistillates being fertilized by a fine growing variety affects the fruit, the Jessie and the Sharpless are both good for that. It is, though, a disputed fact..

N. A. Miller—I would like to ask my friend, Mr. Kellogg, a question. When he was here four years ago, in this very hall, I was interested in setting berries. He then spoke of the Wilson as being the first, middle and the best berry of any others. Mr. Kellogg now says some growers plant them only for pollenizers. Now, Mr. Kellogg, I stand as a witness to testify to what you said here then; I used you as an authority in putting out my own berries and recom-

mended them to my neighbors. If your recommedation was good for anything then, it must be to-day?

Mr. Kellogg — About four years ago I thought as I said, but the Wilson has rusted worse since then than it has ever before. It has failed with me since then; it has been a success; there has never been a berry introduced that has beaten the Wilson strawberry. I do not know of anything which grows the same amount of pollen unless it is the Vick and the Captain Jack, but the Vick is not worth a cent for fruit.

Now every time we get a new plant it is something wonderful, but I do not know of anything which comes so near perfection now as the Jessie does. It has not as much pollen as I wish it had. I am glad the gentleman called attention to my recommendation of four years ago. I would recommend the Wilson to-day along the lake shore if it succeeds there, but if it fails give it up and try something else.

Mr. Hoxie — While we are speaking about these berries, I have a card from B. F. Adams which I wish to read. He says: "The Jessie is the best of all varieties and yields the heaviest. This is my first year."

Mr. Smith — Mr. Hamilton, what have you in the line of raspberries.

Mr. Hamilton — I don't know as I have any new varieties that I can speak of particularly. I am raising the well known and renowned Gregg, and also the Souhegan, the Ohio and the Nemaha. I have considerable faith from its present appearance, that the Nemaha will some day supercede the Gregg, on account of its hardiness. The red raspberry, Marlborough and the Golden Queen, new varieties introduced from the east several years ago, I have tried through several winters. The Marlborough through five winters, the Golden Queen, two winters, and I have found them able to stand our climate without any protection. There is a variety of black raspberries coming up and recommended. I have received circulars speaking of them very highly, the Johnson Sweet Raspberry. I have procured some of the vines and intend to test them with some of our other varie-

ties. We find the cultivation of the raspberry next in profit to that of the blackberry; and ten years ago I do not think there were three acres of raspberries in cultivation in this town. I think there are now over fifty acres.

Mr. Smith — How many acres of blackberries were there ten years ago?

Mr. Hamilton — I should judge not over five.

Mr. Hoxie — How many to-day?

Mr. Hamilton — Something over 125.

Mr. Hoxie — Would you advise the planting of any kind of raspberry in this climate without winter protection?

Mr. Hamilton — I should certainly give any variety of fruit protection. I think it will pay a large interest on the trouble of laying the vine down, but still, most of the varieties of raspberries which we are now cultivating, will stand our ordinary winter test. I have not seen a Tyler fail for several years; the Gregg has suffered the most severely, I think, of any of the varieties.

Mr. Smith — Mr. Hamilton is it not a fact that although the raspberry and the blackberry may not entirely winter kill, that if well covered the crop will more than pay for the trouble of winter protection?

Mr. Hamilton — Yes sir.

A member — I would like to inquire if any one here has used commercial fertilizers for strawberries, and whether it pays to do so, and what kind?

Mr. Smith — I have done something in that line, but I do not think that my land is very good for that purpose on account of its being so full of barnyard manure. Some years ago I made some experiments, putting it on in different amounts, and on the portion of the beds where I put it on very largely, I found the crop was not as good. That was the only effect I can speak of. I have been putting some of the Chicago House Ash and Co.'s manure this year. So far I have been unable to see any difference, either good or bad. I don't wish to be understood to say that these fertilizers are of no benefit. The land which I tried it on was manured forty loads to the acre a year ago last spring, and then ashed again to 75 or 100 bushels to the acre. The land

being so rich that any fertilizer put on would not have the same effect as on poorer soil. I do not wish to run it down, but my land is too rich to derive any benefit from such experiments.

A member—For certain plants they have special fertilizers, as for wheat, or tobacco, etc.; and so it may be, and I presume is, that the strawberry plants of Mr. Smith's are actually fed, as he says, from the barnyard manure which he puts on his ground, and therefore the special fertilizer which he put on did not improve it particularly.

Mr. Plumb—I have pretty good reason to know that the Jessie strawberry which has been spoken about, gets its growth very largely from the use of these fertilizers. I questioned Mr. Loudon very closely on this subject, he says he never has applied it, but the previous year his strawberry grounds are used as tobacco grounds and he manures very heavily and finds no need for this fertilizer. To-day I have the evidence of my eyes that Mr. Loudon has used the superphosphate; it is a compound of animal blood and bones, something in the shape of superphosphates, and that he used it very heavily upon his strawberry beds. I suppose Mr. Kellogg knows something about it. I am pretty certain that the Jessie owes its success to the use of superphosphates or commercial fertilizers.

Mr. Kellogg—Now, right here, Mr. Hamilton tells us his ground is only fair corn ground. Where I had the Jessie I had none of the commercial fertilizer and I can see no difference. There are evidences to show that Mr. Loudon used something else for manure on his beds. I don't know how much, and I can't find out. I believe the Jessie has gone out on its merits.

A member—I wish Mr. Hamilton, as his Jessie's are doing fairly well, would tell us how his land is prepared. I mean last year and the year before. Let the farmers see for themselves if it is only good corn ground.

Mr. Hamilton—I think my land was manured with barnyard manure the year before they were planted, but I can not say just what was raised on it. I think a crop of corn. I put on not less than forty loads to the acre. I generally

plow pretty deep and the drag was put on so that it was done well; when the land was in a workable condition the plants were placed in it. I have land that is a great deal richer with the Crescents on it; they show the effects of it, but I don't consider the land that I have those Jessies on more than ordinary corn land, and part of it is hardly that. I think some of my neighbors have some on land that I consider far richer than mine is. In making that selection of the Jessies I did not pick only the large ones; I picked every berry just as they came.

Mr. Woodruff — I think that Mr. Hamilton has told about all there is to be told about raising blackberries, or raspberrirs. I only raise one kind of black raspberry and that is the Gregg. We have about three acres of those set out. They do not winter kill as bad as the Doolittle or the Souhegan.

For the red we have what we call the North River; I think they yield the best of any berry which we have.

Mr. Cotta, of Illinois — I don't know as I can say anything that will be of any value to anyone beyond what has been said. I am but very little interested in small fruit culture; I am growing some plants but not beyond what I need for my own family use. I am located too far from the commercial centers and I don't think it would be advisable for me to attempt to occupy your time.

Mr. Smith — Are you fruiting the Jessie?

Mr. Cotta — Just a little; I did not have such fine plants nor as many as are here; I only saved about a dozen out of 100 plants. I have strong hopes that it is going to be a good thing; as I remarked at our last winter meeting in our state society, Wisconsin has given us the Jessie and I am glad of it.

Mr. Woodruff — Last year I got some plants of the Jessie; this spring I set out 150 plants, thinking I should have some fruit to exhibit here. I undertook to get some to-day and I picked about one-half of a box full; I found on the ends of the stem where the fruit should have been, the birds had eaten them all up. The fruit wasn't there.

The President appointed the following Committees:

On Fruits and Vegetables — Mrs. Campbell, Mrs. Hoxie and Mr. Huntley.

On Flowers and plants — Mr. Plumb, Mr. Cotta and Mr. Lloyd of the Farm, Field and Stockman.

Society adjourned to re-convene 7:30.

EVENING SESSION, 8 P. M.

Music — Quartette — "The Nightingale."

THE ORNAMENTATION OF SCHOOL GROUNDS.

By D. HUNTLEY, APPLETON.

Many good things have been said about ornamenting our homes and their surroundings, by members of this and other horticultural societies, making home attractive and pleasant to all its members and especially to the children. Will not all of these reasons given apply with equal force to the school, where the child spends nearly one-half of its waking hours?

It hardly seems necessary for me to discuss this point of silent but constant influence of one's environments. It makes all the difference in the world and through a life-time, whether the child's mind is repelled or attracted to the place where he is to receive his training for a life of usefullness and responsibility. I shall not take your time in arguing this, but in a few words try and give some hints how this can be accomplished. In the first place public opinion must favor it; a majority of the voters of the school district must approve or acquiesce in the proposed work, and right here is where the labor must be done, and nearly all of it by a few intelligent and persistent workers, who know no such word as fail. Let it commence here in this convention and extend to every educator and superintendent in the state, with the children and with the parents. Let one school district in a town, or three or four in each or any county succeed in getting a nice school yard, with

trees and shrubs and flowers arranged in an attractive and artistic manner, and other districts will surely follow suit; for "fashion rules the world," and nearly everybody likes a good thing when it is accomplished and brought to their notice; every passer-by will admire its beauty. Just how little or how much shall be done will depend largely upon the size of the lot, and the generosity and enterprise of the people of each district; most of it should be by voluntary work and contribution, many dread a tax. There need be but little outlay of money, and first the size of the lot should not be less than two or three acres, instead of one-fourth or one-half acre, as has been the custom.

We built a new school house in our own district a few years ago, and we could, by dint of hard work, only secure one acre and thought we had done a good thing, but it would have been much better, twice as large. We enclosed it with a substantial fence, for then cattle were pastured on the highway, but now all that is past and a fence could be dispensed with, for as a rule they are not ornamental. I would have the lot enclosed upon all sides with elm and sugar maple set twenty-five or thirty feet apart. I would have no tree set near the house, especially on the south side for sun light is better than too much shade, more healthy, more cheerful; but we need both. In the rear of the house should be the play ground with no trees in the way. Around the outbuildings place evergreens so as to nearly conceal them. These may consist of Norway Spruce, Balsam Fir, Austrain Pine, or any of our common evergreens. In nearly every case it would be better to consult a landscape gardener if one could be found.

Now, the women have an equal voice in our school meetings, I am sure that their influence will be given in favor of adorning our school yards and making them more attractive and pleasant. If they so order the good work will surely be done. On a cross road, near where I live, which was nearly impassable, especially in the night, and on which the path master would not, or did not put work enough to make it passable, the ladies of the two roads made a picnic, inviting the men with their teams, axes and

grub hoes to spend the afternoon, and the work was done. A grand picnic and tree setting could be held on the school ground, which would not only do much for the improvement of the school yard, but beget good feeling all through the district.

If flowers could be cultivated with success it would add greatly to the beauty and pleasure in ornamenting the grounds.

This would depend upon the summer teachers' love for the work and how much inspiration she could impart to her pupils. If the district were so fortunate as to procure a teacher from a family of culture, one who had been brought up from infancy among flowers and knew their names and habits as she did her own brothers and sisters, the work would be eaisly accomplished. Some neighbor near the school house would gladly look after the flowers during vacation and when our school boards *themselves* have learned that there is a difference between an educated and an ignorant teacher worth paying for, we shall very soon have better schools and more beautiful grounds. If the cultivation of flowers, annuals I mean, is attempted, let it be done mostly by the pupils themselves, aided by the teacher, for then there will be a feeling of proprietorship and they will have a much greater interest in their care and cultivation. They should be mostly on the side borders in front of the school house. There might be two circular beds, one on either side of the walk leading from the street to the school house, but not more than this. A nice lawn nearly solid is more ornamental than grounds cut up in small patches. One of these beds should be in their varieties for nothing grown is so unniversally admired and gives such pleasure to children. The other may consist of a few varieties, verbenas, flox, asters or whatever is most desired. Both of these beds should be enclosed by quite open wire screens, two or three feet wide, 12 yards of which can be bought for a dollar. This arrangement will keep the little feet from the plants before they bloom and is of itself an ornament to the grounds. But I will not suggest further for

no two yards would be exactly alike nor should they, "for variety is the spice of life."

Now, I verily believe the time is not far remote when school grounds will be visited because of their beautiful appearance, not only by those youth at school preparing for the duties and responsibilities of life, but by pleasure seekers. Then the fathers and mothers of these same children will be visiting the school, giving encouragement and comfort to both teacher and pupil, and all will be made better by the influence of beautiful surroundings. And soon we shall see a marked change in the deportment of those who were formerly rough, swaggering and vulgar; then profanity and its attendant evils will be at a discount and will no longer grate upon the ear, but in its stead we shall hear pleasant and refined conversation. "Pupils who spend a few happy moments with their teacher caring for plants and flowers, will scarcely regard that as their enemy or as a person whom it is their chief pleasure to annoy and disobey. In employing flowers in the home and in the school life we are simply availing ourselves of one of the better instincts of the child's to aid us in endeavoring to form his mind and character."

Dr. Warder says that "trees and plants should be treated as if they were living beings that you loved and desired to make or teach others to love them also. That flowers should be treated and presented to the pupils and public upon the same footing as trees. That in teaching they should all be employed as examples of nature's bounty and beauty, and as evidences of divine goodness and wisdom by using them and their several parts as illustrations, of forms, of fitness, of design, and generally as means of awakening the infantile and adolescent powers of observation."

There are three native vines that we should not fail to use in ornamenting any home or school grounds, and first is the *Ampelopsis quinquefolia* or Virginia Creeper, called American Ivy and Woodbine; it is a very rapid grower, its leaves turning to crimson in autumn, and perfectly hardy. This should be trained over or in front of the out buildings,

it will serve as a screen from observation, and will have a very pleasing effect. Next the *Clematis* or Virginia Bower, with clusters of small white flowers, and of rapid growth, very pretty, and universally admired. This should be grown and trained over arbors and trellises, as shown in the diagram; and third, the *Celustrus Scansden*, or Climbing Bitters Sweet, which has leaves of pea green flowers, small, followed by clusters of orange berries. These can be trained from tree to tree, on the border of, or anywhere different tastes may dictate; and finally, let everyone who is interested in a higher civilization, in better schools, and better homes, begin to-day to plan for action at the next school meeting, which in many parts of the state will be held next Monday evening. Go to work as politicians do, with some plan for a compaign, in beautifying our school grounds. As I said before, the ladies can help—I know they will all be on the right side; on the side of progress, improvement and refinement, and do not be discouraged if you fail to accomplish all you desire or wish, but keep on, remembering that "work wins."

DISCUSSION.

How is it down in Rock county, Mr. Kellogg?

Mr. Kellogg—There are some schools which have not a tree, not a shrub and hardly a spear of grass around them; you will find such all over the state. I offered our school board all the trees they would plant around the school grounds; we have half an acre. They set out the trees all round the lot; they dug the holes and set them; there is hardly a tree left. That was two years ago. They have not done a thing since.

We get enough from this little paper to set us to work in the right direction; I would suggest that if you have not any trees around your lots that you divide up the trees a little, that is give each family a tree to look after, the children will become more interested for it will be their tree, (I am speaking of the district schools now.) How do they

do on college Arbor Day? Certain classes procure a certain tree. If you want an ornamental tree there is nothing better than the oak leaf maple or the weeping birch. You can have either, a variety or alike. The trees not nearer than 30 to 35 feet apart, hard maple 25 or 30 feet would do, but do not get them too close: but by all means *plant* the trees.

Mr. Hoxie—I did hot hear all of Mr. Huntly's paper but I did hear enough to know that it has given us something to think about here. It is a subject of which I have thought a great deal, and I have regreted that Wisconsin has not before this set apart an arbor day; I have read the report that it has done so, but am sorry to have to contradict it. This Horticultural Society may do something toward getting legislation on this subject, requesting the Governor to appoint such a day in Wisconsin.

Arbor Day originated in Nebraska, only a few years ago, and now some fifteen or sixteen states have copied their action. This paper of Mr. Huntley's is in the right direction; we want the children of all our schools to observe Arbor Day by setting out trees. Perhaps some of you have seen the program got up in Michigan be the Forestry Association; each child represents a tree, and as its name is called, A., B. or C etc., for ash, birch and so on the child rises in in its place and tells the origin of the tree and what it is good for. I dare say that if we were to ask the children of Ripon or anywhere in Wisconsin the name of the trees growing in their own streets and what they were good for, there is not one child in fifty that could tell.

I. N. Kundle—A week or two ago in our college chapel, a gentleman, whose name I see upon your programme, came from Madison, to give us a lecture. He announced as his subject: "The Story of a Life." I had no idea at the commencement of his lectnre, what it was to be about; it turned out to be a botanical lecture, and was the life of the morning glory. Discarding all technical terms, he commenced with the life of the leaf; of the flower; and he saw it grow, we saw it grow. There was no getting away from it, and he held us there for an hour with the simple

delineation of the leaf of that flower. When he closed I was thinking in this direction; now here is a teacher who is a perfect enthusiast in his line; he has not given us from the commencement to the close a Latin word or technical phrase; he has simply talked to us as though we were children in a language we could understand, in thoughts we could follow, and I kept thinking why may it not be, that every public school teacher can talk upon botanical subjects to little children in just that way, just as this man has talked to us who are so much older, for I found those of the audience who were younger, were as much interested as the older ones. There was nothing done that evening but could be done in every school in this county, or in this city. Why, then, was it so full. Because the man was chuck full of it, and I apprehend that wherever you go you will find that upon any topic of this kind, or kindred topic, where there is success, some one has made a specialty of just that thing.

Superintendent Northrup, of Connecticut started the idea of the planting of trees, and he kept at it, from county to county, and from district to district, and then upon political men, until he procured action in the legislature. From that state he went to Rhode Island, and through other states until he had what was called Arbor Day in the eastern states, and it is coming to Wisconsin pretty soon. Why did it succeed? Because one man had made a specialty of that thing.

While superintending schools in this county I went from one of the homes where I had been entertained to the school room in the morning. Just as I was going out a little boy said, "Wait a few minutes, Superintendent, and I will go with you;" he had some flowers in his hands, and as he came to his mother she had a little button hole bouquet which she had prepared, and she put it on the lapel of his coat as she reached down and kissed him, and while she reached down he had a little moss rosebud picked out and he was pinning it on her dress; as soon as she performed her love and her duty together, he reached up to kiss her and off he went with the button hole bouquet to school. I

went with him to the school and I found upon the desk of the teacher a beautiful bouquet of flowers. I recegnized the lady as the one whom I had met at table in the morning; I looked, and in another part of the room I saw another bouquet on the desk of a little girl, and as I looked about the room I found that there were bouquets all about the room. Upon inquiry, I found that a large part of this was owing to a lady who lived not far from the school, but whose love for flowers had crept into the school. I was rejoiced when another lady was added to our school board, for I knew the inside of these homes and the beauty and love which bloomed there, through the flowers, upon our college grounds.

We have a man there who has been there for years, who makes a specialty of just that thing; it is his love and he thinks almost as much of the flowers, trees and hedges as of the faces of his children at home. See the beds of flowers which have sprung into beauty because of that man. Now instead of talking about what tree, and how it is to be planted, and how the grounds are to be laid out, we are to educate our children in this direction and the commencement of that education is to come from the homes; from the homes of the children. Wherever you find a school district where there is a beautiful building, beautiful grounds, you will find that the impetus has come from the homes in that locality. If that feeling is cultivated in the home it will come out in the school. I can speak freely because I do not know but that the gentleman mentioned before is not as much an enthusiast as Prof. Northrup, of Connecticut. There is one woman, I may speak freely for I do not see her face before me; the term closed yesterday with our class; the day before the examination of one hundred students in botany, almost two-thirds in our college, on account of the enthusiasm of that one woman, and for twenty or thirty years that same woman has been doing just that kind of work with that same love and spirit, and you can see the effect in this city, the most beautiful in the state of Wisconsin, I think, You will find the marks of it in almost every home, and therefore I say that when you attempt to

beautify the school grounds, look to the education of the teacher that she will have the spirit which will reach this love, through the children, through the homes, not only of the homes in your vicinity but of the state.

Our next topic will be

SHALL THE MAN OF MODERATE MEANS GO TO CALIFORNIA TO GROW FRUIT.

BY J. M. SMITH OF GREEN BAY.

Ladies and Gentlemen—The great bulk of the active business of the world, not only in fruit growing, but in nearly every other department of active life, is carried on by men of moderate means. If this be true, it will at once be asked, "why cannot the man of moderate means succeed in growing fruit in California as well as elsewhere? Did not the great mass of the present fruit growers of the state commence while in moderate circumstances? and have they not in many cases become wealthy? Truth demands that each of these questions be answered in the affirmative. If such is really the case, the question again returns to us, why can not the man of moderate means still succeed? In the few minutes of time that I shall occupy, I will try to answer these questions as best I can.

In the first place, the California of to-day is a very different state from what it was thirty, or even twenty years ago. A very large portion of the state is now owned and controlled by men who obtained immense tracts of land at a merely nominal price. In fact most of the land in the state was at that time considered nearly worthless for horticultural or agricultural purposes. It was known that grapes would grow in nearly all parts of the state, also that oranges and some other varieties of fruit would grow in some portions of the state, yet there was not even a home supply of fruit of any kind; consequently nearly all that was used had to be imported at a heavy cost, and prices ruled very high.

Such a state of things stimulated action, the result of which was to develop the almost marvelous fact that in some portions of the state, a man might if he chose, grow upon the same forty acres of land oranges, lemons, figs, olives, prunes, apricots, peaches, pears, plums, raisins, strawberries, and in fact nearly the entire list of semi-tropical fruits, and might gather and eat them in sight of almost perpetual snow. Our government had aided a company to build a railroad across the Rockies. Soon another came to them and then another and another, until four great through lines were competing for the privilege and profits of carrying their fruits to the eastern states, to compete with those grown in Southern Europe. Now came through the efforts of a set of men as thoroughly wideawake and energetic as ever trod the American continent, the most wonderful real estate boom ever witnessed between the Atlantic and Pacific oceans. Hundreds, in fact thousands of men who had hitherto been considered only in moderate circumstances, suddenly found themselves millionaires, every dollar of increase having come to them by the rise in the price of their real estate. Some others had really made handsome fortunes by growing fruit in those early days. Stimulated by the example of those who had been really successful, eastern men by hundreds and thousands poured into the state to go into fruit growing, some with means, and some without. Men already in the business enlarged the acreage of their fruit lands as rapidly as their means or their credit would allow. They had the advantage of owning land that had cost them but a trifle, whatever the present value might be, this fact being greatly in their favor.

Now we will suppose that at this time a young couple full of hope, energy and perseverence, are determined to try to make their fortune by growing fruit in the golden state; also that they have a few thousand dollars to help them to get started. They decide that they prefer to grow either oranges or raisins, or perhaps both. For the first named the southern part of the state is undoubtedly best, and perhaps equally good for the latter. The first thing is to obtain the proper location. If they go to Los Angeles

the prices of land about that city are absolutely prohibitory to any except those of large means. The people of Santa Ana, 30 miles distant, claim to have one of the best orange districts in the state. While there I rode out where a large land sale was going on, about three miles from the town. I enquired the price of some wild land lying near, and the lowest price named for any of the so-called fruit land, was $1,000 per acre. It had never been touched by any agricultural implement. You will agree with me that this is pretty high. We must look farther. We will go to Riverside, the very heart of the best orange district in the state. While riding through their finest orange district I saw the following placard upon a post by the roadside: "This ten acres for sale, price, $18,000." The fine old gentleman who was our escort, remarked that he was surprised that it should be offered so low. It had only a plain, cheap house upon it. Let us look again. A gentleman who had some fine oranges upon exhibition at the Riverside fair, but lived upon his orchard some eight or ten miles away, if I recollect right, told me that he purchased his place of 18 acres only a few months previous to that time, and had paid for it $22,000. Our young friends must try again. We will go to Fresno, the heart of the raisin district of the state. During a half day's drive through thousands of acres of the most beautiful vineyards that I had ever seen, and indeed more beautiful than I had ever dreamed of seeing, we stopped at one plantation containing one square mile, or 640 acres. This was largely devoted to wine-making, though we were told the soil was equally good for raisin grapes. We were repeatedly told that this section of land had been sold within the last few months for $1,000,000, or $1,562.50 per acre.

Our young friends must try once more, and this time we will go to one of the newly settled parts of San Bernardino county. I rode out one day with a friend, in an entirely new district, there being but two or three small houses in sight, and the nearest market town fifteen miles away, though a new depot near by was expected soon. The land seemed almost a pure sand, nearly white. No grass, and not a tree

or bush except the Greasewood and Sagebush. Not a drop of water to be seen within miles of the spot. The gentleman with me said this land could be bought for from $150 to $200 per acre. Uninviting as it is, this seems to be the most desirable spot for our young friends with their limited means, and they conclude to try forty acres of it, paying one-half down, and keeping the balance of their means to help them in getting fairly started. The land must first be cleared, which is not an easy job, as the Greasewood in particular has very large, deep-feeding roots, as compared with the portion above ground. Yet these roots need not be despised, as in the absence of other wood, they make excellent fuel. When cleared, the land must be carefully leveled so that water may be carried to every part, or it will be of very little value. Our young friends are doing well, if the land has not cost them over $200 an acre, when ready to set with trees. They wish to set out the best variety, viz.: the Naval Oranges. Two hundred dollars per acre was said to be the lowest price for which they could be obtained, and it was difficult to get good ones even at that price. This will entail an expense, if they are able to accomplish it of $16,000, besides their own personal expenses. Now come the weary years of watching and waiting. The trees must be carefully tended year after year, with almost ceaseless care. I asked an old resident of Riverside how many times they needed watering each year. He said generally about seven times, and that they must be thoroughly cultivated after each watering. In this manner pass five or six years before they can expect a crop sufficient to pay expenses. After this, if all is well, they may hope for a crop that will bring them some income, probided no misfortune overtakes them.

But suppose the scale bug makes its appearance. The fruit commissioner is very apt to make his appearance about the same time, and order the entire orchard cut down and burned at once. We were told that many thousands of trees had been so cut down and destroyed. The scale bug among the orange trees is about as much to be dreaded

as the small pox was formerly among men, and endangers the trees in the entire district.

Or suppose a sand storm sweeps through the valley, as one did last fall through the very valley in which we have supposed our young friends located, and destroyed the crop so completely that not a single box was marketed from the entire settlement. I examined many of the trees as carefully as I could, and was perfectly satisfied that they would bear no fruit this season. Still another question comes in here, viz.: how are our young friends to live during the years of waiting and watching. Interest, taxes and water rent must be paid, and the family must have at least an economical living during all these years of waiting. Shall the husband go out to work by the day at times when he can get away from caring for his own plantation? If so, he must at once come into competition with the Chinese, who are everywhere, and will work cheaply, and as a general rule, do the work fairly well. But brave and loving hearts give nerve and force to willing hands, and at last they see with pride and joy their beautiful trees loaded with fruit, a nice paying crop. How much will it be worth? While wife and I were riding through the magnificent orchards near Riverside, we passed a very fine orchard of forty acres, I think the finest that we saw anywhere in the state. The gentleman who accompanied us and knew the entire district, remarked that the crop from that forty acres of oranges had been sold for $10,000 gross. Wife and I turned instinctively to each other thinking of our own forty acres away in Wisconsin, buried at that time under several feet of snow, and the thermometer probably from twenty to thirty degrees below zero, yet last year with its terrible drouth and many other drawbacks it had yielded a gross return considerable larger than the amount he had named. But we said nothing, as he might have thought our statements unworthy of belief. The above was the highest yield that I heard of anywhere in the state, and probably one half of that amount would be much nearer the average than the sum he had named.

But should our young friends conclude, instead of oranges, to try raisin growing, the expense of getting started would be much less, and the time of waiting much shorter, before they can realize a reasonable return for their investment of money and labor; neither will the returns be as large when they do come. I had long conversations with men engaged in raisin growing. One of them, who seemed as truthful and reliable as any one I met while there, told me that four tons of raisin grapes per acre was a good crop, and that four tons of grapes would make one ton of raisins. Also that a first class article was worth about four cents per pound, or $80 per ton. He said his own were exceptionally nice and brought him four and a quarter cents per pound, though the average for good stock was not above four cents. I then asked him, how low can you sell raisins and yet make a comfortable living? He replied: We can sell them at three cents per pound and still live, and possibly save a little, but below three cents it would be a perfectly ruinous business. One thing more. Where shall our young friends get fertilizers when their trees and vines begin to fail; for fail they surely will without them. We saw a number of orchards that had not nearly reached their best that looked very yellow and poor, and on our enquiring the cause, we were told by an old Californian that they were suffering from the lack of fertilizers, and would become worthless if that want were not supplied.

No one who has not been there, can realize how destitute they are of grass, either for hay or pasture. The fact is, fertilizers must be imported at a heavy expense. It has often been claimed that water alone would supply all the needs of the soil. Such claims are simply nonsense. We might just as well claim that we can go on indefinitely taking away a part and still have the whole remaining. I have mentioned these two varieties of fruit because they are grown much more largely than any others in the state, and are perhaps about as profitable as any, taking the average.

While riding with one of the largest fruit growers of the state through his fruit lands, which consisted of thousands of acres of the different varieties, and on which he had every

facility for handling the fruit that money could buy. I asked a few questions. The railroad came to his very gates. He said he sold his fruit mostly in Chicago, either in a green state, or dried, canned and preserved. I asked him which he found most profitable, and he answered: "Well, to tell the truth, I have found neither very profitable as yet, but hope to do better in the future." This man had been in the state for nearly fifty years, and had a chance to know all the ins and outs of the trade, and was also a man of much more than ordinary ability, and had unlimited means to carry out his wishes. I met more than once, a gentleman who left Wisconsin for California, in 1845. He is perhaps as widely known as any man in the state, and is considered a man of great business ability. One day, while talking with him, I said: "I have a nice little property in Green Bay, that is taking nice care of wife and myself, and will continue to do so as long as we take care of it. Shall I sell it and come to California to live, or shall I advise my friends to do so." He has traveled through this state and knows something of its value. He looked at me a moment and then replied: "Mr. Smith, if you have a property at Green Bay that will take care of you, or if your friends have a comfortable living and a fair prospect of its continuance, stay where you are and advise your friends to do the same." Is it not plain to be seen that the chances are very largely against any one unless he has large means at his command? Indeed it seems to me that a man must be very ignorant of the real state of the case, or else nearly insane to attempt such an enterprise. I am well aware that the literature of the real estate agents, as well as some, or all of the railroad agents, will tell you a very different story.

But I have tried to give you the facts, or as nearly so as I could obtain them. I have no word to say against California, or its fruit growing interests, or its wideawake citizens. It is a wonderful state, and has a capacity for fruit growing that seems to be almost beyond belief. Its business interests are conducted by a set of men who seem to me, to be the equals of any that I ever met with anywhere. Their treatment of ourselves personally, and of our entire party

was simply magnificent. They need have no fears for the future of their state. At present their great failing is the extravagant prices asked for real estate, and the great expense attending and necessary in getting started are such, that it is, in my opinion, entirely unsafe for a man with only a few hundred, or at most two or three thousand dollars to make the attempt. The evil will doubtless cure itself in time, and probably in a few years, and then our young and energetic sons and daughters may embark, if not surely at least much more surely, in fruit growing in that state than it is possible to do at present.

P. S.—Since writing the above, I have had accounts from California which look as if the time is much nearer than we have supposed when fruit lands can be bought at prices at which a man with some means would stand a better chance of success than seemed possible when we were there.

Music—Duet, "The Chamois Hunter."

THE WONDERS OF PLANT LIFE.

BY MRS. VIE H. CAMPBELL, OF EVANSVILLE.

Life is wonderful, is mysterious! It matters not what form of life we attempt to analyze, from the lowest type, consisting of a single, simple cell, up to the crowning apex of the vast creation we are met with the same mysterious, wonderful, inexplicable, intangible something which we call life; a subtle essence pervading and imbuing all things, Vain are all attempts to catch and confine it for luisure investigation. No microscopical examination, however skillfully condutced, reveals its substance to our material vision. Like a phantom it adroitly eludes the most scientific observer and ever allures him on in the delusive hope of some new discovery, some mechanical device that may enable him to imprison just the smallest atom while he may make

the secret his own, yet, despite the puny attempts of man to fathom the mystery, the same occult force sweeps silently, majestically, wonderfully on, governed by unswerving, unchanging laws, producing and reproducing its varied and multitudinous forms, each true to its own limitations, ever striving to attain a higher degree of excellence. We are in the midst of subtle intelligences that environ us upon every side. Around us and very near us is the power which guides and governs all things. All about us the grandest laws are constantly being executed, effects are rapidly developing, resultant of causes we little comprehend. And all that we may learn in a busy, studious lifetime regarding the manifestations of the countless forms of life can only be in comparison with the whole as a tiny, glistening dewdrop upon a blade of grass is to the vast ocean. The grander the power the more difficult of comprehension.

Of the many forms of life, plant life is the most essential to the existence of man; with it he is enabled to supply all of his physical needs; without it the earth is transformed to a dreary, sandy, barren waste and existence soon ceases.

It is in the vegetable world that nature has tried her artistic hand with finest effect; she tones up a little here, softens there, shading and blending in perfect harmony. Whether it be the soft, velvety carpet she weaves for our feet, or the beautiful canopy she hangs o'erhead, the tendency is always to embellish and beautify. The leaves, suspended from their branches, balance themselves gracefully with every movement of the air, while stems, branches and flowers ornament the landscape and gratify the eye with their varied forms of beauty. She permits us to contemplate the wonderful results without enabling us to comprehend the strange mystery by which they are wrought. The roots, stems, leaves and flowers of plants each presents a grand field for study. Roots perform very important functions in the order of vegetable action; they are the anchors of the plant and we find them developing in the earth, the water and the air according to the nature of the plant which they support. Some roots seem to have no

other function than to fix the plant to the soil, seemingly contributing nothing to their support. In countries where many months elapse without rain, cactuses, covered with beautiful flowers, are maintained upon the burning rocks, with only the aid of a few, weak, slender roots which sink into the dried-up humus which has found its way into the narrow clefts of the rocks. In the Museum of Natural History, Paris, there has been for some years a magnificent Peruvian cactus, of an extraordinary height, which has been growing vigorously, throwing out enormous roots with great rapidity. Its roots are confined in a box only three feet square filled with earth which has never been renewed and never been watered. It would seem in this instance that the roots had little to do with the nourishment of the plant, while other examples of plants with wide-spreading, many fibrous roots tell clearly the source of nourishment. The difference in the structure and constitution of the root is widely diversified and should be well understood by those engaged in the cultivation of plants; for he who would successfully propagate plants must carefully study the nature of soils and choose for his experiments plants having roots adapted to them. The composition of soils varies singularly and in order that every portion of the earth's surface should be covered with vegetation, and that no part should be without it, roots must take varying shapes that they may accommodate themselves to these varieties in the composition of the soil. The manner in which roots succeed in overcoming obstacles is a subject of surprise to the observer. We find them dividing their filaments innumerably in loose, mellow soils, abandoning a sterile spot and seeking another more favorable to their growth with aparently almost vital instinct.

Nature has united all her powers to give to trees the strength necessary to resist the dangers and the causes of destruction which threaten them. The wide-spread and branching summits, the immense mass of foliage which they support and the great height to which they attain, expose them to the fury of the elements. Their trunks must be solid, yet to some extent yielding and elastic to with-

stand the violence of the wind. They are constructed with the particular aim of resistance, year after year accumulating successive layers of woody substance.

The season of the renaissance of the leaves exerts a wonderful influence upon man. It is then, if ever, that he receives new inspiration, and is impelled to greater activity; new hopes are born and the future outlook is more alluring. That is the season of the year when everything seems doubly alive — more intensified. The movement of the leaves, as they gracefully wave to every breath of wind, animates the landscape and seems to give it a living existence. Although they add so much of grace and beauty to our surroundings, it is but a minor part of their office. They purify the surrounding atmosphere, rendering it healthy and salubrious when it has become vitiated, thus uniting decorative elegance and beauty of form with utility. We little realize how much we are benefited by the purifying influence exerted by our trees and shrubs. Nature, delighting in variety, never produces two leaves, even upon the same plant, exactly alike.

While the roots with their innumerable fibrous tufts imbibe the nourishing fluids and convey them to the cells of plants, the stems and branches which support the plant, the leaves — organs at once of respiration and evaporation — all tend to the production of flowers, which live only for the purpose of producing the fruit. We find flowers so small that the aid of the microscope is necessary to detect their form, and others, as the Victoria Regia, attaining a circumference of more than three feet. In Sumatra and the Sunda islands a curious parasitical plant is found consisting of little more than a single flower nearly nine feet in circumference.

With the disappearance of the flower, plants lose much of their attractions, yet the succeeding fruit brings an added interest, for it is then that the real mission of the plant, perfecting the seed, is apparent. The means by which some plants are propagated and disseminated are very curious. The Banyan, the grand tree which adorns the landscape of India and, affords shelter for so many of her

people, rarely vegetates on the ground but usually in the crown of palms, where its seeds have been deposited by birds; the roots are sent down to the ground, twining around and finally killing the foster plant.

The mosses are humble plants, but have no insignificant part in the economy of nature or the beauty of the landscape. Their delicate forms and varied coloring lend a charm to objects which would otherwise be very unsightly. The species of Phascum often found growing in our gardens are so very minute that they scarcely attain the height of the one hundredth part of an inch. The various kinds of Spagnum growing in marshy places perform a very important part in the formation of turf which is largely used for fuel in some countries.

The Lichens, so quaint in form, are cellular plants of the simplest structure, living in air but never in water. Excessively slow of growth and propagation, their existence may endure for hundreds of years. They are found in all regions of the globe, from the tropics to the poles, having been found at the extreme northern limit which has been approached by man. One of the most curious forms of this family of Thallogens is *Lecanora Esculenta*, and is frequently found in the mountains of the arid deserts of Tartary. It seems to fall from the sky as a sort of miraculous manna and affords nourishment for man and beasts. It is in the form of small globules, varying in size from the head of a pin to a hazel nut. It spreads very rapidly, vegetating and increasing while being transported by the wind from one place to another and is often carried by the air great distances. This is supposed to be identical with the manna upon which the Isralites were fed while in the wilderness. Lichens and mosses are the last plants which disappear on the confines of organic life.

There is no order of plants so singular as the Orchids; a portion of them root in the soil and draw their support from the earth, while others attach themselves to trees or rocks, where they receive little or no nourishment through their roots. Some species are singularly beautiful in their foliage, others are unsurpassed for the brilliancy of their

flowers. Some bear flowers so grotesque in form that they have no comparison in the vegetable kingdom; but their resemblance must be sought in the animal world. A curious orchid recently discovered growing on trees, on the isthmus of Tehauntepec, Mexico, has a faculty of changing its color during the day. Another, peculiarity of this floral chameleon, is, that it only gives out perfume at noon-time. The colors of this strange flower are those of our national flag. In the morning it is white, at noon it changes to red, and at night it adopts a soft blue color.

Each country, each changing degree of temperature, has its peculiar plant life. It is from the extremes of climates thut we obtain our drugs, perfumes and poisons, while on the contrary the mildest herbs, the most wholesome vegetables and the most refreshing fruits are the heritage of the mildest climates. Vegetation is richer and more varied in America than in any other part of the globe. Of a people so especially favored we can but expect grand attainments.

"Fain would I trace
The potent mystery, which, like millas' hand
Thrills the mean clay into refulgence grand;
For, gazing down the misty aisles of space
And time, upon my sight-vast visions throng
Of the imperial destiny of man.
A race of peace-robed conquerors and kings,
Achieving evermore diviner things."

Convention adjourned until 9 o'clock A. M., June 29th, 1888.

MORNING SESSION, June 29.

BUSINESS MEETING.

On motion, J. V. Cotta, of Nursery, Ill., Jonathan Periam, editor *Prairie Farmer*, and W. B. Lloyd, representing *Farm, Field and Stockman*, were made honorary members for one year.

Resolutions offered by Mr. B. S. Hoxie:

Resolved, That a committee of three be appointed by the chair, whose duty it shall be to prepare a bill to introduce into our next legislature, authorizing the governor to set apart a day to be observed as Arbor Day.

Resolved, That a committee of three be appointed as a legislative committee to look after such business as may be necessary in our legislature to promote the interest of horticulture in our state.

The resolutions were adopted and the chair appointed H. C. Adams, B. S. Hoxie and Matt Anderson to act in conformatory to the above resolutions:

Resolved, That our annual meeting be held in connection with the State agricultural Society, at Madison, the first week in February, provided satisfactory arrangements can be made with the secretary of that society.

Resolution adopted.

TOP GRAFTING THE SIBERIAN AS A MEANS OF INCREASED HARDINESS.

BY J. C. PLUMB, MILTON.

The primary conditions of hardiness of a tree are: 1st, in the variety, and 2nd, in the manner of growth. The capacity of a tree to endure extreme cold is dependent on both these conditions, and however perfect may be one, if the other is seriously at fault the plant will fail to be hardy. To illustrate, the Duchess of Oldenburg and Transcendant crab are both hardy enough for all central Wisconsin, but when planted on the rich, moist soils bordering on the Fox, Wolf and other rivers of that region, they will generally fail soon after fruiting from winter killing or from summer blight. Yet these two varieties are a complete success in the dry drift ridges of all northern Wisconsin to Lake Superior.

So we ordinarily look to the variety of fruit for hardiness and also to manner of growth as a condition of success. But long experience has shown that there may come still increased hardiness from certain forms of propagation by which orchard growing in the northwest may be made more successful in the way of an increased list of the finer varieties as well as extending them further toward the north pole. This is in

TOP GRAFTING,

not a new process by any means, but one the merits of which are coming to the front as one of the means of extending our list as before mentioned.

For nearly ten years of my first nursery experience in this state the present plan of root grafting was not practiced. We know of no practical objection to this now prevailing mode of root grafting, for we consider it very advantageous to have a uniform root to each tree of a given variety, and by this mode we can be assured of a uniform root and stock or stems of the tree for the purpose of top grafting.

The want of this, is what, to a large extent, discontinued the practice of top grafting seedlings among nurseryman. Now we will turn root grafting into this new channel, producing the best possible stock for the future tree. To illustrate. S. Linderman, of Waterloo, Jefferson county, has a Perry Russet top worked on an old tree of Cherry Crab, eight years ago, which has borne good crops for several years; is healthy and promises yet a long life. Also 12 Ben Davis grafted three years ago on Transcendant, all in good condition; also several trees of the Snow or Fameuse, worked in the same way and all good. He had these same varieties root grafted in the same orchard, all of which are dead or dying; all on a clay (oak) soil.

We have in our grounds 12 trees of Transcendant crab top worked with Pewaukee ten years ago, which have borne more and larger fruit for the last six years than all others of this variety in our prairie soil. They have out grown the stocks bodily, and we have for several years

looked for them to be blown over when heavy with foliage and fruit, but as yet none of them have done so. Nearly every Ben Davis in my vicinity has "gone to the shades," from heavy bearing and cold. One is left to repeat this story of the value of the Siberian stock.

A Cherry Crab of large size was twelve years ago top worked by us with this variety. It commenced to bear the second year after grafting, has borne heavily nearly every year since, and it promises yet many years of fruitage.

E. Wilcox, of La Crosse, after a long experience in top working the various varieties of the Siberian family says that when the proper adaptations of scion to stock is secured the result is most satisfactory, giving longevity and fruitfulness to varieties that otherwise could not be grown in a given locality. A. J. Phillips, of West Salem, is having good success in growing the Wealthy top worked on the Virginia Crab. E. W. Daniels, of Auroraville, finds the Northwestern Greening to make an almost perfect union, top worked on a seedling Crab.

These cases can be duplicated in the experience of almost every neighborhood in the older portions of our state, and the lesson is that in

THE SIBERIAN STOCK

we have the foundation for permanent and fruitful trees, of varieties which are not hardy enough on their own roots. This fact is too well established to need argument in its support, but I will briefly give my philosophy of the fact.

I have said that hardiness was dependent on, first, variety, and second, on manner of growth.

The first gives *native quality*, and the second *acquired condition*. Nearly all our half hardy list of apples are fairly successful on the drift hills of southern and central Wisconsin, while the same varieties are a total failure in the alluvial valleys of the same region. The variety is the same in both cases, but the conditions of growth are widely different. The examples of success top working on the Siberians show the same principle in another way, success in both being dependent on the *complete maturity of the*

wood growth, the one from its relation to the soil, and the other in its relation to *the stock which feeds it.*

The common accepted theory of the increased hardiness, is that the hardy stock imparts its character to the graft above. That such is not the fact I think is sustained by the laws of growth, to the extent of accounting for the fact. My theory is that the increased hardiness which is shown by top grafting on the crab stock comes mainly from *premature maturity*, as the result of the imperfect union at the graft. To illustrate, girdle a branch early in June, and two results will follow: namely, early maturity and increased hardiness, and this result is the same in effect, accomplished by the imperfect union of the apple on the crab stock.

If this theory be true, it opens a wide field of experiment to ascertain the best co-union of variety to stock in our entire range of tree growth.

This may require quite a different nursery practice from that now in vogue, but if it will give the higher latitudes a larger range of good fruit we can well afford the changes necessary.

DISCUSSION.

A member — Would not this checking process that he mentions also weaken the vitality of the tree?

Mr. Plumb — You say weaken the vitality of the tree; by what rule do you measure the vitality of the tree?

A member — By the length of life.

Mr. Plumb — I have no doubt of that, but we can afford to sacrifice a few years of life if we can make that shorter one a good one. Now you say that because you cannot have an apple tree which lives as long as it did in the old homestead orchard, I can't raise apples. That is false, that is not the right principle to go on. After 10 or 15 years of good profitable bearing of the apple tree we have our money back ten times over. There were immense orchards right in this section of country which are all gone you will say;

you must not be discouraged but try again; if the old fail, try new trees and new methods.

Mr. Cotta of Illinois — The question of successful apple culture in the northwest is perhaps the most serious one in the entire problem of horticulture. We find — even among practical men — so many theories and differences of opinion on this subject, that we are forced to admit the fact: that the principles which underlie and govern a vigorous, healthful development and consequent long life and productiveness in our trees are but imperfectly understood.

Nor do we fully realize the difference there is between our climate and that of western Europe — where the parent stock of our so-called native assortment of apples originated. In fact, there is not a spot in all Europe that is subject to such extremes of heat and cold as we have here. However, we shall have to grow the European apple, since there is no other fruit in existence to take its place; and although we have thus far failed of success with the varieties and the treatment which succeeded fairly well east of the great lakes and south of latitude 40, we will — when we have learned to accommodate our assorment, our methods of propagation and after-treatment to our soils and climate produce good apples in abundance in all parts of the northwest; there is no doubt of that.

In answer to the question asked: whether this process of double-working would not weaken the vitality of the tree? I would say: If hardy and congenial stocks are used this process strengthens and increases the vitality of the tree; it can have no weakening effect whatever, unless the work is done in a bungling manner or stocks of too large a size are used.

What then is it that weakens the vitality of our trees, so as to cause premature decline and early death? It is chiefly the deadening effect of extreme low temperature. But this subject is of such magnitude, that, in the limited time at my command it would be impossible to fully explain particulars, still, I will try to speak of a few things as they have come under my observation.

In the spring of 1865 I planted my first apple orchard of

100 trees, and by subsequent plantings increased to ten acres in 1872 — all root grafted trees. The results have been variable, failures, however, predominating until the winters from 1882 to 1885 have left — with the exception of the Duchess — but few sound trees, most of them being dead and gone. In this respect northern Illinois offers no advantage over southern and central Wisconsin. Notwithstanding these discouragements I was not willing to believe that apple culture, under judicious and intelligent management, might not be made reasonably successful in the north; and closely watching the effects and results of different methods of propagation and gathering all the information I could obtain from practical fruit growers and horticultural reports, I became convinced, that by top-grafting such varieties as are liable to severe injury or winter-killing, upon perfectly hardy stocks, trees could be grown with their constitutional hardiness improved to such a degree as to resist the hurtful effects of our winters. To test this principle more thoroughly, I root-grafted in 1879 several thousand Siberians of different varieties, for the purpose of using them as stocks for top-working the common apple upon, and in the spring of 1882 I re-grafted these stocks in the stem about four feet above the ground — like this tree (here the speaker held up a tree). Nearly all of these double-worked trees made a fine growth the first season, but I found that some of the stems had been a little too large at the point of union and did not heal completely over during the first summer; and as a part of the stem-wood was left exposed to the weather over winter, a gradual dying back of the stem below the splice was the result. Here then was a difficulty to be avoided.

At the opening of spring in 1883, when we commenced digging trees in my nursery, I found to my dismay that about nine-tenths of my three and four year old root-grafted trees were unsalable, most of them being entirely killed. On the contrary, upon examining my top-worked trees, I found every one of them in prime condition, sound to the terminal bud; and excepting a slight discoloring in the wood of the young shoots — such as is incident to most of our trees after

every winter — no injury was noticeable. These top-worked trees were of the same varieties as were those which had perished as root-grafts. Again, in the spring of 1885, I had a duplicate experience of the same sort; most of my root-grafted trees of saleable size were again destroyed and had to be thrown on the brush pile — making a total loss of about 40,000 trees those two seasons, while not a single one of my top-worked trees had failed from that cause.

Two years ago in August I visited Mr. A. R. Whitney at Franklin Grove, who showed me several rows of top-worked Willow Twig trees, about fifty in number, then forty years old; they were all large, fine specimens and were loaded with handsome, good-sized fruit. He stated that those trees had borne regular and abundant crops of fruit ever since they came to bearing size; they were top-worked on stems of seedling stocks which had proved hardy. Two later plantings of root-grafted Willow Twig trees have perished; and still the old top-grafts are in prime condition, bearing plentifully.

That old top-grafted Ben Davis tree near Mr. Plumb's residence at Milton is another good witness to prove the correctness of this mode of propagation.

A member — Are any of your top-worked trees in bearing?

Mr. Cotta — One, the Lester's Beauty — a summer apple — planted in 1884, bore nearly half a bushel last season; several others planted the same year show their first fruit this season. Last year I commenced planting a new experimental orchard.

Mr. Smith — Have any of them been destroyed since you set them in your orchard?

Mr. Cotta — Not by winter-killing; but I have made some mistakes in mis-mating different varieties, and this is a point upon which I wish to caution you. An indiscriminate use of all kinds of Siberians as stocks without regard to their affinity for varieties of the common apple would result in numerous disappointments and failures.

Mr. Smith — Can you give a list of those which are safe?

Mr. Cotta — I don't know as I can from memory. We

have quite a large number of varieties on Siberian stocks in the nursery.

Mr. Huntley — Is the Transcendent a Siberian?

Mr. Cotta — Yes, sir. Several weeks ago there appeared in "Popular Gardening," an article from the pen of Mr. A. G. Tuttle, of Baraboo, in which the writer cites a trial made by top-working the Tetofsky upon Transcendent stocks, which experiment had proved unsuccessful — evidently owing to a want of affinity between the two sorts; and, drawing his conclusions from the failure of this single experiment, he condemns the entire race of Siberians as totally unfit as stocks for the Russian and common apple. Had friend Tuttle given this method of double-working as systematic and thorough trials as he has given his Russians, he would never have made such a sweeping assertion.

Mr. Hoxie — How do you agree with Mr. Plumb's idea in regard to a perfect mating; not having a perfect union but so that the top is a little larger.

Mr. Plumb — Allow me to explain that. I meant putting a Duchess upon a Duchess. I want a little dissimilarity. Mr. Cotta says he takes, for example, the Siberian, and puts one of the old varieties upon it which is mating, but there is a decided cross in the species.

Mr. Hoxie — You spoke about the top of the tree being a little larger, and I want to know if you would consider that a perfect union.

Mr. Plumb — Now, I don't know as I should call that a perfect union. Generally there would be some difference after two years growth.

Mr. Hoxie — Would not that difference increase?

Mr. Plumb — I do not know about that; it might enlarge one-half of an inch in ten years.

Mr. Hoxie — That enlargement you would not call a perfect union.

Mr. Plumb — No, sir, I do not think I would.

Mr. Cotta — I would regard that an imperfect union. I would not confine myself entirely to the Siberians, to the exclusion of other hardy sorts. I am convinced that there

are some Russians fully as valuable for body timber as any of the Siberians. The Duchess for instance makes a good stock for some varieties, and no doubt the Hibernal, Arabian, Charlamoff, Green Streaked and others would be equally valuable.

Mr. Huntley — I would like to ask one question. If I wish to plant 1,000 trees and plant them where they will grow, will I plant there seeds of the Siberian or will I have to work them in the root to Siberians and then double work them on top?

Mr. Cotta — Particular varieties intended for stocks shoud be grown by root-grafting on one-year-old seedlings roots, and when of sufficient size, generally at three years, from the root-graft, they should be top-worked with such varieties as are wanted for the orchard. The original types have been crossed and re-crossed for ages to such an extent, that no variety can be relied upon to reproduce itself pure from the seed. The distinctive features, however, which divide these two sections of the apple family are pretty well preserved, so that I would not want to accept Mr. Gideon's theory that the Wealthy apple is a straight product of crab seed; I think he stands pretty well isolated in his belief.

Mr. Plumb — I have failed to find an intelligent horticulturist who agrees with Mr. Gideon in his statement that the Wealthy grew from the seed of the Siberian. I have failed to find one.

Mr. Cotta — After experimenting with top working both in the branches and stem, I have adopted this style as the best. I want as much of the hardy stem as I can possibly get between the root and the branches; I want my trees hardy enough for any purpose.

Mr. Huntley — How old was that tree when you top worked it?

Mr. Cotta — I top worked it at two years from the root graft.

Mr. Huntley — How far from the root?

Mr. Cotta — Four feet from the ground.

Mr. Huntley — How much higher than that was it when two years old?

Mr. Cotta — It may have been six, eight or ten inches higher. Whip or splice grafting is my favorite method. The stock is Milton crab. I have used this same stock for some varieties with good success, and with some, I have failed.

Mr. Kellogg — Tell us the failure.

Mr. Cotta — I have grafted the Hagloe upon it and in two years from the time I grafted it, it had grown to double the size of the stock below. It made no good union, it was so worthless I had to throw it away.

The Zussoff and others will over-grow this stock to a greater or less extent. I have no means of judging what different varieties will do for one another, except by actual test. Now, if our nursery men could be induced to make these tests, I am satisfied that in a very few years we would know much better how to grow apples in this country. I am using the Milton, the Whitney No. 20 and the Duchess now for stocks, and I expect to use the Virginia and Orion after this year.

For the purpose of meeting Mr. Tuttle's unaccountable objection to the Siberians as stocks for top-working I have brought with me a small number of trees — mostly Russians, both root and top-worked, which I intended to use as object lessons, and I very much regret Mr. Tuttle's absence from this meeting. I should have been pleased to demonstrate to him the fact that even some of those Russians might be very much improved in hardiness and vigor by double-working upon the right kinds of stocks. This five year old root-grafted "Enormous," for instance, which I am holding up shows a very defective stem; it is only one of quite a number of others which I bought from a nursery in Sauk county, which are unsound in body, proving that root-grafted Russians are not always sound by any means. Now this tree (holding up another), is an "Enormous"— top-worked on Whitney; it is three years old from the root-graft, with a one-year old head. As you see, it is without blemish — sound, and in size equal to the other. Upon examination you will find all the varieties of top-grafts I brought here perfect in splice and sound in body.

A member — Show us the roots.

Mr. Cotta — I was not particular in taking up the roots as I would for the market. There is no trouble about the roots. Standing in the ground they are protected; the roots don't winter-kill in our orchard trees. It is the soundness ness of the stem which needs to be looked to. When we have a sound body or trunk — of a variety that always matures its wood thoroughly — we shall have our trees prepared to endure our hardest winters, and then we shall have profitable trees.

On the subject of pruning top-grafted trees, I would say: Keep the stem free from any and all sprouts. As a rule, a properly shaped head can not be grown till the second season from the setting of the graft. All forks should be taken off from one-year heads — leaving the best and straightest shoot as leader, which should be cut back to within ten to fifteen inches from its base. When treated in this manner the second year's growth will form a fine, evenly balanced head at just the proper height. Pruning should be done during March — after the severity of the winter is passed, and before the rising of the sap. Never prune when the wood is frozen.

WOMAN AS A BERRY-GROWER.

BY MRS. O. H. ROOT, RIPON.

The question to be considered here, is, Can a woman be a successful berry-grower? There are several points to be considered in making up the sum total that we call success, and a failure in any one of these would change the answer to our problem. First and foremost is the bread and butter question, for while others may not really feel the necessity of your living, one's own self must acknowledge no duty so important as that of continuing to live just as long as possible. Then, of course, the first point to discuss is, can a woman make a living raising berries? Some would say, she might if she could do all of the work herself. She might just barely come out even. Others would say, no

she cannot, for you see she would be obliged to hire a man to look after things and keep a team besides, which would be a great expense, and I do not believe there can be profit enough in raising berries to pay the extra expense. Just let us reason this point a moment. How many farmers have we in our community, whether he be a grain, stock or fruit farmer who does all the work himself? Not many. The majority of them do keep help and still find enough left after paying them to provide comfortably for quite a family. Or suppose a man does all the work himself, does he not consider his time worth as much per day as the laborer whom he can hire at a dollar or a dollar and a quarter per day. As to the team, the work that needs a team will pay for having it to do that work. It is the idle days, driving around and keeping his horse in front of a carriage instead of a cultivator that makes the team too expensive for the business. Let us consider, then, that berry-growing does really pay for the helps, both man and horse, whether the grower be a man or a woman. Then the question arises, has a woman the natural or required capacity for directing the movements of hired help to secure upon an average as good a result as her masculine neighbor? I can not see why she has not. Are out-door laborers any more difficult to manage than in-door help? Can not this same intellect which will hold three score merry children peacefully at study during the school year, manage the same number of pickers, who are depending directly upon her favor for employment? Are the various parts of this work more complicated in detail than the usual routine involved in housekeeping, including, as it does, the cooking, laundry work, sewing and house cleaning, the entertaining of company, and general management of a family, with often the added task of helping to earn the living? I think not. Let us enumerate the things to be done:

In raising berries the land must be properly prepared for the prospective crop. The plants must be properly set out at the right time, and in good condition. Then they must be cared for through the growing season. The crop must be gathered and marketed and the plantation put

into shape for the winter. It does not sound as though it would require a very great genius to master the business, whether that genius be a man or woman; but will it pay? We will run a berry-farm a few mintues, and see. Let us begin with the strawberry. I will give you the figures as they were given to me, by a woman who has gone quite extensively into the business of berry growing. It takes about six thousand plants to set an acre, and the usual price is about three dollars and fifty cents per thousand, or twenty-one dollars. The actual cost of setting an acre, and cultivating the same until the ripening of the berries the following year was sixty dollars. The average price of land here is one hundred and fifty dollars an acre, and the interest on that amount would be nine dollars, which must be paid back before any profit can accrue. The poorest yield which could be called a crop, that I have heard of, was one hundred and thirty-five bushels, or four thousand three hundred and twenty boxes, while the average crop is at least two hundred bushels, or six thousand four hundred boxes. The boxes cost one cent apiece. This includes making and material. At ten per cent. commission it will average about one cent a box throughout the season. For the delivery and express to Milwaukee, is another cent, and the usual price for picking is a cent, making in all four cents to market a box of berries. Now if you can get an average price of seven cents per box, you will make three cents a box, and on six thousand four hundred boxes, you will make one hundred and ninety-two dollars; subtracting from this the ninety dollars it costs to raise them, you have left to pay your taxes and live upon one hundred and two dollars from one acre. In addition to this, one might sell a number of plants. Of course we know of exceptional cases where these figures have been doubled, but at this time I propose to give every day facts. In this statement every hour of work has been paid for at the market price; no help been thrown in. Every day's work with a team, two dollars and fifty cents, and every day's cultivating with a single horse, two dollars. The raspberries and blackberries I think are fully as profitable, and raised with about the

same amount of expense, and perhaps with less labor than the strawberry. I consider this a far more profitable business for a woman than teaching, sewing or clerking. It may be attended, perhaps, with more wear and tear on clothing than any of the employments spoken of, but it certainly will not be attended with as great an amount of wear and tear upon the health and constitution. I know from actual experience that a woman, even in feeble health, can stand one-third more work out of doors in the open air than in the kitcken, broiling and stewing over the cook-stove. Outdoor labor will never hurt any woman if she uses judgment and reason and if careful not to overdo or go beyond her strength.

If a woman wishes to run a small berry plantation, and cannot afford to hire much help, there are a great many things she can do herself and not be disgraced either. She can set the plants just as well as a man can. She can hoe them through the summer and keep them free from weeds, and clip the tops to make them branch. She can make her own crates and boxes, pick the berries and prepare them for the market. This I know to be true from experience, which I consider the very best authority. How often do we see a woman left alone to look after a large farm. If she does not do the work herself, she is obliged to oversee it all, beside taking care of the milk and butter from several cows, doing all of her house-work and taking care of a family of children. I would like to have you show me the man who can run his farm, do the house-work and take care of the babies. I think he would be about as great a curiosity as was ever exhibited in this country. We do not any of us know what we can do until we make the trial. I heartily wish that every woman throughout the country, who has a small piece of land at her command, would take an interest in the work of horticulture, for I consider that there is no employment, whether profitable or not, which is so ennobling and elevating for woman as the cultivation of fruit and flowers, and it is a very candid opinion that any woman possessed of common

sense and a reasonable amount of energy, may become a successful berry-grower.

DISCUSSION.

Mr. Smith — I must say that Mrs. Root succeeds in raising berries a great deal cheaper than I can. I don't know but that I shall have to hire her.

Mr. Kellogg — I move that the writer, and her daughter who has so well rendered the paper, be made annual members for the ensuing year.

Seconded and carried by a unanimous vote of the society.

A member — There is only one side to that question; there is not a negative; the only question is now whether we have any points on growing the different varieties, failures or successes in this location or any location of the state by which we can benefit one another.

I find that the Wilson is failing here to produce satisfactory results, and that the only reason that they are holding to the Wilson in the face of this failure is the shipping quality of the fruit. There is no other variety which will stand the banging round as the Wilson. We did not hear yesterday from the growers of Ripon. There are quite a number of growers here and I want to call on them. Tell us whether you are succeeding or not.

Mr. Mason — I have been engaged somewhat in berry-growing for a number of years past, and have tried all varieties which have been presented and recommended. The Wilson so far is ahead in this vicinity and soil; they are looking a little bad this season, being struck by the rust. Up to two weeks ago they were very promising, but this intense heat, or from atmospheric cause, they have been struck by the rust. The Crescent will produce more fruit, but for shipping long distances the Wilson is the plant. For other varieties I have tried the James Vick, they are a wonderful handsome berry in bloom but perfect very few berries. I discarded them. We are now in hopes that we shall find the Jessie able to take the place of the Wilson;

we are very much in need of such a substitute. So far the Wilson is the best crop but it is going to be somewhat short because of this blight.

Mr, Smith — Have your beds been cultivated this season?

Mr. Mason — We have not touched the ground with a cultivator.

Mr. Smith — Any weeds in the bed now?

Mr. Mason — Yes, some weeds and some grass.

Mr. Smith — I would like to find out whether any of the beds that have been struck with the rust have been thoroughly cleaned during the season.

Mr. Mason — I have an old bed which is filled with grass and weeds and I think I get my best berries from those which are shaded by the grass and weeds.

A member — I would like to ask if Mr. Smith cultivates his raspberries in the spring, before fruiting, with a horse?

Mr. Smith — I do not cultivate with a horse; in fact I set my plants two feet apart each way. We work them with a hand hoe; I went over them last year three times with hand hoes; the third time the pickers followed the men with the hoes, immediately. Of course you cannot hoe the ground all over, but loosen the earth wherever it is possible. It serves as a mulch. Our botanical men claim now, that by loosening up the soil, it breaks the capillary attraction; the moisture is constantly working up through the soil and by breaking the soil for any distance, it prevents the moisture working off in the atmosphere. In your strawberry beds you can go down for a very short distance only, one-half or one-fourth of an inch. As soon as I commence working in that way I notice that no matter how dry the weather is by scratching away the loose earth, there is a dampness about the soil. We had no rain last summer from the time the frost worked out of the ground until quite late, as you remember, not enough to lay the dust until July. We went over our strawberries three times during all of that time and I found about one-half of an inch from the surface a moisture in the soil. I had 223 bushels to the acre, the previous year 250 bushels to the acre. As soon as the fruit is picked we turn it right under and set a new bed.

Mr. Barter — If we fail in apple growing let us turn from that to such fruit as we can grow successfully. I am only an amateur strawberry grower but I would like to add my testimony to the benefit of those attending this Society. I attempted to grow some berries,— set out Wilsons. I then attended a meeting of this Society at Rosendale; that was six years ago, several ladies went with me and we had a very enjoyable time. Among other things I went into a farmer's garden, strawberry bed, he was cultivating them like a hill of potatoes. I said if this man can raise strawberries why can't I. Our friend Kellogg, who is very enthusiastic when he says anything he believes, said: "Any land which will grow corn will grow strawberries." He recommended the Wilsons. I have not grown any of the Wilsons. I went home and the next spring had a bed of 100 Crescents and 100 Green's Prolifics. I think they were all Crescents though. They were immensely successful. That was six years ago; they are still growing, the same bed, because I was afraid to destroy them for fear I should fail to get as good. I cleaned the bed very carefully and they are better this year than ever before.

The Sharpless I think is illustrated pretty well in the books; they make great promise but this year the Sharpless is producing the best berry in this neighborhood. A year or two ago many of the Sharpless were killed with frosts but the Crescent was uninjured. I must say that I have been very highly pleased with my success in growing the Crescent strawberries. I am now trying the Manchester.

Mr. Kellogg — That is a pistillate and not worth a cent an acre alone. If you set the Crescents alone you get no fruit, but you spoke about having the Sharpless; did you have them at the same time?

Mr. Barker — No, but along that time.

Mr. Kellogg — I think you had something; never set the Crescent alone; get two rows of Captain Jack, the Charles Downing, or some other perfect blossom. Green's Prolific and the Crescents are both pistillate varieties; the Manchester is another; the Jessie is all right in the blossom, it is a good pollenizer; Sharpless is all right; Piper is perfect in

the blossom and a good pollenizer. There are certain kinds good for nothing else; there are some kinds perfect in the blossom, perfect in the fruit, and perfect in the bushel.

Mr. Huntley — Some men around Ripon are growing berries as a business; Mr. Smith grows the ground all over. Some grow strawberries in hills, but if farmers are going to succeed they should cultivate the ground with a cultivator, all the time; have it stand right at the end of the strawberry patch and when the runners begin to run go through the bed one way; when the run so that you cannot take every row go through every other row and you will have a track left to pick the berries; you will get more berries and will not have as much work as by adopting Mr. Smith's method or the last mentioned one. Of course if Mr. Smith grows one acre in that way on his sand, it will do, but, on our place we can't do it.

Mr. Smith — All strawberry blossoms are divided into three classes; those having stamens only, staminates, those having pistils only, pistillates; the stamenates never bear fruit, the pistillates only provided it has been pollenized. Then the other kind, the true name is hermaphrodite, a Greek word signifying both male and female; the Greek word I think should have been retained but we call it perfect flower (having both the stamens and pistils.) It will not only fertilize itself but others around it. The staminate strawberry is rarely found except among the wild plants and it is sometimes difficult to find them even there. The Wilson is perhaps the best specimen of the hermaphrodite blossom I have seen for its productiveness, owing to the fact that it is perfect in its flower.

HOW PLANTS FORAGE.

BY CHAS. R. BARNES, PROFESSOR OF BOTANY IN THE UNIVERSITY OF WISCONSIN.

(Illustrated with charts.)

The subject as announced upon the programme is too comprehensive. I propose to talk to you only about how *roots* forage. I shall therefore leave out of account all the ways in which leaves lay hold of their food from the atmos-

phere, and we shall devote our attention only to those parts which are underground. I shall say nothing of aquatic plants whose roots grow in water, nor of those aerial roots which some plants form in moist air.

Roots, growing in the soil, serve primarily as secure anchors for the plant; but it is not this work that we are especially to consider. How do they obtain food for the plant?

In order that you may understand clearly how plants do this work we must know what sort of machinery there is for them to use. I ask you to examine first the way in which the underground parts of the plant are put together. If we take a seed of the mustard plant or wheat and sow it on a piece of blotting paper and keep it in a warm, moist place, we shall find after a while that the root it has put forth is covered all over with a pile of fine hairs. A seedling mustard plant grown in the fashion I have indicated is shown in the diagram. (Fig. 1, B.)

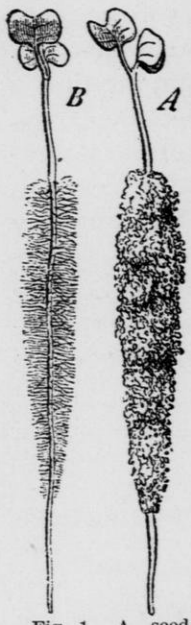

Fig. 1. A, seedling of Mustard grown in sand. B, the same grown in water.—SACHS.

I ask you to notice that the whole surface of the root, except the tip, is covered with this pile of hairs. Each one of these hairs is microscopic in size, no thicker than a spider's web, rarely exceeding in length one-fourth of an inch and averaging perhaps one-eighth of an inch. But there are millions of them and they cover the surface so thickly as to hide almost completely the root to which they are attached.

If, now, we take one of those minute hairs and properly examine it under a microscope, we shall find that each one has such a structure as is shown by this diagram.* Here are the cells upon the surface of the root. When I use the word *cell* you may think of an enclosed space very much like the cells of the honeycomb, for there is no opening in the walls to permit ingress or egress. The boundary of the cell is a very thin wall made up of a

*Not reproduced here.

substance whose name need not concern us. The hair is thus no more than a tubular extension of the cell just as the finger of the glove is the tubular extension of the hand of the glove.

The entire surface is lined with a comparatively thin layer of living substance, a substance which has rather an uncouth name, protoplasm, but I must use it. You will observe that it forms only a lining. The remaining space is filled with water almost as pure as ordinary spring water which contains nevertheless certain materials necessary as food for the plant. You will see thus that our tube is completely filled, a large portion of the interior being occupied by this water.

Fig. 2. Root-hair of wheat, from soil. —Sachs.

If you carefully compare a hair grown on moist paper with one grown in the soil you will find a marked difference in shape. It has become much distorted by being obliged to push its way through the soil. In this diagram (Fig. 2) you will see a hair from the root of the wheat plant distorted and twisted with particles of soil held so fast by it, that they can not be pulled off without breaking the delicate walls of the tube.

These hairs do not last very long; as a rule they are very transient, living only for a few days. At the end of that time they die and the aperture which they leave when broken off, is in some manner completely closed.

That root hairs are found only upon the younger roots is shown by comparing these two diagrams. Here is a seedling of wheat (Fig. 3) with the blade just pushing above the ground and here a few large roots starting downwards into the earth; the whole surface of the root is covered by hairs except the tips. As you see, none grow there, for the particles of soil do not adhere as they do at other points. If, however, the root of an older plant (Fig. 4) is examined you will see

that the older roots come away quite free from the soil and that it is only on the younger roots where these hairs grow that the soil particles cling.

Fig. 3. Seedling wheat. S, grain; *i*, the shoot; *w*, naked root-tips; *e*, parts of root covered with soil particles clinging to the root hairs.—SACHS.

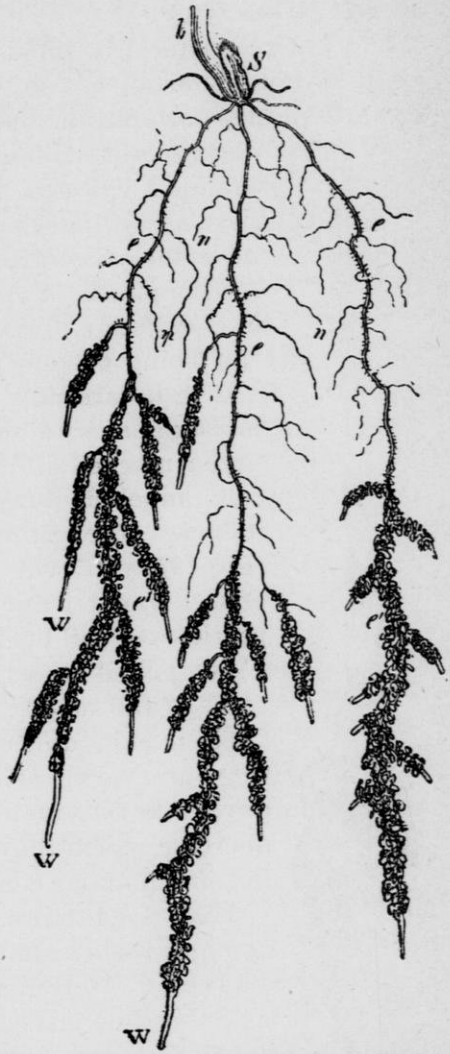

Fig. 4. Roots of older wheat plant. Explanatory letters as in Fig. 3. The main roots, *e*, have lost their root hairs, as also the branches, *n*.—SACHS.

Although these hairs are constantly dying off, there are, just as constantly, new hairs being produced, so that as the root grows it is constantly putting forth new hairs into the

previously unoccupied portions of the soil. It is therefore only the extremely slender roots of plants which are obtaining food. The roots which are most active are hardly thicker than sewing thread; yet each hair upon these has the structure which I have described.

Very few people recognize the extent to which the roots of plants branch. If you will knock off the pot from any of the plants in this hall you will find a great bunch of roots filling up the soil. Frequently in growing house-plants we have to put them into larger pots so that they will not become "pot bound," as we say. Although there is a very large mass of roots this mass is *vastly smaller* than when plants are grown in the free soil. The roots of a well grown tobacco plant or sun flower will occupy a cubic yard of earth. And this amount of earth will be *thoroughly* occupied by the rootlets, for you will remember that these little roots are steadily growing; new branches push out constantly and each rootlet is able to occupy a cylinder of soil say three-eighths of an inch in diameter. You will see that the plant has adapted itself well to reach all the particles of soil which are near to it. So numerous and close are the branching rootlets that there would hardly be a space as big as the end of my finger, which would not be reached sooner or later by the root hairs and every particle which is reached is laid under contribution for the food which the plant needs.

It is very difficult to estimate the actual length of the roots of a plant. Not because it is difficult to measure them but because it is extremely difficult to get them to measure. If you pull up a plant only the stronger roots come up with it. The only way in which you can get at all the roots of a plant is to *wash away* the surrounding soil, pick out the rootlets, and lay them end to end. I am quite sure you would be very much startled by the total length.

In 1873 or 1874, President Clark of the Massachusetts Agricultural College, took the trouble to measure all the rootlets of a very large gourd. The gourd he had previously planted in a most favorable place for growth and had arranged specially for getting at its roots. This gourd plant had not

only formed formed a mass of roots at the end of the stem but had also struck roots at various points where the prostrate stem had come in contact with the earth. He got together all the rootlets which he could find. Their combined length exceeded fifteen miles!

Roots are very much affected in the extent of their branching by the character of soil in which they grow. They are especially affected, however, by the fertility of the soil.

An experiment which easily proves that may be tried in this way. Take a tall lamp chimney, such as used on the Argand gas burner (a cylinder 2½ inches in diameter and six or eight inches in length); fill it with sand nearly to the middle and then for two or three inches in the middle mix with the sand a considerable quantity of any one of the ordinary fertilizers and fill up the rest with sand; plant seeds in that. After the plants have had an opportunity to grow, on knocking the dirt out of this glass cylinder one will easily see that in the narrow zone in which the fertilizer was placed the branches of the roots is very much more profuse. In general we may say that the more fertile the the soil the more dense is the branching of the roots; they do not run to such long distances but divide more frequently.

Some of you are in the habit perhaps of planting old bones, dead cats or dogs at the foot of your grape vines. If you will afterwards examine such a spot you will find that the bone has become enveloped by a net-work of rootlets and afterwards it will be penetrated by them. The rootlets are put where they can do the most good.

Roots also branch more profusely in a moist soil. As a consequence of this relation to moisture we find that in our shade and forest trees the branching of the roots takes place not near the main root but out where they can get the most good from the rain dripping from the surface of the leaves. The same relation may be seen when vines are planted near the house. If put too close they invariably fail before they can get a start. The reason is that the roots have not got out to wherever they can get a sufficient supply of water.

Next, I will call your attention to the relation between the root system and the rapidity with which water is evapo-

rated from the leaves. Every plant is constantly giving out a great amount of moisture in the form of vapor. If the evaporation is very rapid we find the plant with a great development of roots and *vice versa*. The greatest contrast is to be found between the aquatic and land plants. Aquatics have a very poorly developed root system while land plants have a very much more extensive one.

Having learned something about the under ground machinery, understanding the structure of the root hairs, where they are formed and how long they last, knowing the relation of the root system to various circumstances, let us now consider the surroundings under which the roots have to do their work.

I said that I should restrict myself to those plants which work in the *soil* leaving out of account those living in water.

I will not now take up your time by speaking of the various kinds of soil, for with them you are doubtless more familiar than I. I only ask you to remember of what soils are formed; that they are nothing more or less than particles of—sometimes solid, sometimes rotten—rock, very finely ground up; that therefore these roots are working in a medium which resembles more or less a pile of sand. No matter how fine the soil may be it nevertheless consists of distinct particles of rock, which are not in close contact with each other. They are on the contrary separated often by a very considerable space from each other. This separation is indicated in the diagram (Fig. 5). We find not only that these particles of soil are rather loosely arranged but that every one of them is surrounded by a layer of water.

This water adhering to the particles of soil does not fill up the cavities completely but, as a rule, leaves considerable spaces, which are filled with air and other gases. Of course a very heavy rain will, for a time, completely saturate the soil so as to allow almost no air to remain, and in a very poorly drained soil we have the same condition of affairs.

Not only does the soil contain water which comes to it from the rain; it also has the power of condensing water

which comes to it in the form of vapor. It can condense a very considerable quantity of such moisture so that on a dewy night, even if there be no rain, the soil may obtain a certain percentage of water. As much as five per cent. can thus be condensed by dry garden soil in forty-eight hours, if exposed to a moist atmosphere. The source of water in the soil, however, is chiefly rain.

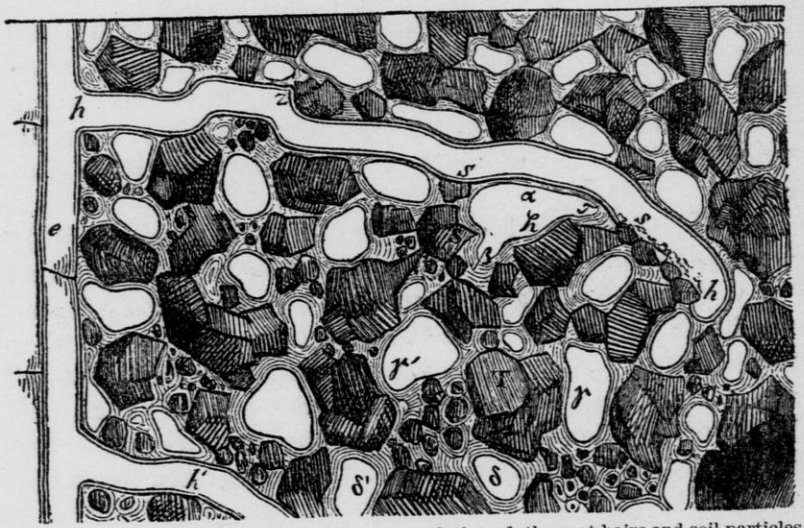

Fig. 5. Diagrammatic representation of the relation of the root-hairs and soil particles. *e*, shaft of root; *h*, *h*, *and h'*, root hairs. The unshaded parts in soil represent air; the lightly shaded parts around these, water; the angular fragments are soil particles.—SACHS.

I ask you to notice that, besides this property, soil particles have another; they can pick out and retain upon their surfaces materials which come to them in solution. Our ordinary rain water which sprays down through the atmosphere is constantly washing out of the air various materials and the materials which are carried down with the rain do not drain off with the water that runs through the soil but are laid hold of with a very decided hand and retained by these particles.

More than that; some materials are held there in chemical combination and so firmly that they cannot be gotten away by any amount of washing. Possibly some of you recollect the new method that is proposed for the disposal of the sewage of large cities; the pumping up of this sewage water and spreading it over large tracts of land. The water

which filters through the soil is pure and fit to be allowed to enter the streams because the organic matter is all held back by the soil particles. On these sewage tracts the most remarkable crops are said to be raised.

The air which is in properly drained soil is quite as necessary for the welfare of plants as anything else which I have mentioned. Every one who has tried to raise plants in pots knows how easy it is to rot the roots by over watering. One has to allow the soil in the pots to become quite dry-looking before watering. Saturating the soil drives out from it those bubbles of air, and that means death to the roots of most plants.

Three things are necessary, the soil particles themselves, the very dilute watery solutions which envelope the soil particles, and the air which lies in bubbles in the larger spaces. So much for the machinery and surroundings with which the roots do their work.

Let us now turn finally to the conditions under which the roots can take up the food for which they are seeking.

The first and perhaps the most essential condition for the obtaining of the food by plants is that there shall be available water present for this water is as much a part of the food of the plant as any thing else in the soil. When I use the term "available water" I mean the water which the plants can get hold of by means of these root hairs. A certain percentage varying very much with the quality of the soil can be extracted by the root hairs and no more. They can take water from the soil until it is so dry that it seems to the eye and to the fingers entirely dry. If I should spread out upon the surface of this platform a spadeful of garden soil and allow it to stay there until it is so dry that it would crumble in the hand, that would represent the condition of the soil when the plant is unable longer to obtain water from it. It is not yet really dry, but beyond this point its water is not "available water."

In the second place there must be available salts present for their food. These salts are of two kinds; those already dissolved in the films of water and those which are held against and in the particles of soil themselves. Those in

solution in the water can be taken in directly by the root hairs. The others *can be dissolved* by the root hairs, for their delicate membranes have the power of forming within themselves a very weak acid and this acid dissolves the salts. The intimate contact of the hairs with the particles of soil now finds explanation; for solution of certain of the food materials occurs only where the hair touches them. Furthermore this solution thus occurs under the most favorable possible condition for the immediate absorption of the food material.

In the third place there must be present oxygen. This is obtained from those air bubbles enclosed by the water. The roots breathe the air just as truly although not so rapidly as you breathe it, and it is quite as essential to them as to you.

Finally the temperature of the soil must be up to a given limit or no absorption of the watery solutions of food can take place.

DISCUSSION.

A member—Is it not a fact that as a rule the roots of trees occupy as much space as the branches and trunk of the tree and the leaves?

Prof. Barnes—Probably all of that or more. But I prefer to put it another way. The total surface below the ground is probably as great as the total surface above ground; including in the computation all the area of the root hairs and the rootlets themselves.

Mr. Smith—Do all root plants have the same properties of trying to get food? I mean are they all in search food and nothing else?

Prof. Barnes—Those that grow in the soil are, so far as I know; a great majority of our cultivated plants have become somewhat saprophytic, i. e., dependent for their living upon decaying animal or vegetable matter, because they have been furnished artificially with organic matter for so many generations. When an abundant supply of food is at hand they do not need to go very far after it.

Mr. Smith — I have noticed on my soil which is thoroughly drained that in digging down two feet below the surface the whole soil was filled with a set of very fine, tender, white roots, entirely different from those near the surface. One day in putting in some connections with a drain I noticed another fact. This was about three feet I think from the nearest plant. In putting in the joint of tile I found in the old joint a great lot of these very fine roots, not as large as a fine hair, no, not half as large. It struck me that they had reached that spot, not for food, but for water.

Prof. Barnes — I consider water a part of the food. All plants have to have the food, which the roots get, in solution.

Mr. Smith — I would not have been so likely to have found the roots in a wet season like this, would I?

Prof. Barnes — They would not have had to go so far for food; they grow toward these things. If they cannot get all they want right at hand they will become more widely spread in search of it.

Mr. Hoxie — Do plants obtain anything for food except by the roots?

Prof. Barnes — They obtain all their carbon which makes the bulk of their substance from the air, by means of the leaves.

Mr. Hoxie — In the southeastern part of the state where I live I have noticed that a good many of our balsam firs died three or four years ago. Was it for the want of plant food in the ground or from some other cause do you think?

Prof. Barnes — I think some other cause was at work. The diseases of trees have been but very little studied in this country and a great many of them are still very little known. I should say that it was very seldom indeed that a tree would die for want of food.

A member — I think that if Mr. Hoxie would examine the trees he would find a small insect which is constantly at work on the tree.

Mr. Plumb — I have noticed that if the spring is very wet that the plants start off vigorously; but if there comes a dry spell they will wilt very quickly and some of them

give up, don't seem to care whether school keeps or not. On the other hand if the spring is very dry, the roots are not very deep but when the drought comes, they can stand it without much apparent suffering. I have noticed also in digging down when the drought comes after a wet season, the roots although they are very near the surface seem stronger; is it not a fact that the roots of most of our plants will not live in a soil which is very wet?

Prof. Barnes — Such plants are in the condition of the merchant who starts out with a big spread, but has not a sufficient bank account to last him until he gets started. The plants spread out too great a leaf surface, and their banker, the root, can not honor the heavy drafts. So the concern becomes bankrupt and goes to ruin.

Mr. Plumb — I would like to make what I consider the answer to Mr. Hoxie's question, and then the Professor can give his opinion upon it. In the first place I would like to ask Mr. Hoxie if he has noticed any of these balsam firs dying where they are well cultivated ?

Mr. Hoxie — Those which I have noticed are in front lawns; they were twenty or thirty feet high; not in cultivated soil, and have not been for years.

Mr. Plumb — I have observed the same with other trees. I have insisted that those trees have starved to death. People generally suppose they "winter kill"; they starve to death for the want of water the previous year. Evergreens, I think, and plants of this class die from a cause of that kind. The real cause may date back for months and even a year before they begin to show these signs of death. Therefore, I say these trees have starved to death. In fact, many of the apple trees starve to death in this country, and I feel quite certain that the death of so many of the black oaks is due very largely to starvation.

Prof. Barnes — Would not that starvation be a very gradual process?

Mr. Plumb — Yes, sir.

Prof. Barnes — Then would not this be manifested by a gradual diminution of foliage and loss of vitality in general? But no such gradual decline is noted.

Mr. Plumb — Nearly all of our native evergreens have a remarkable vitality and they will retain their foliage, or rather in their foliage there is enough of the juice of the tree to keep that foliage alive. It will keep its foliage by means of the juices present, when the sources of supply have been already cut off, and the tree has really starved already.

SOME GLIMPSES OF CALIFORNIA AS IT APPEARED TO A WISCONSIN WOMAN.

BY MRS. J. M. SMITH, GREEN BAY.

Ladies and Gentlemen of the Wisconsin Horticultural Society: — The idea of writing a paper to be read before this society, which has been favored with the best thoughts of such ladies as Mrs. Lewis, Mrs. Kerr, Mrs. Huntley, and many more whom I might mention, is one that never occurred to me until a few days ago, when a letter was received from our worthy secretary, saying he had some warrant for putting my name on the programme for this meeting, and giving the title of the paper, "Fruit Growing in California, by a Wisconsin woman." Now, when you have such veteran horticulturists as Messrs. Peffer, Plumb, Kellogg, and many others to address you, it would seem quite too presuming for me to give any thing more than a few general impressions of California fruit growing, as it appeared to me in the short time of my stay there. To begin then with first impressions. When we reached Indio, the first town at which we stopped after entering the state at Yuma, we were called up early in the morning to go out to meet a delegation from the Riverside board of trade, who had been sent on to meet us with samples of the fruits of the land, of many varieties, which they freely distributed among us; a good generous basket to every one wearing the badge of the American Horticultural. We had come over a long stretch of desert land, and even then, the land as far as we could see, seemed to be still only desert. But the sight of such fruit in such quantity and variety, was an

assurance that the country was not all desert, though we still had much desert land to pass over. Here and there at some of the stopping points, we saw small enclosures planted with trees of different sorts, that showed vigorous and thrifty growth; but it was only where they were treated with plenty of water obtained from some artificial source. We were repeatedly told that all that was necessary on any of the land which seemed to all appearance so entirely worthless, to make it produce any thing that was desired, was simply an abundance of water; but where the water was to be obtained, was a problem not yet solved, and one that no poor man would be able to carry out, though the plan, if one is found, is very likely to originate in the brain of some hard-working farmer's son. One of the most noticeable things that we saw during our entire journey through these desert lands, was the heaps of tin cans piled up near every place where food was to be obtained along the line of the railroad; proving most conclusively the source from which the food supply came. Those who depended on getting their meals by the way, often found difficulty in getting a comfortable meal. As for ourselves, we started out with a large basket well filled with such things as we preferred, and had reason to congratulate ourselves on that fact many times during our journey.

After leaving Indio, we kept on our way until we reached Los Angelos, where we were met by an invitation from a branch railroad to take a free ride to Santa Ana, to see the orange groves, which was accepted. We reached Santa Ana early in the evening and remained over night. In the morning carriages were provided to take the entire party a few miles into the country. The roads on either side were lined with orange orchards, some of them in fine condition, but a good many sections looked poor and yellow, and the fruit which was hanging on the trees, very small and indifferent in appearance. We asked the gentleman who was driving the cause of this; and he said, many of these trees were owned by non-residents who wished to sell, and they had not had the orchards properly watered and cared for. Our driver brought up at a large stand where there was to

be that day a sale of land, to plant more orange trees. Some of the naked land was held at $1,000 per acre. When we asked what made the land so valuable, one man, after some hesitation, answered: Why, Why man, look at the climate. That about tells it, a good round price for the land, and the balance for the climate, but then a poor man could hardly live on "climate." I told some of the people that I should think more of the country if every one who owned land was not so anxious to sell.

We returned to Los Angelos in the afternoon, and were there met by an invitation from the citizens of Tulare to stop off there, and see what they could show us, which was also accepted by the society. We reached Tulare at night, and were met by a delegation of citizens, who conducted us first to a pleasant hall, where a short time was spent asking and answering questions. An old Calafornian was put on the stand, who seemed to know a good deal, and was quite willing to tell it, and everybody was privileged to ask questions. They claimed to have the very best county in the state for fruit growing, but then, every other place claimed some special advantages not found elsewhere. After recounting the many things that could be raised in perfection, one of our party asked if he could mention any thing that could not be raised there? and he responded at once, "We can't raise blizzards." Perhaps at that particular point they could not, but in the San Bunardino valley we saw the effects of a blizzard that had destroyed all the oranges, and entirely stripped the leaves from the trees; many shade trees were blown down, the tops of the Eucalyptus trees twisted off, and several houses unroofed. In one vineyard of from ten to twenty acres, over 1,000 trays of raisins, cured nearly ready for market, were lifted up and the contents scattered over the ground. The owner said he gathered up some of them, but they were so badly damaged that he used most of them to feed his horses and chickens.

The people of Tulare treated us to a magnificent supper, and when we left for our sleepers, they admonished us to be on hand at 7 o'clock sharp for breakfast; which was

also abundant, and served in good shape. After which we were loaded into carriages and driven for three hours over good roads, through a constant succession of vineyards and fruit orchards, with everywhere the most perfect cultivation, and showing magnificent growth. We saw peach trees that had been set four years, that were fully six inches in diameter at the base, and other trees showing an equally thrifty growth. The vineyards were mostly of the raisin grapes, all of which were kept in the most perfect condition. The gentleman who drove us was a native Californian, said he was born on a ranch, and had all his life been much engaged with cattle. He said he had also a large herd of cows in Arizona. I asked him about butter-making, especially in winter time. He said they did not expect to get much from their cattle during the winter, as they were obliged to bring all their grain feed over the mountains, making it too expensive to be profitable. I enquired what feed they raised for their cows, and he said a sort of wild oats and barley, which they cut green, cured and used as hay. I enquired about corn, and he said they could raise plenty of it, but he knew nothing about silos. I thought he needed educating up to his business, and recommended him to take Hoard's *Dairyman*. He took the address and said he would send for it at once. We took our train again at 11 o'clock for a couple of hours' ride, and then stopped off again at Fresno, to be again driven through the beautiful vineyards and orchards. The people everywhere seemed determined that we should see what they were doing, and how they were doing it, and seemed perfectly willing to give us all the information in their power. We surely could not blame them for being proud of their fruit lands. They seemed fully alive to the fact that no half way work would be of any account, and we saw no neglected spot anywhere.

Just here I would say, if any man goes to California thinking the country is so rich, and fruit will grow so readily, that he can slide along easily, and have a good time, he will make the grand mistake of his life, and be completely crowded out in the race. Leaving Fresno we passed

on again, not stopping until we reached San Francisco, nearly two weeks after leaving home; there we were glad to clean up and rest until Monday, when we spent part of the day going to the golden gate to view the sea lions, huge creatures who were crawling over the rocks and keeping up their continual hoarse barking. We were told that some of the largest of them would weigh a ton. It is an offense against the state to kill one of them, though they do sometimes fire off a pistol into the air, to see them scramble to get into the water. Now then, we were off for San Jose, where our first convention was to commence on Tuesday. On reaching the depot, we found the room full of citizens, or their committees, ready to assign us homes during the convention among the hospitable citizens. Instead of allowing us to go to the hotels, we were sent to be the guests in a beautiful home, occupied by a family well worthy of such a home.

The convention continued for three days with good attendance, but others will tell you of this. During our stay at San Jose, a grand show was open to us at Horticultural hall, which was filled to its utmost capacity with a great variety of fruits in different conditions, fresh, canned, dried, preserved, and the beautiful glace fruits, prepared by some new process. There was material enough for a week's careful study for any one. Then there were wines in variety for those interested in them. Some people say that California wines are just as wholesome as tea and coffee, and ought to be used by every one; but I heard some things while there, which would deter me from wishing for any connection with the wine business. Such, for instance, as a father and family of sons who went into wine-making and in the course of a few years all dropping into drunkards' graves, leaving the broken-hearted mother soon to follow them. The convention closed by a grand banquet given, and beautifully served, by the ladies of San Jose, to 700 people. It was by far the finest thing of the sort at which I was ever present. The day following, carriages were provided for our entire party to spend the day viewing the fruit region of Santa Clara valley. The son of our host

was our escort, with a fine team of his own; and he being a real estate agent, and knowing every rod of the forty miles over which we passed during the day, you may be sure we had an enjoyable day. Lunch had been provided at four different points, so that the different sections of the party would be sure to be provided for at some point, at midday. The same careful cultivation and order that we had seen elsewhere, everywhere prevailed in orchards and vineyards. We passed large fields of strawberries, though there were at the time neither blossoms or berries. We were told they sometimes had berries even at that time, but last winter was unusually cold. We stopped for lunch in the midst of a 200-acre olive orchard. Most of the fruit was still on the trees, reminding one more of the blue plum than anything else. In a building right there, they were crushing the fruit and pressing out the oil. We were told that at present prices for the oil, seven dollars per gallon, there was no fruit industry that paid better. It takes a longer time to get the olive trees into full bearing, than most if not any other fruit grown there, but when grown they are profitable, and I did not hear of any insect pest that molests them. We returned home late in the afternoon after a most delightful day. We cannot speak too highly of the hospitality of the people of San Jose, or in fact of any other place where we were privileged to go.

We returned on Monday to San Francisco, from which place we started out again on the following day, as the guests of the South Pacific Railroad, in care of Capt. J. Locke, than whom a better escort was never provided for a band of travelers. Again, we rode through continuous miles of fruit lands, stopping at many places, where we were everywhere received as honored guests, and given every facility for finding out the resources of the country through which we were passing. We saw fewer orange trees as we passed north, but still they claimed as far north as Redding, 700 miles north of Yuma, where we entered the state, to be still in the citron's belt. In the northern part of the state they claim to raise many kinds of good fruit, grain and vegetables, without irrigation. One point at

which we stopped was to me most delightful, Big Chico, sometimes called the City of Roses. We were particularly fortunate in riding in the carriage of Gen. Bidwell, with himself as driver. We could stop but a short time, and he spent it in driving us through and over a part of his own estate, consisting of fruit lands, forest and farm lands as far as we saw it. He gave us some information at every step. Passing a 200-acre cherry orchard, he pointed out one tree from which he last year marketed 1,750 pounds of cherries. He had a large variety of fruit on his ground; said he sold mostly in Chicago, either in a green or dry state. When asked which he found most profitable, he said, to tell the truth, I have not found either very profitable yet. Now just here is a point. If this man with unlimited means to handle his fruit, all in his own hands, cannot make it profitable, what about the small growers. He had also a herd of fine cows, the only fine looking ones I saw in the state, and showed us his farm and dairy-house, also a bee ranch, around which were hundreds of hives.

But what charmed me most, after the long succession of fruit farms and vineyards, was a genuine forest of grand, noble trees, a forest whose limits we could not see, though we soon learned that it had all been planted by his direction, and many of the trees by his own hands. He showed us one that he planted in '51 that was over four feet in diameter at its base. Judging by what we saw and heard of him, he was a grand man, and worthy of the success that had attended him. On our way back to San Francisco we passed through some of the immense wheat farms, where nothing else could be seen as far as the eye could reach, while too far apart for neighborliness were the homes of the ranchmen, usually surrounded by the Eucalyptus trees to protect them from the hard winds. We were told that the wheat lands were fast being turned into fruit lands. We returned to San Francisco on Thursday, and on Friday took another trip to see the big redwoods, but on account of a big washout could not get into the heart of the forest. The largest growing tree that we saw

only measured thirty-nine feet in circumference at its base, and they called that a small one. We saw some large stumps, among them one said to be that from which the section was taken that was shown at the centennial. The most of the tree was still lying near. I don't know the diameter of the stump, but sixty-five of our party stood on it at once and they said one hundred and fifty might have had room upon it. On our return to Santa Rosa where we took dinner, we visited a church fifty by one hundred feet that was said to have been built entirely, inside ceiling, shingles and all of one redwood tree. Of course *we* do not vouch for the truth of the statement. We returned to the city in the evening, to go out again on Saturday to San Rafael as the invited guests of Col. Colman, the man who is said to have planted 700,000 forest and shade trees. We all dined at his expense and had many miles of beautiful sight-seeing in carriages at somebody's expense. One would never have guessed from its appearance that the masses of growth by the sides of the roads over which we passed, were all planted to look so much like wild nature, by the patience of one man, but such we were told was the case, though Col. Colman himself said nothing of it.

But we must hasten away to Riversige to attend our second convention, set for Tuesday. We reached Riverside Monday evening, and on getting up pretty early next morning, went out to look about us. Oranges, oranges everywhere, the ground under the trees is covered with them, and the little boys are using them for balls. But then, these have been frosted and are good for nothing; yes, clear down at Riverside, we saw frost on the walk two mornings while we were there, yet there was no place where we could get a smell of fire, except the office of the hotel. Just here comes in a question important to the man of small means, of fuel. I was told that $30 per ton had been paid for coal at Riverside, and wood was held at $20 per cord, and in small quantities, still more. Of course, little fuel is needed in comparison with us, but in many places there seemed poor show for the little. During the week, there was a grand show of citrous fruits. There

were tons of oranges and lemons shown by the different growers, and very artistically arranged, but to me it did not have the attraction of the show at San Jose. After the convention closed, carriages were provided, and the members of the society were driven some sixteen miles through probably the finest orange growing district in the state. Some of the orchards were very fine, but even here, we saw some sections that looked poor and yellow, and on inquiring the cause, we were told by an old Californian, that they were suffering from want of fertilizers, and that if this want were not supplied, they would become worthless. Some of the Californians claim that if plenty of water be given, the land needs nothing more. In fact, that they can keep on taking part, and still have the whole left. Time will tell.

During our ride we saw one piece of ten acres with only a moderate house, advertised for sale for $18,000. The man who was driving said he was surprised at its being offered so low. I enquired how often it was necessary to water the orange trees. He replied that if the winter rainfall were only moderate, seven times would not be too much, and after each time the ground must all be gone over with the cultivator. We also passed by the ditches used for bringng the water for irrigation, and he remarked incidentally that they were obliged to line them with cement to prevent the wasting of the water, another heavy item of expense. In the course of our ride we saw only five houses, and I asked him where the men lived who cared for all these fruit lands? He answered that he supposed that they had small houses somewherein the background. We know there must be poor people in California as there are everywhere; but *we* did not have a chance to come in contact with them. We passed across quite a number of fruit farms, but saw nowhere a place where a poor man could keep a cow, a pig, or a few chickens, and if they could not have these things of their own raising, I could not see how they could buy such things as we think necessary to keep a family in comfort. With butter at fifty cents per pound, as I was repeatedly told was often the price, milk at ten cents per

quart, and eggs at from thirty-five to forty-five cents per dozen, and potatoes much higher than with us, a poor man on $1 per day, which we were told was the common price except in harvest time, would be likely to fare pretty slim.

Common laboring men must come in contact every where with Chinese labor, for the Chinamen are everywhere, and may be had at any time, just as many as are wanted, to do any kind of work, from cooking, washing, or any kind of housework, to the cultivation of the orange groves or strawberries, the vegetable gardens or the gathering of grapes, or in fact labor of any kind, and they can live just as well as they wish on a small part of what would keep an average American family comfortable, and even then save a large part of their earnings. If the poor man has a small piece of land and can raise his own fruit, he may perhaps have plenty of that, but if he wishes to buy oranges in their markets, he must pay as much as we in ours, and I presume the same is true of other fruits. We neither saw or heard, while there, of any cheap lands. The lowest price that I heard of was $150 per acre, and that was quite away from any town, and several miles from the nearest railroad depot, and the land not desirable at that. In the northern part of the state they claim to be able to grow some kinds of fruit, grain and vegetables without irrigation, but in nearly all the other fruit lands, water is an absolute necessity; and any man buying land, must with it, buy a water right, which means, not free water, but a right to his share from the general supply, according to the number of acres he owns, at the regular price; and this he must be ready to take and use, and give it all necessary attention, whenever his turn comes, whether by night or day. I heard one man say he had often gone about all night with his lantern, watching the ditches and water courses; while in our Wisconsin the good Father sends rain often while we sleep, and spreads it beautifully and evenly over our fields and gardens without any of our watching. If one has plenty of money, he may live well in California, or anywhere else in our broad and favored land; but *we* are considering the question in its relation to those who must

make their labor available, to keep if possible, those dependent on them in comfort. The lesson which it seems to me we should all learn from the California fruit growers is very plain, viz.: Thoroughness.

If our Wisconsin farmers would bring to their aid the system, painstaking and perseverance practiced by the Californians, and keep it up, there would soon be little to ask for in the comfortable homes of our state. If they would mix more brains with their farming, they would find more time for improvement and recreation for themselves and their families; time to raise plenty of small fruits for their own use, and to treat their friends, thereby lessening their doctor bills and making their home lives brighter and happier. With plenty of fresh fruit in its season, and a generous supply canned and stored away for the winter, those indigestible pies and cakes may be discarded, thereby lightening the labors of wives and daughters, and giving them time for rest and improvement in many ways; California is truly a wonderful land, and filled with a set of wideawake, enterprising, and large-hearted people. How could any one expect them to be otherwise? Are not the men that are foremost in the management of the affairs of the state, and the development of its resources generally, the enterprising sons from the best stock in the homes east of the mountains, men with brains to plan great things, and courage and patience to endure the hardships incident to life in a new country. They deserve the success that has attended their efforts, and we most heartily rejoice in their prosperity. All the good things cannot be heaped up in any one state. We fully enjoyed California, and learned many things which we could never have appreciated from reading of them. While riding through those beautiful fruit lands, one could hardly at the time, help saying: O, for a home in one of those beautiful places. But after getting all the information I could from the enthusiastic Californians, who seem to believe most sincerely in their state, and would have every one also believe in it, I have no hesitation, in my own case, in giving a decided preference to Wisconsin. If our winters are long, they are not without their pleasures, and

when spring really comes, the rapidity with which everything advances in growth might astonish even a Californian.

They claim to have strawberries nearly all the year round, yet we can grow more strawberries on a given area than they can, and market them all in one month, instead of keeping pickers all the year. The people whom we met there who had eaten strawberries with us in our home, told us that we did not lose much by not having them while there, as we should have thought them insipid compared with those grown in the north.

To sum up: If we cannot grow oranges in Wisconsin, we can grow enough other things to buy them; and more than that, we can buy them as cheaply in our own markets as they were willing to sell them to us in theirs, after our long journey to see and pick them in their native home. I am more than satisfied that the working class, to which we are all proud to belong, do not begin to enjoy the real comforts, or luxuries if you please, in California, that we do in our dear Wisconsin homes.

DISCUSSION.

Mr. Plumb—I do want to express my gratification at hearing that paper, and I want to say to any of my friends who could not hear the reading that you have missed a treat, and I want you to be sure to read it when it is published. I am glad that a Wisconsin woman has been to California and can tell the story as seen by a woman's eye; the domestic side of the story. We have heard so many of our friends who have visited California who have been feted and toasted; they come back, as we say, with the wool ever their eyes, until I fairly dread to hear a returned Californian begin to speak. I know just what he is going to say, but now I rejoice to say that this is the best paper I have heard on the subject.

I was speaking with a gentleman who had spent a winter in Califordia, a Minneapolis real estate man; he went with

the idea of investing his money there. I asked him: "Did you invest in California?" "Not much." "Why not?" "Everything was up in a balloon there; I was afraid I should drop with the rest of them." Occasionally we find one who will tell the exact truth. I think this society owes a vote of thanks to Mrs. Smith for this paper.

Mrs. Smith—The idea of writing a paper was something so entirely new to me, but I felt as I was the only Wisconsin woman who went to hear and see, that it was no more than a duty which I owed to the society; that is why I tried to do it.

President Merrill of Ripon College—*Mr. President, Ladies and Gentlemen:*—I came in to be instructed, not to instruct others, especially in regard to these topics of which I know so little. But there are a few things that I know something about and I have learned some of these things from farmers. I have come greatly in the last year or two particularly, to respect the intelligent acuteness of a large class of our best farmers; I was brought up on a farm myself, prepared for college on the farm and I know something about what farmers feel and think, and I know something about their infirmities as well as about their excellencies. I have been greatly interested in institutes held here and in the State Dairymen's Association. I want to say just a word in that line if you will have patience. When a farmer's boy comes to college I always notice if his father is with him, he will very frequently say, "I want my boy to take practical studies, I don't want him to study very far." I always ask him what he means by practical studies; arithmetic comes at the very head of the list, which as a matter of fact take four-fifths of the work done in arithmetic is absolutely the most impractical study that the boy takes in school. Almost anything you might pick out looking toward practicability would be of greater gain than the study of arithmetic. Of course all should know how to add, subtract, multiply and divide, and how to compute interest, and a few more things, but when one gets beyond that to higher mathematics, algebra, geometry, etc., it is

not the most practical study, it does not train minds to be more practical.

But I cannot go into that, I want to come to a particular statement which you can appreciate. I made up my mind after hearing the speeches and the stories told in the meeting of the State Dairymen's Association, that the dairymen, at least, were not as a whole, the most practical men in the state. I presume that the horticulturists of the state are not all the practical men; for to-day, at any rate, we will assume that they are. I heard more than four or five times this saying: "That over one-half of the entire dairy product of the state of Wisconsin is wasted through unintelligent manipulation." They began by saying we have poor cows, poor food, unintelligent manipulation, above all things unintelligent marketing, until the product did not bring on an average more than one-half of the profit which it should. Mind, the dairymen themselves said this; I should not have dared to say it; they said it over and over again. Well now, a set of men who will confess that they themselves are not practical men, are not, are they?

Now we are getting into little better times, we are getting more feed, better cattle, better kind of manipulation, more intelligent marketing, in short what Mrs. Smith said when she came to the moral of her paper, they are getting to be more thorough. As Mrs. Smith said, in Wisconsin in order to have better results we need to adopt the thoroughness of the California fruit growers. My little speech is going to come about that little word thoroughness, and yon will see there is a point in it, I think.

Thoroughness in what you say and what you do, the simplest thing. I have been trying for several years to find one young person who knows how to close a window blind and do it right. The number of persons who can do it is smaller than you think. Mr. Roberts, who wrote that little book which we use in our parliamentary assemblies, was head of the Engineer corps of Milwaukee and had a large number of persons under his care; he said he would give any boy in the city of Milwaukee employment who would buy

one pound of nails and do it correctly, absolutely correctly. Now, that looks very simple but I tell you the number of boys who can do it just right is a great deal smaller than you think. The foundation of all is thoroughness, in all matters of dealing; there are studies which are better to train the mind in all directions than arithmetic.

Now to illustrate my point, I know a good boy, a fine boy and a very promising boy who is a farmer boy, who is now securing for himself an education. Thought he didn't want to stay at college very long when he came, but now he thinks he wants to stay a long time. He is more than a usual observing young man. Well, he was sent on an errand the other day. He was required to buy so many pounds of sugar, some coffee, some crackers and to get them at a certain place and be back at a certain time. The grocery store was directly west of a certain building which he knew; he didn't know the name of the house where he was to go. He went to the grocery which was directly southwest instead of west. It was his business to know the points of the compass but he did not. He did not get the exact number of pounds of sugar, got cookies instead of crackers, in fact the only thing that was right he got back in time. How many of your own boys who are required to do just such simple things on the farm do them just exactly right? Why, there was a farmer over here in Rosendale the other day who had placed a long list of rules at the side of the barn door; when you use the shovel hang it up, shut the barn door when you go out, put such and such a horse in a certain stall, put certain cows in certain stalls, everything was noted.

Now, in this little talk, I want to see how practical we are in our farm work, in our homes, etc. I don't know how many women are here, but of course I assume that the women do their work in that way; they do not nick their crockery, broom always put handle down and all those things. I know how it was with my mother, and she never went to college. I think she is the best housekeeper I ever saw, she is now about eighty; I was down to the old house a few weeks ago and everything was orderly from top to

bottom. She never went to school much, for she had to walk three miles, but she is practical, entirely so. She knows more politics than a great many men, I don't know whether that is complimentary to her or not, but it is the truth. She is thoroughly acquainted with the scriptures and I think that is greatly to her credit; when the minister calls and makes a misquotation, she can correct it.

Without a college education, she can do the work of her house, tend to the little things with the utmost care, this began with the training of the mind. Now, I do want to see in our work, horticulture as well as anything else, a thoroughness which will be indicated by a practicableness throughout. There cannot be complete success without thoroughness, practical thoroughness. This must be shown in all little things. I know some persons say we need not be so careful about little things; the little things are precisely the ones. For this piece of education we need not go to college; I think the college is a good place for boys and girls to go to. We want educated farmers, and men who can think. We want educated men on the farms, thorough men. I have been surprised to find how many men know, and can so ably tell how strawberries are raised. There is a method and thoroughness in it.

This is all very simple but I believe it touches the bottom of it. How to put a shovel in its place, how to put a hoe away without any dirt on it, and all these little practical things. I believe that when men and boys are so trained we shall greatly enlarge our products.

Sometimes we hear the question asked why does one man get $1.25 and another $3.00 a day? just because one man can do the right thing and do it in the right way, and the other just the wrong thing; even to the smallest thing in the right way.

Mr. Huntley—I don't believe that all the boys who are born on the farm are born to stay there. I believe that all professions are necessary and I believe that they are to be born from good stock. To be well born is giving a boy a good start, and where is there a better place than the farm. I have some boys; I do not believe there was anything bad

about the training which they got at home; I believe that they had a pretty good training inside. One of these boys before he was two years old developed certain traits of character which indicated to his mother and to myself that he wasn't going to stay on the farm; when he was three or four years old he began to talk about it; a few years more and he began telling what he would probably do. Now, I think it would have been entirely wrong for me to have undertaken to have trained him on any other line. If that boy ever makes a success it must be on the same lines on which he has shown this interest for years. I don't want my boys to stay on the farm; I am sick of these harpers around telling that the boys don't stay on the farm; no, if we can make college presidents of them or students, professional men, let them go; all professions are necessary. I remember of reading that in Springfield, Massachusetts, they canvassed the town to find how many of the business men were raised on the farm; they found that ninety-five per cent. were. It is a pretty good place to raise them.

REPORTS OF COMMITTEES, AND RESOLUTIONS.

Mr. President and Members of the Wisconsin Horticultural Society:— Your committee on awards of premiums on Fruit and Vegetables would submit the following report:

We find sixteen entries of strawberries, and award as follows:

Wilson — N. Mason, 1st; P. S. Collins, 2nd.

Crescent — A. S. Crooker, 1st; Geo. J. Kellogg, 2nd.

Sharpless — Mrs. Merrett, 1st; Wm. Kurz, 2nd.

Jessie — C. H. Hamilton, 1st; Geo. J. Kellogg, 2nd.

Jewell — R. D. Mason, 1st; Geo. J. Kellogg, 2nd.

Bubach — C. H. Hamilton, 1st; Geo. J. Kellogg, 2nd.

Jersey Queen — J. L. Pasco (for James Vick), 1st; A. S. Crooker, 2nd.

Manchester — Geo. J. Kellogg, 1st; J. Hutchins, 2nd.

Best seedling varieties — F. W. Loudon, 1st, on seedling No. 10; Geo. J. Kellogg, 2nd, on seedling No. 99.

Best and largest display — Geo. J. Kellogg.

Best display of plants in bearing — J. M. Smith, 1st; L. Kellogg, 2nd.

Best exhibit in size — Geo. J. Kellogg, on Jessie.

Best exhibit in quantity — Geo. J. Kellogg.

Best exhibit for market — Geo. J. Kellogg.

Best and largest display in the department of strawberries — Geo. J. Kellogg.

Special premium recommended, for currents and gooseberries, L. G. Kellogg. Also a special premium on a plate of Lida strawberries.

In the vegetable department we find five entries, and we make our awards as follows:

Peas — Q. P. Clapp, 1st; J. M. Smith, 2nd.

Asparagus — J. M. Smith, 1st: Q. P. Clapp, 2nd.

Onions — J. M. Smith, 1st; Q. P. Clapp, 2nd.

Radishes — J. M. Smith, 1st; Q. P. Clapp, 2nd.

Six heads lettuce — Q. P. Clapp, 1st; J. M. Smith, 2nd.

Pie plant — J. M. Smith, 1st; Q. P. Clapp, 2nd.

Spinach — Q. P. Clapp.

Largest and best display in the department — Q. P. Clapp.

Best display of vegetables — Q. P. Clapp.

All of which is respectfully submitted.

MRS. VIE H. CAMPBELL,
D. H. HUNTLEY,
MRS. E. A. HOXIE,
Committee.

The committee on Plants and Flowers find and award premiums as follows:

PLANTS AND FLOWERS.

Collection house plants, largest and best display, not over forty kinds, J. Miles, 1st; Mrs. C. H. Root, 2d.

Display Cacti, J. Miles.

Collection Fuchsias, J. Miles, 1st; Mrs. Root, 2d.

Single specimens, Mrs. L. Hood, 1st; J. Miles, 2d.

Collection of Geraniums in bloom, Mrs. Root, 1st; J. Miles, 2d.

Collection foliage plants, J. Miles, 1st; Mrs. Root, 2d.

Collection Pelergoniums, J. Miles.

Display of Begonias, Mrs. Root.

Callas, Mrs. Q. P. Clapp, 1st; Mrs. A. S. Crooker, 2d.

Display of vines, Mrs. R. C. Goodrich.

Primula, J. Miles.

Heliotrope, J. Miles.

Wax plant, Mrs. Goodrich, 1st; Mrs. Rivers, 2d.

Collection of Roses in Pots, J. Miles, 1st and 2d.

Collection of Verbenas, J. Miles.

Collection of Ferns, J. Miles, 1st; Mrs. Root, 2d.
Varieties of Pansies in Pots, J. Miles.
Collection Sweet-scented Geraniums, Mrs. Root, 1st, J. Miles, 2d.
Specimen Begonias, Mrs. Tipple, 1st; J. Miles, 2d.
Best specimen of any variety, Mrs. Root.

CUT FLOWERS.

Show of Pansies, Mrs. H. Churchyard, 1st; Mrs. J. M. Bonnell, 2d.
Show of Roses, Mrs. Bonnell, 1st; Mrs. Pratt, 2d.
Show of Perennials, Mrs. Root.
Wild Flowers, Mrs. W. H. Hamley, 1st; Miss Alice Bonnell, 2d.
Basket cut flowers, Mrs. Root.
Floral design, Mrs. Root.
Plate boquet, Mrs. Hamley, 1st; Mrs. Crooker, 2d.
Show of Carnations, Mrs. Hamley.
Show of Dianthus, Mrs. Root.
Pyramid boquet (special), J. L. Pasco.

J. C. PLUMB,
J. V. COTTA,
W. B. LLOYD,
Committee.

The committee on Resolutions offered the following, which were adopted unanimously:

Resolved, That as representatives of the Wisconsin State Horticultural Society we hereby express our thanks to the citizens of Ripon and vicinity for the cordial reception we have met with at their hands at this, our summer meeting, and we are glad to once more meet in this beautiful city where the evidences of culture and prosperity everywhere abound. We also most heartily thank the singers and the Quartette Club for the beautiful songs and music which have been furnished during these sessions.

Resolved, further, That we witness with much pleasure the enterprise and success of your citizens in the culture of small fruits, especially that of blackberries, the fame of which, with that of C. H. Hamilton, has spread throughout the entire west.

Resolved, That we hereby return our thanks to the C., M. & St. P., the C. & N. W., and the Wisconsin Central railways for their reduction in fare to one-third rates, all of which is respectively submitted.

J. C. PLUMB,
B. S. HOXIE,
VIE H. CAMPBELL,
Committee.

No further business appearing President Smith declared the meeting adjourned *sine die*.

B. S. HOXIE,
Secretary.

TRANSACTIONS AND DISCUSSIONS

AT THE

ANNUAL MEETING

OF THE

Wisconsin State Horticultural Society,

Held in Madison, February 6, 1889.

MADISON, Wis., February 6th, 1889.

Meeting was called to order at 9:30 Wednesday morning, President J. M. Smith, of Green Bay, in the chair. Reports of officers being in order, Secretary B. S. Hoxie read his report as follows:

Mr. President and Members of the Wisconsin State Horticultural Society: — In accepting the office of secretary of this society one year ago, I did it with some knowledge of the objects and aims, and the importance of the work to be accomplished, as well as the obstacles in the way of better work and larger success, and my only solicitude has been how to promote the interests of horticulture in our state.

The successes of horticulture in our state now must be built very largely upon the failures of past years. For among the masses of our people who make agriculture their profession, horticulture has become a word of doubtful significance, for to their minds it suggests ruined hopes, and dead orchards; and our society meetings only afford an opportunity for some of its members to concoct new schemes to victimize the farmer. And a prominent institute worker said in my presence three years ago that the quickest way to put a wet blanket over an institute was to introduce the subject of horticulture.

But owing to the zeal and high character of the members of this society, holding steadily in view the fundamental principles for which our society exists, Wisconsin horticulture stands for more to-day than simply planting an apple tree; and our experiences are as beacon lights to others who will reap rewards from these lessons. From letters received and the numerous calls for our transactions from every state in the Union, as well as foreign countries, I am led to believe that they are sought for because of the valuable information they contain, and also from the fact that the working members of this society are men of high moral character and honorable integrity of purpose.

Early in the year I had a number of calls from new societies and library associations for complete sets of our volumes of transactions. Making inquiry, I found that our books had been scattered and lost, and only complete sets for about one-half of the years since the first organization of the society could be found, and for some of those years only a few numbers. I have supplied such calls so far as I possibly could, and will here request any member who has duplicate copies of any volume previous to the year 1876, or the year 1879–80 that they would send them to this office either by mail or express.

I also found that our volumes of exchanges, many of them, had been scattered in various places or lost. Some at the University, some in the agricultural rooms and some in obscure places in the packing room.

Together with Mr. Smith we called on acting Governor Ryland to see if some room could not be assigned for our use as a library room. He at once saw the propriety of our request but preferred to submit the matter to Gov. Rusk on his return from his visit to the south. At my earliest opportunity I called on Governor Rusk, and with the sanction of the superintendent of public property, room No. 27, which was once a part of the Historical Society's rooms, was set apart for our use, and what books and property belonging to our society that could be found were transferred to the shelves and cases, and your secretary furnished with duplicate keys. This room is large and commodious, with well

arranged cases where our books and exchanges can always be found. We should, so far as our funds will permit, every year add some standard works of horticulture, as well as to make some provision, whereby we may obtain specimens of birds and insects destructive, as well as those who are our friends. It may be possible that some friend of horticulture, or of this society, have specimens already prepared who will donate them, now that we have a place suitable for their safe keeping.

Some of our exchange volumes should be bound for better preservation in the library.

HORTICULTURAL LITERATURE.

"Popular Gardening." This publication, with that of the "American Garden," should be in the hands of every horticulturist in the state. But a more recent weekly journal, now in its second volume, is "Garden and Forest," national in its character, broad and elevating in the tone of its articles and a periodical that will make its mark in the proper development of the useful and beautiful in nature, both in this country and abroad.

Our last annual meeting, as you all know, was held at Platteville, in connection with a farmers' institute, and only a two days' meeting at that, which brought unsatisfactory results in hurried business meetings and short discussions. The summer meeting at Ripon was well attended, and a good display of fruits, vegetables and flowers.

It will be well for us at this meeting to decide, if possible, where we will hold our next summer meeting. Unfortunately in one respect, owing to the legislature being in session this winter, it was almost impossible to find a suitable place in the capitol for an exhibition room. Should we decide to hold our meeting here next winter, that defect will be remedied.

Your former secretary, in his last report, called attention to the fact that we needed more local societies, an increase of membership and more funds at our disposal in order to make our work more effectual in the state, and I am sure

no one will try to controvert that advice. There is less than a score of working societies in the state, and three of these are in Waupaca county. The one lately organized at the county seat of that county takes the name Waupaca Horticultural Society and Improvement Association. We need a similar association in every considerable village in our state as auxiliary to our society. But in order to bring this about communities must see and feel the necessity for such an organization.

The farmers' institutes have had a wonderful effect during the past three years in awakening an interest, all along the line, of improvement, on the farm and in the home. We need more organized effort to give shape to good resolutions.

I would advise, therefore, that we hold a circuit or series of meetings at such places as may be arranged for by local committees. Let there be an afternoon and evening session, addressed by some member of this society, assisted by local talent, and possibly by our professor of horticulture, when his duties at the station will permit. Two months in the year, one in the summer, and one in the winter season thus employed would accomplish much good, aud information imparted relating to tree planting and fruit growing better than by any other method. Orchards can be planted and made productive to the farmer most all over our state. Homes can be made brighter and happier with a better knowledge of the cultivation of plants, shrubs, fruits and trees than they now are.

Your secretary can see no just reason why the necessary expense incurred in sending out the reports of this society should not be met in the same way as that of the State Agricultural Society, and attention was called to this fact at our summer meeting. A committee on legislation was appointed, consisting of H. C. Adams, B. S. Hoxie and Matt Anderson. This same committee was also instructed to prepare a bill making provision by law for a Tree Planting or Arbor Day. I will say that bills have been drawn and will be placed in the hands of some proper person in the legislature who will attend to their introduction and pas-

sage. In view of the probable passage of such a bill I would suggest the propriety of appointing a committee whose duty it shall be to prepare a circular letter addressed to all schools and colleges in the state, giving the full text of the law, with such general information or suggestions as may be proper for the observance of the day, as well as an approved list of trees, plants and shrubs, best adapted for public streets or public grounds.

REPORTS FROM SOCIETIES.

It is very desirable, as also the duty of the secretary of local societies, that they make an annual report to this society. It is a very easy thing to do, immediately after the election, to send in such a report, and do not cut it off with the simple fact of the officers' names, for there should be some points of interest besides this which are worth mentioning; besides, these reports are necessary to entitle you to the prescribed number of volumes of transactions of this society.

COMMITTEE ON OBSERVATION.

The committee on observation have been quite prompt in their reports, some of them are very full and complete, and all should be, for these are the index hand which points to success or failure of different varieties, in the varied soil and climate of our state; three hundred miles north and south, and over two hundred east and west. It is not sufficient to say *about the same as last year*, for every year our transactions are going into new hands, and if reference is to be made let it be on some particular point. Blanks for this purpose were sent out early in the season with printed headings so that the members of the committee could find no excuse for points on which to found their report. Some of these reports are a fair compendium for the entire season, and all will have their place in our volume of transactions.

TREASURER'S REPORT.

Treasurer Hon. Matt Anderson read his report which, with the itemized account of the secretary, was referred to Finance committee.

Wisconsin State Horticultural Society in Account with M. ANDERSON, *Treasurer.*

DEBIT.

1888.			
Jan.	10.	Order Nos. 38 and 39	$30 50
Jan.	10.	Order No. 37	2 50
Jan.	10.	Order No. 40	75 00
Jan.	10.	Order No. 41	25 00
Jan.	11.	Order No. 42	5 00
Jan.	11.	Order No. 43	5 00
Jan.	11.	Order No. 44	25 00
Jan.	11.	Order No. 45	8 75
Feb.	2.	Order No. 46	11 85
Feb.	7.	Order No. 47	70 31
Feb.	10.	Order No. 48	45 00
Mar.	13.	Order No. 49	24 50
Mar.	12.	Order No. 50	5 33
May	8.	Order No. 51	75 00
May	8.	Order No. 52	40 00
June	29.	Order No. 53	10 00
June	29.	Order No. 54	6 60
June	29.	Order No. 55	3 92
June	29.	Order No. 56	2 00
June	29.	Order No. 57	19 00
June	29.	Order No. 59	2 00
June	29.	Order No. 60	2 00
June	29.	Order No. 61	1 00
June	29.	Order No. 62	2 00
June	29.	Order No. 63	2 00
June	29.	Order No. 64	2 00
June	29.	Order No. 65	2 00
June	29.	Order No. 66	1 00
June	29.	Order No. 67	2 00
June	29.	Order No. 68	1 00
June	29.	Order No. 69	6 00
June	29.	Order No. 70	2 00
June	29.	Order No. 71	13 00
June	29.	Order No. 72	4 28
June	29.	Order No. 73	3 00
June	29.	Order No. 74	17 00
June	29.	Order No. 75	50
June	29.	Order No. 76	15 00
June	29.	Order No. 77	50
June	29.	Order No. 78	1 00
June	29.	Order No. 79	1 00
June	29.	Order No. 80	2 00
June	29.	Order No. 81	3 50
June	29.	Order No. 82	1 00
June	29.	Order No. 83	2 00
June	29.	Order No. 84	1 00
June	29.	Order No. 85	2 00
June	29.	Order No. 86	1 00
June	29.	Order No. 87	4 56

June	29.	Order No. 88	$37 00	
June	29.	Order No. 89	6 80	
June	29.	Order No. 90	14 39	
June	29.	Order No. 91	37 25	
June	29.	Order No. 92	7 37	
June	29.	Order No. 93	6 00	
June	29.	Order No. 94	2 00	
July	20.	Order No. 95	17 22	
July	20.	Order No. 96	10 40	
Aug.	14.	Order No. 97	75 00	
Nov.	9.	Order No. 1	75 00	
Jan.	23.	Order No. 2	13 59	
Jan.	23.	Order No. 4	34 97	
Jan.	26.	Order No. 3	15 75	
			$940 44	
Jan.	31, 1889.	Balance in hands of Treasurer	801 94	
				$1,742 38

CREDIT.

1888.				
Jan.	8.	Ballance on settlement	$663 38	
May	8.	By membership dues from Hoxie	37 00	
June	29.	By am't from Horticultural Society at Ripon	41 00	
June	30.	By order of J. M. Smith on State Treasurer	500 00	
Dec.	26.	By cash from Daniel Williams, membership	1 00	
1889.				
Jan.	26.	By order of J. M. Smith on State Treasurer	500 00	
		Total		$1,742 38

M. ANDERSON,
Treasurer.

ELECTION OF OFFICERS.

The election of officers being next in order the president declared a recess of a few minutes to allow all who wished, to pay the annual membership fee of one dollar.

On calling to order Mr. Smith said that he did not wish to be considered a candidate for re-election to the office of president. I do not intend to abandon the society, but will continue to *be* interested in its welfare and will do all I can to aid it in every way possible. In order that you may discuss this matter freely I will ask my friend Mr. Harris to take the chair, Mr. Hatch and Mr. Toole will please act as tellers, and I will retire from the room.

Mr. Harris took the chair and requested the secretary to read the list of members of the society.

Informal ballot was then taken for president with results follows:

B. F. Adams received	12 votes.
Matt Anderson received	1 vote.
A. L. Hatch received	1 vote.
G. J. Kellogg received	1 vote.
J. M. Smith received	6 votes.
C. H. Hamilton received	4 votes.
B. F. Anderson received	1 vote.
Total number of votes	26

A formal ballot was then taken with results as follows:

B. F. Adams received	18 votes.
J. M. Smith received	5 votes.
C. H. Hamilton received	3 votes.
Matt Anderson received	1 vote.
Total number of votes	27

On motion, the election of Mr. Adams was made unanimous but he very respectfully declined to serve.

Before proceeding with another ballot for president, Mr. Thayer, of Sparta, nominated C. H. Hamilton, of Ripon, saying that according to the old saying, "old men for counsel and young men for war," and as long as the "old" men have refused to counsel us it might be well to have a young man for war.

Mr. A. L. Hatch was also nominated. The matter of electing a president was fully discussed by the different members, Mr. Hoxie remarking that he believed if the society was unanimous for J. M. Smith for that office, for the coming year, that he would not refuse to accept, as he would think it his duty to serve them still longer if it were their wish, even though he had no desire on his own account to continue longer in the office.

A ballot was then taken with the following results:

J. M. Smith	16
A. L. Hatch	4
C. H. Hamilton	5
Total number of votes	25

The secretary was instructed to cast a unanimous vote for J. M. Smith as president, vote cast and Mr. Smith declared elected.

Ballots were then cast for vice-president as follows:

B. F. Adams	11
C. H. Hamilton	5
A. L. Hatch	3
G. J. Kellogg	2
S. Hunt	1
A. C. Tuttle	1
B. S. Hoxie	1
Mr. Witt	1
Mr. Edwards	1
Matt. Anderson	1
Total number of votes	27

The vote for Mr. Adams, was, on motion, made unanimous, and he was declared vice-president for the ensuing year.

Mr. Smith was called to the room, and on taking the chair thanked the members for their appreciation of his work, and though the position was undesired, he would accept it on condition that each member should consider himself a minute man and go where duty required on the call of the president. And before the election of secretary, I wish to say a few words concerning the duties of that officer for the future, etc. He said we are hoping to inaugurate a new era in horticulture with the election of Prof. Goff to the chair of horticulture at the University station, and hope that there will be a great deal more work for the secretary to do. Prof. Goff is to be here in the spring and wishes to get acquainted in our state, and I ask every member of the society to help him in any and every way that they can; help him to carry out any measures in respect to his work. Under these circumstances I hope that there will be a great deal more for the secretary and for us all to do.

The informal ballot for secretary gave the following results:

B. S. Hoxie received	21 votes.
Wm. Fox received	1 vote.
A. C. Tuttle received	1 vote.
C. H. Hamilton received	1 vote.
A. J. Phillips	1 vote.
Total number of votes	26

It was moved and seconded that the ballot be declared formal and Mr. Hoxie unanimously elected secretary for the ensuing year. Motion carried.

Mr. Anderson desired the members to understand that he should not be a candidate for the office of treasurer; he had held the office for twelve years and often it was inconvenient for him to meet with the society, and it was desirable that the treasurer should be nearer to the secretary.

Mr. H. C. Adams moved that the secretary be instructed to cast the ballot for Mrs. Campbell for treasurer, and that she be declared unanimously elected treasurer for the ensuing year.

Secretary deposited the ballot and Mrs. Campbell was declared duly elected.

Mr. H. C. Adams moved that the secretary be instructed to cast the ballot for A. L. Hatch for the office of corresponding secretary. Motion seconded and vote deposited. Mr. Hatch was therefore declared elected corresponding secretary.

Next in order is the election of superintendent of summer fairs. It was moved and carried that it be left to the president and secretary to appoint a suitable man when it is decided where the summer meeting is to be held.

Moved by H. C. Adams that the executive board hold over for another year and that the executive board present fill out the list of committees and report to-morrow morning. Motion adopted.

DISCUSSION.

Mr. Plumb—There are two points in Mr. Hoxie's report that I wish to comment upon. One was that "horticulture

is a word of doubtful import among those who make agriculture a profession, suggestive of dead orchards and blighted hopes." Is there anything we can do to make this different? We have read the report of Prof. Henry, which has gone all over the state, saying that apple culture is a failure in Wisconsin. Some of our workers say they can grow small fruit but cannot grow apples. I believe this is not essentially true. We have failed in raising the apples that we expected to get years ago. I think that one of the main reasons for this is that we attempted to grow things that are not adapted to the country for the first twenty years, and the second twenty years had to unlearn and learn over. Go into the exhibition room down stairs and in view of the fruit displayed there; and in view of the fact that a man in Eau Claire county marketed one thousand bushels of apples, and in view of the experience of Mr. Hatch, in Richland county, and in view of the experience of others present here, why should we allow such a report to go out uncontradicted, that Wisconsin is not an apple state. If it should be said that Wisconsin is not a peach-growing state we would concede that right along, but what state can grow better Duchess of Oldenburg and that class of apples, Fameuse and that class of apples? I tell you Mr. President, this *is* a state where apples can be grown. The trouble is that we have attempted to do impossibilities. The line should be drawn between that which is adapted and that which is not adapted to the climate and location. The question of adaptation is one which this society should raise to the front and insist that we can grow apples by growing those adapted to our locality.

The business of this society is not to prompt individuals to go into apple raising for mere profit. It is to prompt people to grow apples for the mass of the people, and the special point that I wish to make is to show to the farmers of this state, the best practical way that they can have a supply of fruit. All reports that go out of this kind are injurious.

Mr. Smith of Minnesota — "Horticulture falls like a wet blanket on the farmers' institute" "Horticulture stands for

something more than the planting of apple-trees." You have the same difficulty here in Wisconsin that we have had in Minnesota in regard to the way our work is looked upon by the members of the farmers' institute. I think that the horticulturists, those who you might say are professional horticulturists, and those who take a great interest in horticulture, are in advance of the public sentiments of the community in which they live and consequently their statements in regard to the possibilities of horticulture are not favorably received by those of an opposite opinion. Members of a farmers' institute will be restless and inattentive at the discussion of any horticultural matter. The average farmer treats horticulture just as he treats his garden on the farm, as too small a matter to receive his consideration.

The farm is something more than a mere workshop and a place to make money. A farmer with a limited amount of work and but little money can furnish his family with all the fruit they need. There is no given track that a farmer can spend time and money so profitably and satisfactorily as in the planting of small fruit. Crab apples, Duchess of Oldenburg and Fameuse, are hardy all over the northwest. Nothing will bring so much comfort, happiness and satisfaction to the family as to grow their own fruit. The benefit derived from it will be ample compensation for the small outlay of time and money. One of the chief comforts and enjoyments of the family is in the products of the garden, the fruit raised would contribute largely to that comfort and enjoyment. That consideration should be placed before that of mere profit and dollars and cents.

Mr. Hoxie remarked that the statement made in his report was a quotation, but the members have not helped the matter very much with their discussion.

Mr. Witt — This discussion has already been carried far enough for the profit of all parties concerned, but I would like the privilege of writing out a paper on this subject to be published in the report in connection with this discussion. In it I will mention what I have done and what can be done in raising fruit in Wisconsin.

The privilege was granted.

Mr. Toole — I am glad the discussion has taken the direction it has. I am quite satisfied that it is important for the farmer to understand the principles underlying horticulture. In my own limited experience in horticultural work I find that many who are not active advocates of the benefits of horticulture when they become interested in it and raise fruit for their families, cease to count the profits in dollars and cents, but look more at the added pleasure of the family.

Mr. Kellogg — I hope the secretary will eliminate some of this objectionable matter before publication. I do not think that it ought to go out that we cannot grow apples.

[As a part of this discussion Mr. Witt's paper is here introduced. — SECRETARY.]

In this paper I wish to take a wider view of the subject than the discussion had brought out.

It has frequently been asserted, and I think generally believed, that our cold winters are the primary cause of the destruction of our apple trees. I am fully satisfied that it is our warm growing falls and not our winters that is the primary cause of the destruction of our orchards. I have the record of the weather as it has been kept in Cheshire county, New Hampshire, and in Sheboygan county, Wisconsin, for a number of years. But they have been kept in such a dissimilar manner that they are not susceptible of a published comparison. But they show that while the average range of winter cold is very near the same at the two points, the average Wisconsin fall is very much the warmer. Let us recall to our minds the fall of 1884. That fall was a remarkably warm growing fall. Our apple trees kept right on growing until late in October, putting out new wood, new buds and new leaves, until the sudden change to winter cold froze the wood and buds while the sap was still in active circulation; froze the leaves, where they hung until they were blown away one by one by the stormy blasts of winter. I did not see an orange tree in California that began to be in so tender and unfit a condition to go into winter as the apple trees in the fall of 1884, and many other falls that I have seen in Wisconsin.

The winter of 1884 and 1885 had to bear the blame of killing those trees, while a Massachusetts winter would have laid them out just as effectually. We all recollect with what a sense of self-gratification we received the news of the award of premiums to our Wisconsin fruit at the New Orleans exposition in the winter of 1885. But how many of us realized that while those September days were painting the cheeks of our fruit in rich carmine and golden-orange tints, they were also working death to a large part of our trees.

When friends on the streets during those September days remarked to me "What lovely weather we are having," I replied, "Yes, this is exactly the weather that will lay out your fruit trees." I would then receive a pitying, commiserating look while they would be mentally figuring how much it would cost to take me to Oshkosh.

It is not all the falls that are alike destructive to our fruit trees. Last fall, 1888, put our apple trees into an excellent condition for the winter. The wood and buds were matured, and the leaves off in September.

There are very few varieties of apple trees that are hardy in Wisconsin. When these are better known, and this question is better understood, there may be the dawning of a brighter day on the future prospects of Wisconsin horticulture.

The leading steps in this direction are to trim down to a very few varieties of what are known to be the hardiest. All others are rapidly disposing of themselves.

THE TREE PEDDLER.

The tree peddler, as we have known him in Wisconsin for the forty or more years past, in and of himself, would not be a dangerous animal, if we had known at first how to have taken him.

The average settler, on coming to Wisconsin, not knowing enough or being too heedless to plant a handful of apple seeds, and take care of them on common sense principles, thereby securing to himself an orchard in bearing condition within ten years, and without the outlay of a dollar of

money, waited the coming of the tree peddler. He was a biped too lazy to work and get an honest living, but with a tongue that would wiggle at both ends, rigged out with a canvassing book, having pictures of apples the size of pumpkins, of roses as big as sunflowers, and of strawberries as big as a piece of chalk. The first business of the peddler is to give the granger a very exalted opinion of himself. Then to get a very big order, to be filled by another fellow in the spring, with very small trees, and generally dead, or worse than dead. In this way most incredibly large amounts of money have been filched from the granger and carried from the state.

The last swindle of this kind is being perpetrated by a fellow that claims to come from Minnesota, selling Russian apples.

This Minnesota fellow has been through Sheboygan county, taking orders at fabulous prices, of men that we have considered on every other point, possessing common sense and fair intelligence.

GRAPES IN WISCONSIN.

BY WM. FOX, BARABOO, WIS.

Mr. President and Members of Wisconsin Horticultural Society:— I am here to give you a few ideas derived from my experience and observation in the culture of grapes in Wisconsin — that industry which is one of the oldest, and at the same time, least understood of all our agricultural pursuits.

First — A word to those who contemplate planting a new vineyard. The location of your vineyard is a matter of great importance, and should receive careful attention. Always select a rich, deep, sandy loam, if possible: or a clay soil, with sand mixed, if the former is not obtainable; or clay soil for Delawares. The ground should be hilly in character, as that facilitates drainage, and perfect drainage is indispensable in the culture of grapes. Grapes need but

very little moisture, and if your vineyard is necessarily located on a prairie, or level piece of ground, I would advise underground drainage. It is desirable that you have shelter from the north and northwest. As is generally known, the ground should slope to the south, as this surface presents the vines to the sun's rays in the best possible way. Though I have raised very beautiful clusters on a northern slope, they were from one to two weeks later than the same species on a southern slope, and much inferior in quality. A southern slope insures an earlier ripening and a sweeter grape. This is illustrated in my vineyard by my Concords, which are on a southern slope. The bottom row, being on a level at the foot of the incline, ripen about September 16th, and the top row near the top of the hill, generally ripen two weeks earlier, and bear a much richer fruit.

But of quite as much importance as the location of your vineyard, is the selection of vines from the various varieties. It is never safe to depend upon any variety unless you know it to have been tested, and know it to have stood the severe climate of our state. We find many varieties that promised abundance of fruit in the beginning of the season, nipped by the early frost before reaching maturity, thus causing a shortage of crop, or even a total failure. Our results with certain varieties would not be very encouraging should we meet with early frosts each year.

I will now briefly note the varieties, which, from a careful trial, I believe well worthy of your consideration before making your selection, and which in my experience have proved least liable to injury from early frosts. It should be borne in mind that the early grapes are late starters in the spring, a very requisite quality in this climate, at least to growers whose vineyards are not favorably situated. The following varieties have all proved late starters and early ripeners:

The Moore's Early; a vigorous grower; productive; cluster and berry, large; color, black; ripens about the middle or latter part of August.

Early Victor; a fine black grape; hardy and vigorous grower; ripens about three days later than Moore's Early.

Worden; a hardy vine; berry, large and black; ripens about September first.

Concord: "A grape for the million"; hardy in growth; prolific in bearing fruit; bunch, medium to large; berry, medium in size; color, black; ripens about September 7th.

Brighton; hardy grower; large and beautiful clusters; berry, medium in size; color, red; quality, very good; ripens September 1st. This grape excels all other varieties without exception, both in quality of fruit and in amount produced.

Delaware; a fine red grape of long established reputation and needs no comment; ripens in the early part of September.

For a list of white grapes I would have: The Lady, Martha, Eldorado and Niagara. Although fine and desirable grapes, it is necessary to bestow tender and experienced care upon them. Acquaintance with the culture of these vines is required, and therefore I would not recommend the purchase of a large number of them to begin with.

All the following grapes ripen from September 1st to the 15th, and are desirable not only for their qualities as fruit, but for their splendid winter keeping properties. By packing these grapes properly, they may be found in perfect condition until late in the winter:

Virgennes; hardy grower; quite productive; berry, large; color, light amber.

Rogers' Hybreds, Nos. 48 and 19, namely: The Wilder and Merrimac; hardy; productive, and of good quality; color of berry, black.

Rogers' Hybreds, Nos. 3, 9, 15 and 53, namely: The Massasiot, Lindley, Agawam and Salem; hardy; productive; good quality; color, brownish red.

From my own experience I feel confident in saying that the list of varieties here selected will prove satisfactory to you all. I can positively state that there are a number of varieties enumerated in the catalogues of our nurserymen that are totally unfit for the climate of Wisconsin. And I would here suggest buying your vines of reliable parties, who have given their exclusive attention to the culture of

grapes, and have acquired a thorough knowledge of the different varieties. In my practice I find No. 1 two year old and well rooted vines the best to set out, although I have had good success with layers of one year.

We now come to the planting and rearing of the vines. The vines are planted in the spring. Plow the ground deep and harrow it well. The ground should be worked up fine and loose, as the roots of the plants are tender and easily broken, and if broken the growth of the plant is retarded. Fall plowing is hard and lumpy, breaks the roots of the plants, and requires more labor in digging and filling up the holes in which the plants are sets than does spring plowing, and no advantage is gained by plowing in the fall. On the contrary, I have never had good success with fall plowing.

In planting, my favorite method is to set the vines in parallel rows nine feet apart, and the vines twelve feet apart, in the rows. If your vineyard is on a southern slope, the rows would run east and west, and the vines being 12 feet apart in the row, this allows six feet on each side of the hill to spread out and train the vines. It is not desirable to set the vines nearer together than 9 feet by 12 for several reasons: In unfavorable seasons, and in hot, sultry July weather, or rainy spells, the vines are apt to mildew, and if plenty of room is given them they are much less likely to become diseased, and will come out stronger in fruit and growth. A healthy vine is essential to healthy fruit; and even in favorable seasons the vines are much stronger and more vigorous if they have what room they need. My old vineyard is planted 6 feet by 8; my new vineyard, 9 by 12, both similarly situated on southern slopes. In rainy seasons both plant and fruit are often injured by mildew in the old vineyard, while the new vineyard is comparatively exempt from this destructive disease. I have seen whole crops destroyed by mildew in the space of one or two days, and sometimes the plant does not recover from the effects of one attack for two years. A further season for wide planting is that the fruit ripens much better — more evenly and earlier — being more ex-

posed to the sun, and the air having a chance to circulate through the vines more freely. Then, too, a vigorous vine will always ripen its fruit quicker and more perfectly than a weak vine; and I am convinced that the roots of the grape need all the space before mentioned in which to spread and obtain nourishment for the vines.

Care should be taken to set the vines in straight rows both ways, to admit of cultivation by horse power in both directions, and as close to the hill as possible, thus reducing the hand labor to a minimum.

Vines for planting are usually from six to nine inches long, there being one stem to each plant, with fine tender roots of various lengths. In planting I usually dig a trench from six to nine inches deep, according to the length of the stem, and varying in length according to the length of the roots. I dig the trench in the row, allowing the top bud to come just out of the ground, and lay the roots with care in the trench, parallel with the rows (that is, east or west), separating the roots carefully, but laying them uniformly in one direction. This is done to admit of cultivation close to the hill and the setting of the poles with safety to the roots. Fill in the trench with fine soft soil, and press down so that there will be no depression after settling. Upon filling in the trench, set a pole as close to the plant as possible. upon which to keep the new sprout tied up as fast as it grows; and plow, cultivate and hoe during the season. Each year keep the ground soft, clean and free of weeds.

This leads up to the subject of the treatment of the vines, or pruning, commonly considered the most difficult part of grape culture, yet in reality most simple and easy if one will but practice a system adapted to our climate and exercise judgment and common sense in the treatment of his vines. People come to me, and ask me to tell them how to prune their vines. I answer that I can not do it, because I have not seen the vine. But, though I can not tell just how to cut a vine that I have not seen, I will now attempt to make you acquainted with the leading principles that govern the proper development of the grape-vine, and hope

to give you a few ideas that will lead you in the right direction.

There are two systems of pruning most generally known; the one known as the spur system, and the other, as the renewal system. In the spur system, two main canes are left year after year, whose numerous branches are depended upon for the crop of fruit. All branches are cut back to within one eye of the main cane each fall, and from that eye the new growth and fruit is derived. The main canes increase in size from year to year, and sometimes are allowed to grow quite long. That system works well in warm climates, such as California and Missouri, where they do not have to lay down and cover the vines in winter, and is in general use in Europe. But in cold climates like ours, the thick unmanageable arms split open or break in laying them down for winter, and are thereby damaged or destroyed.

The renewal system is to cut away all old wood to the ground each fall, leaving nothing on hand but new canes, the sprouts of the previous spring, which the next year bear fruit and are in turn cut away after the first crop. Every spring from three to six of the sprouts are saved for fruit canes next year, and the balance are broken away. In an extra favorable season when all these sprouts get a vigorous strong growth, a very good crop is frequently secured, there being a greater quantity, but poorer quality, than under the spur system. But in an unfavorable season, when perhaps the vines have had a hard struggle for life, or in a season when the wood does not ripen well and is cut by frost, the next year's crop would be very light — often a total failure. The reason for this is that in an unfavorable season, or in the case of accident, or adverse conditions, as often happens, a grape vine can not develop in one year so as to bear fruit the coming season. When you depend for your entire crop upon canes of one year's growth, as is done in the renewal system, instead of fruit, you often have nothing but undeveloped vines that are not ready to bear fruit of any consequence the first year.

After thoroughly trying both of these systems in this state without satisfactory results, owing to the reasons just given, and after some eight years' experience in the system I now practice, I have given up both of the old systems as not adapted to our climate. And I find that with us a system between the two, retaining the advantages of both and avoiding their disadvantages, is not only practicable, but obtains the most frequent crops and best results both as to quantity and quality.

My system of pruning, briefly stated, is as follows: In the fall of the first year I prune the vine back to two buds. Thus far all systems are alike. Of course the buds should be well protected with an ample covering of straw and earth. From these buds, in the spring of the second year, two sprouts start. If the plant is very strong, sometimes a third sprout comes from the roots. These two sprouts I carefully foster, and allow to grow four or five feet in heigth, when they are "checked," as it is called, or pinched off, about which I will say a word further on, thus stopping the growth in heigth, and developing a thicker, stronger cane.

In the fall of this, the second year, I leave the nicest of the two canes, and the other I cut back to two buds. From these buds and the roots, new canes spring up, the best of which are spared; and early in the spring I set out two or three more poles in each hill, generally three, so as to have one pole for each cane. Mildew is often caused by tying several canes on one pole. This practice is as dangerous as close planting. We are now in the third year, and the old cane that was left sends out branches with clusters of fruit. The young sprouts are tied nicely to the poles, and allowed to grow from five to six feet in length, and then checked, two or three of the best only having been allowed to grow. In the fall, if the soil is in good condition, and the vine strong and vigorous, four canes can now be left. Judgment must be used, scrawny canes cut back, and good healthy wood saved. The young canes, growth of this year, may be left their full length after being checked, or if not so thrifty, they should be cut back as the case requires. The next year

they will send out branches and fruit clusters, and should be treated in the fall of the fourth year just as the bearing cane of this, the third year, is now treated.

My treatment of the old vine is as follows: Instead of cutting each branch back to one eye and leaving the old cane, as is done in the spur system, or cutting the cane entirely away as is done in the renewal system, I cut entirely away the delicate sickly branches, and on the strong vigorous branches with abundance of bright buds I leave from four to eight buds. On the indifferent or ordinary branch I leave two or three buds; my aim always being to get well rid of all unripe wood, weak and scrawny members, and leave only the healthy canes having fine, large, bright red wood, saving the best buds with a view of obtaining a more luxuriant growth of the cane, accompanied with more clusters of fruit in the year to follow.

In the fourth year I have my vineyard in good working condition, from three to four canes that will bear fruit. In the spring of that year, and each spring thereafter, I allow two of the best sprouts to grow from the ground. In June the sprouts will be sufficiently developed to show which should be saved, and the others are broken away. These two sprouts I allow to grow six feet in length, and if they are nice in the fall they may be allowed to stand, cutting away two of the old canes to make room for them, my object being to keep the best; thus keeping four or five bearing canes in good healthy condition at all times.

Any old cane that gets so thick and stiff that it cannot be easily managed, or is injured by accident, or becomes sickly or diseased, is cut away in the fall, and it is immediately replaced by one of the new sprouts that were allowed to come on the spring before. And thus I avoid the disadvantage of the spur system. The principal fault of the renewal system, loss of crop on account of undeveloped, weak or scrawny canes, is avoided, as I have always on hand plenty of old canes from which to get a crop. Thus from year to year my operations are practically the same.

My paper would not be complete, did I not insert a word of caution in regard to checking. Checking, as ordinarily

practiced, is perhaps, the cause of more loss and injury in grape culture than any other abuse to which the vine is ever subjected. And yet, a proper checking of the growth of the wood is absolutely essential in order to obtain the best results, and is of immense advantage. Checking consists in cutting or pinching away the ends of the cane and its branches, and the object in view should always be the improvement of the vine itself. It is often practiced merely to obtain an increased crop by cutting away all the vine after the last cluster of grapes, on all the branches; but in such case, the increase in the crop is always at the expense of the vine for one or two years to follow. Cutting in the summer makes the vine bleed, and though it increases the size of the clusters then on the vine, it saps away the life of the vine, and leaves a sickly, puny, diseased cane, that may not bear again for two years, and is very likely to loose one crop at least. The advantage of checking, when properly done, is to strengthen the wood and consequently improve the size of cluster, but it should never be done in such a way as to bleed the vine. In July and the early part of August, pinch off with thumb and finger, the tender ends of the vine. This will check the growth just as effectually as cutting further down, and will not bleed the vine. The energy otherwise lost in bleeding is thereby retained for the benefit of the clusters and a healthy, vigorous growth of vine obtained. This is indespensable to a crop in the year to follow; if you get no wood this year, you will get no crop next. Never allow a knife in the vineyard for checking.

Breaking away leaves for the purpose of ripening the fruit is another practice which not only meets with bad results to the vine, but wholly fails in its object. The leaf is necessary for the proper ripening of the fruit, and the development of a good color. They also act as a protection from the early frosts. It is very bad practice to break away leaves. The warmth they absorb goes into the vine and aids in ripening the fruit. I find more difficulty in a lack of leaves, than in too many.

The covering of the vines for winter is a matter which must not be slighted. This should be done from the 4th to the 12th of November, or as soon as we have had sufficient cold weather to make the varmints hunt their holes. The practice of laying down and covering the vines in October can not be safely followed in our state; at least, not in my locality. It might do very well, were it not for the numerous enemies of the vine; rats, mice, rabbits and worms take up their abode in the protecting cover of straw, and several of my friends have had whole vineyards destroyed by these pests in one season, owing to an early covering of the vines.

In laying down the vines, be very careful that they are not twisted, cracked or broken. Often, upon examination of a sickly or weak vine in the summer, I find that its condition is caused by a crack or twist received in laying down the vine in the fall. Each year I am more and more impressed with the necessity of care in laying down the vines, and this year I devoted two days more in laying down my vines than I had ever done before. Lay them down in the direction in which it is natural for them to go, cover well with straw, and place two or three spades full of earth on top of the straw and vine to hold it in place. In the spring, uncover the vines at as early a time as possible, and yet steer clear of the severe late frosts, as they not only destroy the buds but cause more or less injury to the vine. During the winter months, I employ my leisure time in preparing poles for the vineyard, as well seasoned poles last longer than green ones. You should always have poles in and around the vineyard, so that if poles are broken down by storms or otherwise, they may be replaced without delay and consequent injury to the vine or fruit.

In conclusion, I will say that I would like to see the culture of grapes more developed and extended in Wisconsin, that it may find a leading place with our fruit-loving people. It is certainly worthy of more general recognition, as it is one of the few luxuries that every farmer may, if he will, have at his very door, as well as being one of the most profitable and agreeable of all out-door occupations.

On motion, Mr. J. S. Judd was elected an honorary member, as also T. A. Cotta and J. V. Cotta, of the *Prairie Farmer* of Illinois, and Mr. Lloyd, of the *Farm, Field and Stockman.*

Mr. Kellogg moved that a meeting of the executive committee be called for four o'clock this afternoon to meet in Mr. H. C. Adams' office to consider the claim of Mr. Peffer. Motion seconded and carried.

On motion of Mr. H. C. Adams the meeting adjourned.

THURSDAY MORNING, February 7.

President Smith in the chair. The first topic taken from program was "Grapes in Wisconsin," by William Fox, Baraboo.

DISCUSSION.

Question — What time do you tie up in the spring?

Mr. Fox — Just as the plant is large enough. I favor near corn planting time so as to keep away the late frosts in the spring.

Question — Have you any one thing that you go by when you uncover your plants?

Mr. Fox — A man who owns a vineyard goes through it and examines them. In a late season it is well not to uncover too early. When the first buds get frosted you lose one-third of the crop for that year. A man that has but a few vines had better leave them as long as possible.

Question — Would you prefer plants from cuttings or layers?

Mr. Fox — I prefer cuttings although, layers are very good. In the first place a man can not ship layers as well as cuttings.

Question — Have you ever tried planting cuttings where you want the vine to remain.

Mr. Fox — I have. But I generally have so much work in the spring that I cannot do justice to it. I have all my vines to be seen to at the time my cuttings are to be set.

Question — What do you think of summer pruning?

Mr. Fox — I do not believe in summer pruning, it is one of the most dangerous we tackle: that and taking away leaves; but here, understand me; I believe in checking the vine in the latter part of July and August. We want the strength of the vine to perfect the fruit, and if you cut away the vine in the summer, I find you cut away your large bunches by taking the strength of the vine away. I believe in pinching back, but not too severe. When you prune too severe nature will find its way somewhere.

Question — What would you call a good grape or grapes.

Mr. Fox — Well, the Concord is *the* grape for the million, for men with no practice in grape growing, and men with practice, the Concord is the grape. The Brighton is good also. The crop would depend on just two points; the care you take of the vine, and the season. If you plant two feet apart you cannot expect as good fruit as if you planted four feet by four feet, but you would get better fruit if you planted nine feet by twelve. That is my favorite way of planting. It is a dangerous point to plant too near. When you plant the vines nine by twelve, in the most dangerous part of the year, in July, when we have those heavy rains, more air can get through and there is not so much danger of mildew. Aim not to tie the branches together. With that kind of vine, planted in this way, with a good, soil, I think they will bear you forty pounds of grapes. I have Brightons four years old with twenty bunches, and every bunch weighed at least one pound.

Question — How about the early Victor grape?

Mr. Fox — That vine is not quite so promising in its growth. I have five of them. Moore's Early in quality is fully as good, in my judgment, better. The 19th day of August I got twelve and one-half cents per pound for Moore's Early. I think Moore's Early is not to be snuffed at.

Mr. Smith, of Minnesota — The Worden is a prolific bearer but has great defects.

Mr. Plumb — Are you prepared to recommend Rogers' Hybrid for general culture throughout the state?

Mr. Edwards, of Fort Atkinson — Are not the Worden grapes more liable to hollow stock than the Rogers' Hybrid?

Mr. Fox — I will have to know how you treat them before I can answer that. These Rogers' Hybrid are a healthy, vigorous grower, and you have to give them elbow room to do well. When the proper time comes you can check them and they will do better. They will not do well in a clay soil. And if you try Rogers' Hybrid you will find you will do far better with the spur system. If you do not go too far with the spur system you will do well. They are one of the best grapes in the state.

Mr. Jeffry — The Salem is a good grape and a good bearer.

Mr. Kellogg — Do the Rogers Hybrid do well on clay soil?

Mr. Fox — They do better on a loose sandy loam with the sub-soil loose and fine.

Mr. Kellogg — Have you ever tried spring pruning?

Mr. Fox — My vineyard is so large I do not dare try it. It cannot be risked with an extra rich soil and cold nights. If we have extra cold nights it will make mischief. You do not want to bleed the vine.

Question — Does pruning the vine in the spring lessen its productiveness?

Mr. Fox — I say it will. If you should have an extra cold night it would affect the productiveness of the vine for that year. If we have warm nights it will not do harm.

Mr. Harris — The great difficulty with the Worden is that it drops its fruit in many locations. With me it has been successful but I would not recommend everybody to plant the Worden.

Mr. Fox — I made no allowance for different localities.

Question — How would you remedy its dropping its fruit?

Mr. Hatch — The mischief comes from cold nights. If you would take a couple of sheets or blankets and cover the vines it would prevent the fruit from falling.

Mr. Fox — That would be too much trouble and expense where there were a number of vines. It is not safe to plant exclusively. I would not recommend it for exclusive plant-

ing anyway. The Muscadine is one of the best and earliest grapes.

Mr. Kellogg — I think we ought to complete the grape list before Mr. Fox retires. The Early Victor is better than the Concord. It ripens a week and one-half ahead of the Concord and ahead of the Worden, but it is inclined to overbear. I would like to add the Early Victor to our list of recommended grapes.

Mr. Plumb — We have been growing them for years and two of the best vineyards in the city have a number of them and raise them successfully, Dr. Joseph Hobbins and Mr. Otto Ott. Rogers' Hybrid does well as a rule here and throughout the state.

Mr. Fox — Last night Mr. Kellogg asked me to recommend for general culture. For general culture you can take the Concord, Moore's Early. You might put in the Early Victor and the Worden, Delaware and Brighton and drop it right there. I do not recommend a grape I have no knowledge of.

Mr. Fox — I will not recommend a grape unless I am prepared and know all about it. I have about seventy-five varieties of early grapes. The Doyan is a very early grape but I cannot recommend it yet. I prefer to watch them well for four or five years before recommending them to anyone.

Mr. Jeffry — I am decidedly in favor of the Janesville. In Milwaukee we take the Janesville into the market and get our money for it before the Concord, the Moore's Early and the others think of ripening. I took one hundred dollars worth of Janesville in and sold them all and they kept saying "Bring us more." Are the Milwaukee folks so destitute of taste that they don't know anything about grapes? I think not and I think that the Janesville ought to stay on the list. It is hardy and if you let it ripen it is just about as good as the Concord. We can sell any amount of the Janesville in Milwaukee and in Detroit. It is an easy grape to grow and is good for the poor man and for the rich man. Vergennes is a better grape, but you can't get one-half as many as from the Janesville.

Mr. Harris — I move to strike the Janesville out and substitute the Moore's Early and the Early Victor.

Mr. Smith, of Minnesota — I find in various places in Minnesota that those who have tried all the difierent varieties have the best success with the Janesville. I agree with Mr. Jeffrys, that the Janesville will bear fruit with less care and attention than the other varieties. We have to educate our tastes. You take a man from one of the neighboring states; from Minnesota or Wisconsin and take him south and set him down to corn pone and bacon and see how he will like it, then again take a man from the south and set him down to our tables and he will ere long sigh for his corn pone and bacon.

At the fair I had a fruit stand and had various kinds of fruit for sale. We bought 800 pounds of Janesville, 400 pounds of Moore's Early, 800 of Brighton and 400 of Worden. The first lot I sold was the Janesville grapes. I believe there are a great many people who like the taste of the Janesville grapes and do not buy them just because they know no better. A great many who fail in raising grapes will succeed if they plant the Janesville.

The Moore's Early grows well. You may plant the two and you will find the Moore's Early will die out long before the Janesville. There are people farther west who can not grow grapes, while, if they would plant the Janesville they could succeed in raising enough for their families and neighbors.

SHALL THE FARMER RAISE HIS OWN FRUIT ?

BY A. J. PHILLIPS, WEST SALEM, WIS.

I think as far as the interest of those present is concerned, you had better have gone on with the grape question. I did not prepare a paper on this question. I did think, fifteen years ago, that I knew what to tell the farmers to do, but I find that the farmer it located in so many different

places and this question can be talked of in so many different phases, I shall say but very little on the subject. There are a great many farmers in Wisconsin, and what a farmer can do on the southern land of Wisconsin he cannot do on the northern land. Mr. Hirschinger will tell you what a farmer can do in Baraboo. His table down stairs will tell it. I wish he had a large family of boys and girls to enjoy it, and I guess he does too. I think this question is more important than the grape question, for every farmer cannot raise apples. I made a little estimate this winter, visiting around through the town I live in. For a farmer to raise his own apples, which he can by planting the right varieties, he will have what fruit he needs in his own family. He can do that unless farther north than I am. If he raises fruit he will have it, if he don't raise it he won't have it. If he does not raise apples and other fruit he deprives his family of one of the luxuries. He will find that his doctor's bills will be less if he gives his family plenty of fruit. Where fruit is plenty the people are healthier and consequently better off financially. It is a question of economy for the farmer to raise what fruit he needs. I think I can raise fruit and make it profitable. There are a large variety of apples that a farmer can easily raise, the Russet, the Pewaukee and the Wealthy. If he plants these, or those best adapted to his locality, he will prove that he can raise his own fruit. Let him take the five varieties best adapted to the northwest. I would plant from four to eight varieties: Duchess, Wealthy, MacMahon's White, Utter, Alexander. In the part of the state where I live apples do best grafted on the Virginia crab. They have good hardy roots. Cut so as to avoid crotches. The Virginia crab is a vigorous grower and hardy. You can break it off and it will grow up again. It is the best variety that we have used so far.

Mr. Hatch — Do you know it is a Virginia crab?

Mr. Phillips — Yes, sir, I think it is.

Mr. Hatch — It is believed now not to be the true Virginia crab. It has been called the Virginia crab for fourteen years.

Mr. Smith, of Minnesota — To the best of my knowledge

it is a seedling of the large Yellow Siberian. It is the hardiest tree that we have, and adapted to the greatest variety of location and soil.

Mr. Hatch—I think Mr. Phillips' must be a different variety of crab and not the true Virginia.

Mr. Cotta—If Mr. Hatch means to say the Virginia crab that Mr. Phillips has is a different variety, N. K. Fluke has a crab, and has had it for a great many years, and he says his is the true Virginia.

Mr. Phillips—Mr. Fluke's is the same identical crab that mine is (Mr. Fluke, of Davenport, Iowa). Mr. Whitney, of Franklin Grove says he can raise the Hibernal there with success for cider purposes. My tree is a very different tree from that Mr. Hatch has. I bought in the first place fifteen trees of the Russians, and they have been bearing well for about thirteen years. I paid $1 for a dozen. When they came to bearing we did not like the fruit. My wife don't like it as well as the Transcendents. I left one tree of this dozen to grow and the other eleven I top grafted with the Fameuse, Utter and Wealthy. The ones I took the prizes on at the fair are grafted on the Virginia crab. Mr. Fox spoke of raising grapes on the renewal system, that is the only system you can use and have apples do well in Wisconsin. I am setting my trees out east and west in thick rows. I have discovered that it is best to set one row fifteen feet apart then set another line seven and a half. I know by the way these bear that it is a good plan. I have a number of Russians that are growing very well. I think if a farmer will pick out the trees best to grow in his special location, and get them from parties that can be held responsible. Do not buy of tree peddlers.

If a farmer will spend one, two, three or four dollars a year buying new trees and setting them out, not waiting until the old trees die, he will always have trees in good bearing condition. Don't go into it expensively expecting to make a fortune out of it, but set out a few every year at a small expense, say you save your tobacco bill for that purpose and you will have fruit in plenty.

Mr. Plumb—Why do you set your trees east and west?

Mr. Phillips — My land lies that way. The sun comes into the trees better.

Mr. Kellogg — How do you protect the bottoms of the trees?

Mr. Phillips — I protect them with lathes. It is the cheapest, best and easiest. I have tried a great many ways. If you will put in eight lathes about one-eighth to one-fourth apart around trees two or three years old it will stay there five years and by that time it will fill the lathes full. It protects from sun, mice, rabbits, sheep and pigs. I weave it with binding wire.

Mr. Hatch — In regard to renewals. They have one variety in Minnesota that does well in renewal, it is the Wealthy. If top-grafted on a crab you will have a good tree.

MY EXPERIENCE IN RAISING APPLES.

By CHARLES HIRSCHINGER, Baraboo.

Mr. President, Ladies and Gentlemen of the Wisconsin State Horticultural Society: — It is said that experience is the best teacher, and the best is not quite good enough for the Wisconsin horticulturist. I was born on the banks of the Ohio river, very near the state line, between Ohio and Virginia, where apples, pears, plums and peaches were raised in abundance, and the Lady Shenango and Strawberry apples I was particularly fond of, and twelve and one-half cents would pay for a half bushel, hence I could eat to my heart's content. In June, 1847, we came to Wisconsin, and my father located on the farm which I now own and occupy. It was not until I came to Wisconsin that my father, who was by profession a gardener, told me that we could not raise apples in Wisconsin. This was sad tidings for a boy, and I asked, what should we do? and was told that we must raise Wisconsin apples. We sowed the seed, it looked like cabbage seed, but proved to be white turnip. They produced a good crop, and in that early day were called Wisconsin apples, but although I could eat turnips, I never could accept them as a substitute for apples.

In the winter of 1847, on Christmas eve, my father bought for me a large red apple, I never before was so pleased at the sight of an apple and although persuaded to eat it at once I put it away, and on New Years day, January first, 1848, I cut it in six pieces giving each of the family one, but reserved the seeds for myself. There being no frost in the ground I at once planted the seeds; three of them grew, and strange as it may seem, two of those trees are alive to-day, one bears a small apple very tart, while the other is small and sweet (see apples on exhibitions). This is an annual bearer of very heavy crops and is now beginning to show the effects of age. As those trees grew very rapidly my father concluded that apples could be raised in Wisconsin, and in the spring of 1849, he planted out one Autumn Strawberry and two Seek-no further trees. These grew remarkably well, and in the spring of 1853, he got twenty-five apple trees from Ohio. But those did not seem to do well. My father died during the following winter and although I was but a lad at the time, I took the place and went to clearing of the place and burning the timber. Fully convinced that seedlings would grow in Wisconsin I decided to make fruit growing a business; or at least make the attempt. Consequently, five years before I was twenty-one, I commenced to set out trees, and to make sure that my first lot should prove hardy and a success I bought fifty seedlings, and as the seeds were from good apples I felt sure that I should soon have a splendid orchard of good fruit. But of this lot of seedlings I did not get a single variety that would be considered worth propagating now, besides, when the trees grew up, each one made what might be called a thorny brush heap. What to do with experimenting on seedlings I did not know, but have since been so thoroughly cured that I was once willing to leave the experimenting to friend Peffer. But after giving up all hope of success I did finally succeed in originating one splendid variety which proved to be only a late fall apple, I also found other seedling apples at our fairs which I propagated, and some are doing well. I next bought fifty trees which were grafted about two and one-

half feet from the ground on a promiscuous lot of seedlings. That lot I must say was not a success.

About this time a ray of light came from the east. The Plumbs had found out that in order to be successful in raising fruit in Wisconsin the trees must branch out close to the ground, as it was absolutely necessary that the body of the trees should be protected from the scorching sun. This was glad tidings to the horticulturist of Wisconsin, and the news spread all over the state like wild-fire, until it reached the most remote sections. As I was quite young, and on the alert, I caught it on the wing, and now I knew just what to do; no nurseryman could fool me. So I went to the nurseries and laid in my stock of low top trees to set in my orchard, and a little later I went to growing my own. I kept on setting those trees till I had set about about five hundred, and as it was so absolutely necessary to have the branches close to the ground, I managed to get some to branch out and form a top not more than six inches from the ground, and was more than proud of my young orchard. The trees grew very rapidly and time sped swiftly, and I soon found some of my trees loaded with most beautiful fruit. As the years sped by, the trees bore more heavily, but now I began to run against some obstacles that began to annoy me. Among other things I found that the tops were so close to the ground that I could not plow under the branches, and when I wanted to pick up the apples on the ground, I had to get down on my knees. Pretty soon I found that the branches formed bodies, and my trees had from three to five bodies in place of one, and the sun would shine on those. Now as my trees were bearing heavy crops by this time, I found that occasionally a tree would let one or two of its bodies or limbs take a rest on the ground, and the fruit still adhering to the branches, another of its bodies would go, until the tree lay sprawling on the ground. About this time some light, or rather a new light, began to dawn from the west, but this time it was not the low top tree that would do to plant, but the high or medium top. It did not take me long to learn that there was some sense in this, so I took my pruning knife and saw to prune up my

trees, but before proceeding farther took a good look at them, and the question that presented itself to me was, What can I do?

I will proceed to tell you of some more light that I had gained. I found that I could not only raise apples of the Iron Clads, but such varieties as Rambo, Spitzenberger, Northern Spy, and in fact about all of the first class varieties of apples that could be raised in Ohio and other states, and could also raise pears, peaches and plums of the best and most popular sorts, and I even succeeded in raising German prunes; hence I determined at once to turn over a new leaf and set out what I chose to call a variety orchard. I had already found out that in order to make a good exhibition at the fairs a large variety was a necessity, and, determined not to be outdone, at once proceeded to add to my list of varieties of apples. I kept on setting trees till I had over 160 varieties of apples planted, ten varieties of plums, four of cherries, and for my peaches I planted the pits. To make this paper short, I will say that I did raise three peaches and one good crop of plums, and then the trees decided that they would die, and did die very rapidly, and I soon lost them all. With the pears I had similar success, as the blight kept thinning them out until out of ten varieties not one was left. With my apples I had better success, and as they were not slow in coming into bearing was soon able to place 72 varieties on exhibition, for which I got a premium of five dollars.

But when I undertook to keep all of those varieties separate in the cellar, I was at a loss how to do it. About as soon as my Rambos and Spitzenbergers and a host of others had fairly come into bearing, they also began to die, and a large number of my trees passed away very speedily. The question, what to do, was soon answered; the trees must be grubbed out and others set in their places. But this was not so easily done as said, as I soon found that it was quite a task to dig up old apple stumps. But by perseverance they were cleared away and new ones set in the same place, but I soon found that young trees planted in the hole from which an old tree had been dug, did not seem to do well

and would not grow as trees would set in a new orchard. And here again came the perplexing question, What can I do to make those trees grow. I tried land plaster, but this did not seem to be all sufficient. A wagon load of good earth is best.

It did not take me long to find that I had made another mistake, so decided at once to try again. By this time my stock of knowledge was almost full, and I was quite sure that I could not possibly be fooled again, and this time decided to make short work. I decided to plant only ten varieties, and those must be all winter apples. It did not take me long to decide what to set. The holes were dug, the trees set, and nearly all grew and did well, and I fancied that my fortune was made now. But alas! I had planted 100 of the Ben Davis. Now just imagine how I felt when I received a catalogue of a prominent nurseryman and found that after he had described the Ben Davis, he said it was not fit for man or beast. How sorry I was that I did not set the Walbridge instead, or the Fameuse, which by this time had got immensely popular; so much so that a prominent horticulturist pronounced it the best apple that the Lord ever made, hence I could clearly see that it was money in the pocket to set another hundred of those. They were set, and then there was a new light. It was discovered that we wanted some variety that we did not have. Friend Peffer originated the Pewaukee. This was soon acknowledged to be the coming apple, but it did not take long for the far-seeing to find out that something more and better was wanted. About this time the Illinois nurserymen began to see light ahead, and with each spring came a flood of new varieties, some of which were as strange to us as oranges would be to an Esquimaux. Novelties, rare and wonderful, some worthless, some useless, ugly and handsome, all some one's hobby and all selling at fancy prices. The hobby horse was soon ridden in Wisconsin and new and rare varieties kept marching right in and on, and kept up a good appearance until the hobby had got out and the variety passed to the general list at the general price, and something new had got the hobby, which of

course must be owned by one nursery so as to be able to monopolize the price. This hobby horse is traveling right on and on, it had safely crossed the Mississippi river into Minnesota, and was ridden there until it became either useless or outlawed, and then it was sent back to Wisconsin fields where it seemed to find better pasture, and as some are of the same season as some of our standards, there is a conflict, and thus it happens that the famous Wealthy is trespassing on the toes of the Fameuse. Of these new and rare varieties, I have been fully taken in, in a good many dollars. But what can I do?

But we are still in want of one more variety for a long keeping winter apple. This is anxiously looked for. Tuttle is looking for it in the Russians, Plumb in the Hybirds, Peffer and Gideon among the seedlings. We all are interested in the coming apple, and I feel confident it will be found, but as it will take at least 15 years after it is found to prove its adaptability and hardiness, and as I am already 51 years old — What shall I do? * * * * But to set the varieties that have done best and paid me best in years past.

But whilst I was thus plodding along and setting out apple trees, although many were the obstacles I had to encounter and difficulties to overcome, I was not discouraged, and failure only stimulated me to renewed efforts, until my orchard covered at least fifteen acres and I raised large crops of apples; but now I found that I had too many fall apples and was debating what use to turn them into; but the severe and trying winters took care of all of my fall stripe trees, and many others, and I felt relieved of my over stock of fall apples. But, now difficulties of another nature presented itself, as I had set my trees twenty feet apart each way and the trees by this time covered the whole of the space allotted them, and it was impossible to cultivate them. This was particularly the case with a block of Fameuse, and besides the apples were so scabby that there were but few marketable, and the trees began to look sickly — it was plain to me that they needed cultivation, but I could not plow amongst them, and to dig up the

soil with the spade was too big a task, consequently I gave them a top dressing of stable manure. The trees soon revived and made a good growth of wood, and I felt certain that I had now found the key to success — the apples were again smooth and nice, and I was ready to give my neighbors the benefit of my experience, when I was told that the Fameuse in the neighborhood were all smooth and nice, also those in old orchards that were not top-dressed. This was too much for me and I did not feel like instructing others now, and I felt as though I needed some consolation.

Perhaps, by this time, Mr. President, you are convinced that the horticulturist of Wisconsin is more in need of consolation than any other human being, and if required to select the most miserable of these, could you fail to answer, it is the Wisconsin nurseryman?

But I have not time to stop here. New enemies are coming from the east. The Apple Gouger, Canker Worm & Co. have got here, and many orchards were stripped of their leaves and apples were ruined, and I was told that our orchards would be surely killed if we did not kill the worms. But how should I kill them? The answer was, poison them; but how spray them? What! kill the millions? Spray two thousand apple trees and I already overworked? This seemed to take the sand out of me, but unwilling to give up my orchard I decided to go to work, but found on going to my orchard that but few worms were to be found, and on investigating the matter found, that instead of attacking my orchard they preferred the basswood and butternut trees, of which there was an abundance, and they went for those and did spare my orchard, hence did not spray my trees. The insects seem to have traveled west.

The currant worm came next and attacked my bushes. To get rid of these I simply took my pruning knife and cut off the bushes in the patch affected, then I covered the patch, bushes and all with straw, and set it on fire and have not seen any currant worms since on my other bushes. Excuse me for deviating from my subject, as currants are not apples; but as my paper is already much longer than I

intended it should be, and as in giving my experience in raising apples, and having given the dark side perhaps, it may seem strange to some why I don't stop trying to raise apples; but to close this paper, I will say that I picked over two thousand bushels of apples last year, and after having gone through about all of the trials and tribulations it is possible for even a Wisconsin horticulturist to go through, I feel confident of success in the future, bearing in mind that brains are as essential to an orchardist as to a merchant, lawyer or any other profession. A few things are as necessary to success in fruit growing as in any other business, the most important of which is to take sufficient interest to lead you to study all the details and then put them into practice; and were I to begin life again, this should be my chosen field and with better prospects of success.

DISCUSSION.

Mr. Plumb—I rise to make an explanation. Perhaps several of us will. Brother Hirschinger very kindly gives me the credit of having recommended low top trees. I have recommended a good many things before the Wisconsin Horticultural Society for the last thirty years and if you can mention a single recommendation that I am not prepared to support to-day I will thank you very kindly. With the exception that I do not mean recommendations in regard to different varieties, because my experience with varieties has been varied, when I have supposed a tree to be hardy I have said so sometimes only to find that I was mistaken. We supposed the Ben Davis to be hardy. What I mean is the principles and practice. The point I want to raise now is in regard to low top trees. I took the cue from the best eastern authorities and the chief objection they raise is that they cannot cultivate close enough to the tree. The most successful orchardist, who has nearly 1,000 acres, has been successful in growing these low top trees on about 900 acres for some sixteen or eighteen years and his testimony demonstrates that he is right. He lets his cattle

browse under his trees. I believe the time is coming when the low top trees will prevail.

I want to say a word about Mr. Phillips' paper in regard to his recommending to top graft on the crab stock. I have been following that for several years and have published my own experience and the experience of several others. I believe it is the coming farmers' Arcanum.

Mr. Hirschinger — Perhaps Mr. Plumb is somewhat like myself. After I have said anything I never like to take it back. Mr. Plumb does not like to take back anything he has said excepting in regard to varieties. Now in regard to these low top trees, I believe I was damaged over $3,000 by not going to work at it sensibly and had I taken the straight switches out and kept a crown in the center I think I would be from $3,000 to $5,000 better off.

Mr. Phillips — How high do you have the trees now?

Answer — Three and one-half to four and one-half feet.

Mr. Kellogg — What is your soil and location in the most successful part of the orchard?

Mr. Hirschinger — I had a dispute with a man from Washington about it, I think it is a very heavy clay soil. This man calls it a sandy loam and had me get some soil and put it on paper. He showed me the sand in it and called it sandy loam. The site is N. E. and N. W. It is a continual rise.

Question. How high above the Baraboo river?

Mr. Hirschinger — Between sixty and one hundred feet. I am two miles from the river.

Question. You must be more than sixty feet above the river.

Mr. Hirschinger — I have one pitch out that is forty feet right square down. This rise of land begins rising for five miles northwest of me.

Question. It is in the range of the Baraboo up-heaval? It is higher than the country around aint it?

Mr. Hirschinger — I am higher than those southeast of me.

Mr. Cotta — I am hardly prepared to talk to you much on

this subject. I came as a visitor. I don't know but little of horticulture. I think after twenty-five years I have arrived at the bottom round of the ladder. I am not going to live long enough to see success by any means. We hardly realize the difference between the excessive heat and the excessive cold traversing our country in the latitude of Milwaukee. Russia and Moscow are miles away in latitude but the climate is more even than with us here. Our trees are grown out doors. They have to bear the temperature here on one and the same spot that would require an even thousand miles of latitude in Europe to get the same extremes.

The nurseryman knows well enough that of the hundred trees of the nursery, now known as the so-called American apple, are only seedlings of European varieties. I have found by long experience that there is a number of varieties of Siberian and the older variety of Russians that have not been injured. Fifty years of growing these for hardy trees by root-grafting and failing so often has led me to form the conclusion that we have little to hope for from that line in the future. A man at Franklin Grove, Illinois, top-worked a number of seedlings which had stood in nursery rows for several years and were tolerably hardy, and from these old trees he has raised a very fine income for many years. There is at his place at the present time a number of Willow Twigs that are the pictures of perfection to-day. Mr. Phillips and quite a number of our horticultural friends, hold that the best way, and indeed the only way to raise trees is by top-work, i. e., to graft on stem. Whether I should attempt to use that process for my own use is a question. While one farmer will do that work for his own use one thousand will not do it. How are they going to procure these hardy trees if they are not on the market? Hence we claim that the nurserymen of the northwest, Minnesota, Wisconsin and Michigan ought to do their level best to produce trees with a hardy top. Mr. Whitney has raised ten times more fruit from top-grafted trees than he has from root-grafted trees of the same varieties. Is not that a reason why something should

be done in the same direction by a great many horticulturists? One thousand per cent. more value, is not that something worth looking at?

After working a number of years with the root-grafting system, meeting with various results, I came to the conclusion that I would try this method of top-grafting, and am satisfied that it is the way for the nursery man to grow trees. (Exhibits a four-year old top-grafted tree.) There are a number of varieties suitable for top working; which is best I cannot tell because I have not experimented enough. I find that this gives me the best satisfaction and gives my customers the best satisfaction, and makes as good a tree as if I top-grafted a number of the branches. Keep the head a little short, spreading sideways as far as you can. The side branches will then protect the stem.

Mr. Kellogg—What stock are you top-grafting?

Mr. Cotta—Whitney, Duchess and a few other Russians, also the Milton. The large McMahon apple makes a good union on the little Milton crab.

Mr. Phillips—The Virginia will grow as rapidly as any. The Stark apple is very tender. (Mr. Phillips illustrates his method of top-grafting.) The Whitney is not hardy enough so I have adopted the Virginia. (Shows how he buds a tree.) I let all the limbs grow the first fall, then I bud four of the largest limbs. They may all grow if it is at just the right time. The next season I let the buds grow. I take two or three seasons to change the top of a tree. I had rather do it this way than to do it all in one season.

Mr. Hatch—Let men get up and express their opinions. I feel like saying "me too" to Mr. Hirschinger's experience with low top. This top grafting of trees has two different standpoints. First, the nurseryman's and another, the planters, which Mr. Phillips has talked about. If a man wants an orchard and wants to top-graft, then I would advise planting a number of good crab apples for stock. I would let them grow until about this size (indicates) and retain just as much of its crab apple character and hardiness as is needed to enable it to live through our winters. The trunk will be hardy if you let it grow as a crab apple,

long enough. Whitney No. 20 is not good in our locality to graft upon. The main objectionable thing about this top-grafting is that the Longfield and Wealthy will drop their fruit more readily than if on their own roots. In regard to this method of grafting, it has this advantage also, you can change the top to suit yourself and do it when you please, but it is best to do it in one season, you had much better do it all at once.

Question — Why do you graft instead of budding?

Mr. Hatch — Because I can do it all at once. It is a little more puttering to bud. I can change the whole top at once and it is much quicker.

Mr. Phillips — If the bud is a failure I take them off and top some more of them the next season. If it fails to grow I lose nothing. I admit it is quicker to graft than to bud. You can do it in the spring along the last of April or last of March before the sap starts.

Question — Mr. Hatch — What do you use to prevent the trees bleeding after grafting?

Mr. Hatch — Rosin softened with tallow.

Mr. Peffer — Top-grafting the tame apple on the crab apple. I have been through with all of this. Forty years ago when I started in Wisconsin I had nothing but a wild crab apple to work on. The Talman Sweet and the Wild Crab apple are a good combination and also the Red Astrachan. No matter what the trees are; any with a tight bark will not do to graft tame apples on. In a changeable winter they will burst open. The tight barked trees will not make a uniform joining. You want a uniform hardy top as well as bottom, and must work with that idea in view. You want to use stock on which the union between it and the cions will be uniform and hardy on the top as well as the bottom (indicates his method of grafting).

Mr. Cotta — In this climate where we are so troubled by the changeable weather the trees are apt to suffer from sun scald. The most dangerous thing for our apple trees is the extreme heat and cold of the different seasons. In Europe for centuries they have practiced this method of stem or top-grafting. This system of top-grafting, with cuttings, is no

Yankee invention. Old eastern orchardists have been very successful with top-grafted trees, much more so than they ever were with the root-grafted trees. It is a principal worth looking into. With us the trees should be more protected and the best protection is constitutional vigor. The top-worked trees ought to have hard stems, for the stems are to conduct the sap and hold more moisture than the rest of the tree. The truth is, that the trunk of the tree retains a great amount of moisture or water, and the sun warms the lower strata and the stem conducts it to the head or top of the tree.

SOME OF THE CAUSES OF FAILURE IN RAISING APPLES IN WISCONSIN.

BY J. C. PLUMB, MILTON.

The topic assigned to me is not a new one, nor are there any really new features to it. And I had a long query why it was thus assigned.

But concluded that it was for the purpose of a review of the whole question and its problems.

For more than thirty years the disease and death of our fruit trees has been the ever present topic of our horticultural life west of the great lakes. The first great shock, in the spring of 1857, followed a remarkably mild and short winter. The last two weeks of March was as fine weather for digging and selling trees as one could ask, and great numbers were then handled in the west.

The first week of April was severely cold, ice forming six inches on the ponds, and great numbers of orchard and nursery trees were injured beyond recovery. This was the case especially on low, rich ground, and in sheltered locations.

In this case the cause of the injury was two-fold. The unseasonable warm weather of March, and the severe cold following. Had there been no such intermediate warm spell, to start the sap, all would have been well. I believe that at least one-half the trouble in fruit-tree growing in

the northwest comes from this and similar causes, and the remedy, if any, to be found in growing the tree on elevated, cool, airy locations, where the soil is more largely of mineral than vegetable composition, and where the tree will be fully ripened before winter. During the two years following the above named date, I made critical examination of several hundred orchards in Jefferson, Dane and Dodge counties, and in the March number of the *Wisconsin Farmer*, 1859, will be found a statement of my theory at that time, which has been corroborated by all later observations. I there showed that in every instance, orchards planted on sothern slopes with close protection were severely injured mainly by the "south-side-deadness," while those orchards on the northern slope and crown of the hill, with no protection, were in good condition. Therefore, from that time, I have advocated the top of the hill or cool slope for the orchard. The reasons are plain to every observer. The noon temperature on the south side of the sheltered tree would be about sixty above, and at night zero or below, thus alternating heat and cold for a month or more in February and and March. This is especially the case with long bodied trees leaning to the northeast. The remedy was found in planting low topped trees, on airy, well drained ground, inclining the top to the southwest about twenty degrees from the perpendicular at planting, and shading the south side of the trunk through the winter with almost anything, even a wrap of newspaper. From observations made in Iowa and the southwest, I find no section exempt from this trouble. I recommend planting orchards in rows north and south, closely, say ten to sixteen feet apart, and thirty-two to forty feet apart the other way. This will give self protection from the midday sun, and ample room for culture one way. In view of the early death of and need of replanting our orchards, the rows and culture would ultimately be only one way, north and south. This plan is now being adopted by some extensive tree planters in Iowa.

ROOT-KILLING

is another form of injury very destructive in nursery and orchard under certain conditions.

An autumn drouth prolonged into winter, with a light snowfall, is very sure to result in root killing, especially if there is no surface mulch to prevent the frost from coming out at the surface before the spring rains. A slight mulch is generally a good protection against this injury, and should never be neglected in nursery or orchard, when the conditions are as above described.

There are other forms of injury of less note, such as dead crotches, and splitting down of branches from decay. These may usually be remedied by so arranging the branches and shaping the top as to leave no lodging places for water or rubbish, nor sharp angles of crotches.

Of insect injury to our trees time would fail to tell, but since spraying with arsenical poisons are found an effective remedy for nearly all of them, and even the last great enemy, the curculio, can be kept down by the same agent, as has been shown by more recent experiments.

One thing should encourage the fruit tree planter in Wisconsin, we have less of insect enemies to contend with than more favored climatic regions.

There is another class of injuries not mechanical, but which are often most destructive, such as the various forms of blight and mildew. I do not here wish to present any theory of their origin and progress, but assume that they are affections of the cell structure and circulation of the plant, and that they are best avoided by that system of adaptation of soil and culture to the tree, that will produce the most perfect maturity of wood growth, with least possible delay after it has arrived to normal size. Early maturity and well ripened wood seldom suffers from any form of blight. While specific remedies are not to be relied upon for general use, it is found that our soils are needing more potash for best growth of the appie tree, hence are greatly helped by the use of wood ashes scattered broadcast in the orchard.

Sulphur dusted over grape vines in midsummer will sometimes arrest mildew, and bagging the clusters when half grown, will prevent birds from injuring the fruit.

Overbearing is another source of injury to trees that does great harm. The Grimes Golden, Northern Spy, Pewaukee and Ben Davis are all hardy in nursery and orchard in all southern Wisconsin, until they come to bearing, when the first full crop so exhausts the tree, that it falls into the ranks of the "dead and dying." The late growth necessary to mature the large crop of winter fruit, stands in the way of full maturity of the tree. The remedy is, to pick or shake off, or prune out a portion of the fruit before it is half grown, down to a medium crop.

To sum up the whole topic, between our rich alluvial soils, our warm growing autumns, our cold winters, the over growth, over-bearing, starvation, blight, insect foes, unseasonable and unreasonable pruning, bruising from careless plowmen, etc.

Such are the climatic and soil difficulties in the way of successful fruit growing in the northwest, that every possible condition of success should be most carefully observed, and then with varieties which careful observation has shown to be hardy and adapted to our use, no one need despair of growing a good home supply.

Mr. Kellogg offered the following resolutions, which on motion, were adopted:

Resolved, That the thanks of this society are hereby tendered to the Field Force Pump Company of Lockport, N. Y., for the presentation of pump furnished this society.

WHEREAS, The horticulticultural interests of Southern Wisconsin and Northern Illinois are identical;

Resolved, That our president is authorized to establish fraternal relations with Illinois horticultural societies and send delegates, if in his judgment he deems it best.

Mr. Plumb—I move that as within the past year J. G. Knapp has been removed by death, we appoint B. F. Adams to write a memorial and have it printed in our minutes.

He was active in the work of horticulture, and took a lively interest in out society while here and even after his removal to Florida.

Resolution adopted.

Question—How do you protect the roots of small trees?

Answer—I ridge them up.

Question—Is it safe to take off limbs two inches in diameter?

Answer—It is very unsafe in this country.

Meeting adjourned to Friday morning.

FRIDAY MORNING, February 8.

President Smith in the chair.

DISCUSSION.

Mr. Hirschinger—One point that Mr. Plumb made that the borers will affect high top trees where they would not the low. My experience is that they are not affecting either high top or low top trees. When they do come they get above the forks, because there will be some healthy wood above that. The low top tree has cost me too much money to say one word in favor of it. The borers we expect will come sometime, but until they do let us rest.

Mr. Plumb—With a very few exceptions I have never seen the true apple borer, such as they have in the southwest. The true apple tree borers, I doubt if Mr. H. has had one on his place. The true apple tree borer attacts the tree on all sides without reference to the sun. It is the dread of the southern orchardists.

Mr. Toole—In the matter of fruit growing the Duchess is sufficiently hardy for any locality. The same with the Fameuse. Special manureing in the middle of the season will promote a later growth. There are many opinions in regard to the advisability of this plan. It seems if the special manureing causes such an abundance of fruit as some claim for it that the result would be that we would have more fruit than the tree ought to be expected to bear.

Mr. Chappel—Twenty-two years ago in the town of

Rutland I commenced experimenting some in the fruit business. I do not claim that I have learned everything but I have learned somethings that have proved beneficial to me. My experience has been that heavy crops of apples don't hurt the trees as some claim if they only give them water enough. Water is a great necessity in this climate, hot and subject to drought. It is the main cause of our trouble. In my own orchard and in hundreds of others that I have visited as I have been traveling around the country I have found much the same state of things. The trees will never sun burn if you will give them plenty of water. This sun burning on the southwest side in our orchards occurs in the extreme droughts when the sun is hot. Give the apple trees water enough and they will stand the pressure of the sun just as the corn stands the heat and matures its fruit. This is done to affect the flow of sap when the wood is in its mucus substance.

Give them moisture and you will have no trouble with your trees. Mulching around trees is a good thing. Dig around them and fill with water, then cover with mulching and it will help to retain the moisture. I have planted timothy around the trees but do not want clover. I find that the timothy protects the water from evaporation.

The best way to give a tree water is to remove one or two inches of the soil for three or four feet at least, which will make six or eight feet across. It is better to make it three or four inches deep at least. There will never come a rain so heavy but what the tree will need the amount it retains. The apples will be better if the growth is not checked for want of water, they keep up a steady growth and ripen their fruit at the proper time. When cared for this way the tree can grow its fruit to maturity and the proper size. Now if any man shows better, handsomer, or more full grown fruit than I do I want to know how he does it. I have watched other men's systems, and I have tried to learn something of them, but I find if I give enough moisture, my trees won't sun burn and dry up. I would recommend setting trees a little to the south and west. The storms and winds will drive them to the north and east. On account

of the heat of the sun, too, it is better. The young trees will need protecting a few seasons. Put lathe around the tree and give it water. I mulch with sand. Do not trim the tree until July, about the first. Some years I have trimmed trees the last week in June. I never trim and mulch in the fall because it freezes and cleaves to the bark. Never force the growth of your trees while they are young by manureing, because it causes a fungus growth. Don't use too much wood ashes. I find if I force the growth, blight sets in and my trees grow too late in the fall to go into the winter and come out all right in the spring. I do not believe in much trimming. Remove the suckers as soon as they appear and keep the top a little flat. See that your young trees are strong enough to go into the winter and not get frozen and leave a black heart in the young twig. This early spring trimming bleeds and blackens the trees. Once more, I believe that if we care for our trees this way and trim but little, that we can grow orchards in Wisconsin.

Mr. Kellogg — I do not believe that Plumb knew everything thirty years ago. I know that the borer does its work in the sun on branches that are not shaded by the top. I am satisfied that the shade will keep them away. They don't work in the shade. In the south they may but in the north they do not.

Mr. Chappel — The borers never touch good healthy wood. It is the dead wood, the sun-scalded trees and trees that are decayed in any way, those the borers trouble and lay their eggs in.

Mr. Hatch — Mr. Plumb objected to close cultivating. I have cultivated four acres of orchard just as near as I could without injuring the trees. I do not want any grass around my trees. In regard to these borers, there are two distinct borers, the flat head and the round head. I have taken them from healthy trees. One works; the flat headed borer, anywhere. I have found it on sound wood and on rotten wood. You will find it goes wherever it pleases. The round head borer will work in the ground in perfectly sound wood. At Fond du Lac a man read a paper and mentioned the root

killing that has occasioned so much trouble in the east. I have never had a tree root kill where it was planted deep enough. Mulching harbors mice and the trees are better off without than with it. I prefer loose earth for mulching. Earth always is best. In using poison to exterminate the curculio entomologists tell us that they don't eat the poison. The question occurs whether the curculio are actually poisoned or driven off. There is a large field of investigation there for us. I think if we will observe closely we will find that some curculio eat the poison.

Mr. Chappel — I saw a statement of a plan that has been carried on for several years in Russia. They use a sand mulch extending five or six feet around the tree. Haul water from rivers and pour around the trees.

Mr. Plumb — Mulching is mainly important in preventing root-killing in the absence of snow. I took up a tree and set it in a tub of sand and watered it. You will find as I did that the roots of the tree in the tub of sand will be frozen while the others will be preserved.

FIELD NOTES AND OBSERVATIONS.

BY GEO. J. KELLOGG, JANESVILLE, WIS.

The winter of 1887–8 was the *sixth extreme hard winter in succession;* not as destructive as 1884–5, nor as cold as 1886–7 by 7°, yet the aggregate of the 37 days at zero and below was 476; greater by 27° than the winter before.

Frogs commenced their music April 4th, the plow boy his whistle the 7th, but the frosty mornings retarded spring work badly. Ice nearly every morning, from the 17th to the 26th of April, and on the morning of the 24th, ice over a water tank was ⅜ of an inch thick. April was cold and dry, only 1¾ inches of rainfall, besides a light snow the 19th. On sixteen mornings we had ice, while the 26th, 27th and 28th the thermometer ran up to 80° to 83° each day, bursting the buds and starting vegetation. *May* was still cold, giving us ice the 1st and 13th, and frosts the 15th and 19th.

First strawberry bloom the 16th, apples in full bloom the

26th; commenced spraying crab apples the 31st, using six ounces arsenic dissolved in boiling water to forty gallons of water; this was so strong as to burn the foliage on Transcendent; the Hyslop was not so much affected; it carried its foliage and fruit, while the Transcendent dropped its fruit and much of its foliage, but the Transcendent did the same thing where there was no spraying. This blight did not affect the varieties that carry the thick foliage like the Duchess, but was worse on Transcendent and Haas.

This was the only application of poison that was given the crab apples, which are 100 rods from any other fruit trees; a portion of the row of Hyslop was not sprayed and the results at harvest showed no perceptible difference in favor of the spraying, about three-fourths of all the crabs were wormy. There was no failure in the application and no rain following for a week; was done at the right time and on an isolated orchard, with a strong force pump and a solution strong enough to injure light foliage. *May was cold and wet having seven inches of rainfall.* June 1st sprayed Duchess orchard with arsenic, six ounces to forty gallons; also Alexander. June 4th, Red Astrachan, Tetofski, Haas, etc., with the same solution.

There was rain enough to lay the dust the 9th and 10th, five to six days after spraying. June 15th again sprayed all the above but the crabs, with six ounces London purple to forty gallons of water; the 18th there was a light shower.

At harvest the benefit on the Duchess was quite apparent, but a small proportion of wormy apples and a *slight* difference in the work of the Curculio.

On the other varieties there was but a light crop and no perceptible improvement. From this season's operation there is a conflict of evidence—the one application on the crabs was of no apparent benefit—while the Duchess with two applications showed much improvement, and of the other varieties there was not fruit enough to prove anything. I have faith in arsenical poisons for the Codlin moth, but little hope for any relief from the Curculio.

The month of June gave us 5½ inches of rainfall, and

but for frosts on the 2d, 3d, 7th and 11th, there would have been an improvement in the small fruit crop.

It is impossible to tell the injury by cold nights when no frost is visible. The morning of the 11th of June the thermometer, hanging on a maple tree five feet from the ground, indicated 48°, while laying it on straw showing frost it fell to 34°.

I am convinced that grape vines uncovered in spring should be immediately tied up and inured to the cool nights, and are safer than when left on the ground.

Another cause of failure of fruits for the past season was the excessive drouth of 1887, many plants, especially strawberries, did not form fruit buds and failed to give any bloom, and very many bloomed that had not vital force enough to set and mature the fruit.

This was not the case with the blackberry and grape; they, where they had been properly grown and protected, gave a splendid bloom and set heavily. The blackberry crop was never better, while the burden of grapes was more than the cool nights of August and September could bring to perfection; happy the grower who watches this point, and timely prevents over-production. We need no grape for our climate that is later than Concord in ripening. Frosts September 13th, 14th, 27th and 28th, and ice October 3d.

April, 1¾ inches rainfall; May, 7 inches; June, 5½ inches; July, 4 inches; August, 3 inches; September, 2 inches; October, 2¼ inches; November, 2¾ inches; December, 4¾ inches; making for the season from April 1st to January 1st, 33 inches; and yet the autumn months were dry. Evaporation rapidly exhausted the moisture, and strawberry beds suffered in consequence, while trees, shrubs and fruit-bearing canes ripened up in splendid condition for winter.

The partial failure of small fruits for 1888 is attributed more to the dry fall of 1887, and the cold nights of May and June of 1888, than to insect depredations: and yet the 17-year locust was a positive injury to raspberries, by the deposits of the eggs, and newly planted apple trees were in some instances killed outright. The failure of the raspberries was due to the hard winter, where unprotected.

The open months of November and December were detrimental to new strawberry beds that were not protected; the frosty nights and warm days lifted many young plants. Plowing continued with little interruption until December 1st, and since then the thermometer has only touched zero twice: January 11th, 6 below; January 21st, 5 below, until this week. Of the new strawberries something may be said and I will close. Jessie, on Mr. Loudon's grounds, never made a finer show than last season. On my light prairie soil many plants failed to bloom and the yield was not satisfactory, although I believe it will prove the best large berry yet introduced. Of pistillates Bubach and Warfield claim first place for size and productiveness.

I have many new varieties in good condition which have *big pedigrees* attached, and hope to know more about Ontario, Haverland, Logan, Itaska, Ganda, Lida, Mammoth and other new sorts the coming season.

The pump used was the one belonging to this society, and is valuable; care must be taken to put a wire strainer over the pipe, and also strain the water as the nozzle clogs easily.

DISCUSSION.

Mr. Hatch—I am thinking of spraying my orchard and am very anxious indeed to get at some reliable facts. Mr. Kellogg mentioned the failure to kill the codling moth on the crab apple. If the poison is sprayed on the tree when the codling moth deposits its eggs it will kill them. It might have been put on too early and evaporated.

Mr. Kellogg—The poison does not evaporate, it is washed away. Prof. Cook recommends poisoning by spraying the tree at the time the eggs are deposited. He stated distinctly when I talked with him about it that it could be done, but that it would have to be done at the right time to make it successful. I believe I am more troubled than any other fruit grower.

A short time was spent in discussing the question: Shall the business man raise small fruit?

Pres. J. M. Smith — I want a few words in regard to the damage done to my fruits in the spring. I made an experiment last spring that cost me considerable money. I keep my raspberries covered, and when I put them down a year ago last fall they were in splendid condition. I covered them with earth. In the spring I uncovered about a quarter of an acre of raspberries, and after they were uncovered the buds were in a fine condition. A few days later I set to work again and uncovered a little patch at another place, a few days later still I uncovered another place. After the first patch was uncovered we had some frosty nights in which it froze a little. It froze I think three or four times, and when vegetation started, which was a little late, I noticed the raspberries were starting out too. The first patch that I uncovered was acting badly. I went to examine them and found nearly every bud dead, some of them were actually dead. Sometime before they were in perfect condition. I went to the second patch and they were damaged also, but not so much. The result was that the little spot that I uncovered first was almost entirely a failure and I plowed it up. The second was damaged considerable and the third some. But where I did not uncover until the proper time the crop was magnificent, every bud bore fruit; and I want to say by the way that I never failed to have a crop of raspberries when I covered them. It was a lesson to me, and cost me over a hundred dollars. I have been in the habit for a number of years of not uncovering strawberries until I feel that I can do it safely, until the leaves are started, and by so doing I have not lost any strawberries by spring frosts in fifteen years.

Mr. Phillips — I want to give you some of my experience, and it bears right on the subject. For years I was puzzled why I did not succeed in saving bushes through the winter. I covered up hundreds and hundreds of bushes and thousands and thousands of plants, and have come to the conclusion that if you want to save bushes or trees or vines, you want to cover them with fine earth and fill up the air spaces. You may carry them through without filling up the air spaces, but it is a very vital point, and if you cover

up next fall, see if in the spring your experience does not correspond with mine. The question of uncovering is one that bothered me a great deal. My experience corresponds exactly with Mr. Smith's, and he has put it in shape and brought it out.

Mr. Hatch — I cover my tea and Bourbon roses in the same way, and they kept all right. Fine, dry soil, is the best to cover raspberries. The finer the better. After covering with soil, cover with manure and mulch.

Mr. Chappel — I would like to ask one question in regard to covering grapes. Do you think horse litter or earth is the best?

Mr. Phillips replies — I say for all winter protection simply fine well cultivated earth to fill out the air spaces is the best, and then if there is any additional protection needed put it outside. That I have found, from long observation and experience which has cost me a great deal, and there is nothing superior to fine earth. In regard to uncovering grape vines I used to think that it was well to leave them in until mosquitos bit. I have left my grapevines in as late as the last of May, but it is better to have them up about three weeks before.

Mr. Hatch — I don't know much about growing grapes and have only three or four acres. A great many years ago I thought the grape vine had to be kept down so as to escape the frosts in May. I got enough of it one year when the frost came a little later than I expected it, and I was afraid to tie them up after uncovering them. I did tie up a few vines and the result was that I had grapes on the vines I tied up while I had nothing on the rest. Since that time I hold that as soon as the frost comes out of the ground, tie them up.

A member — I should like to ask Mr. Smith if he considers it necessary to cover the whole cane in covering raspberries? We have had the best of success by covering the top and leaving from a foot to a foot and a half exposed.

Mr. Smith — I will say that I have tried that for a few years and find that sometimes, according to your theory, there will be a cane killed. I found that the part of the

cane exposed would be damaged. It is a good plan to keep them entirely covered, and in that way I always succeeded.

Mr. Kellogg—I supposed yesterday when the matter came up of revising our list of apples that there would be a recommendation of a list among the Russian apples.

Mr. Plumb—To-day I believe the most important question to consider in reference to Russian apples is, whether they blight or not. The Iowa people are discussing that question more than any other. Then the second question is as to the essential value of the apple, there you know I have always been a little backward. I believe the Longfield will be valuable only when it is top-grafted on some very hardy stock. The Transparent is a very valuable apple. I shall introduce in testimony the report of the Iowa Agricultural College in which Mr. Spear says, after speaking of those which are not subject to blight, that he includes the Hybernal, Red Raspberry and another. He says the Repta Melanka is not hardy, or at least tender in Iowa. In a list of those which blighted he mentioned the Yellow Transparent and some others unnecessary to name.

Mr. Hatch—I have had the Yellow Transparent for the past five years and I have not seen one blighted limb. I have eight trees, five in bearing. The Arkadian apple as it is called, one that I got from the Mt. Hope nurseries, bears one of the largest apples that I grew last summer. It was larger than the Alexander; seems to be very hardy. Then there is one that Mr. Tuttle called the Beautiful Arcad* one summer and the next summer he pronounced it the Switzer, what it is I don't know. The tree is very good, a good deal like the Red Astrachan. The leaves are thick and green, the apple is one of the finest I have ever tasted. I have three trees of that variety and they are very fine, and bear early. It is the same size as the Red Astrachan.

Mr. Toole—I would like to ask Mr. Hatch if he has ever grown the Winter Stripe?

Answer—Yes, sir.

Mr. Toole—Well, what kind of an apple is it?

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*Arcad Dlimui or Long Arcade.

Mr. Hatch — It is an apple of moderate quality but not a winter apple, we do not need it.

Mr. Toole — Have you grown the Long Arcade ?

Mr. Hatch — Not that I know of by that name.

Mr. Toole — I move that there be made out and printed in the body of our volume, a description of the following list of Russians: Yellow Transparent, Switzer, Hibernal, Antonovka, Longfield, Wargul or Vargul and White Russet, and give them just the recommendation that the description would carry with it.

Motion seconded and adopted. A. J. Phillips and A. L. Hatch were appointed as a committee to prepare the list for publication.

SEEDLING APPLES.

By Hon. B. F. ADAMS, of Madison.

I discovered before our meeting that my name was on the programme for this subject, with which I am not very familiar and know but little of — that is the planting of apple seeds. I think probably that I have planted some in my life time. I know that I have eaten apples and thrown away the cores. I have some evidence that some seedling apples are growing on my farm, and that is about the extent of my knowledge or experience, but I have observed some, during the forty years that I have lived in this state, the growth of seedlings, and I think that some hardy seedlings have been produced within that period; that they are now scattered over the state, and that we as a society have not put forth sufficient efforts to ascertain where they are and what they are. I have planted out four or five orchards since I have been in the state, and one of them was a seedling orchard, the seeds were planted on a prairie farm in the eastern part of this county, about forty years ago. The owner of the farm at the time I purchased it was an Ohio man and probably brought seed with him from Ohio. It was not a large orchard. I planted them closely together, perhaps sixteen or twenty feet, I don't know ex-

actly the distance, but they grew in very close order, so close that after a few years the branches interloped. That orchard I think is standing to-day, or the greater part of it. The severity of the climate has killed some of the trees. The fruit is not common fruit, but I find that in the fourteen years I lived upon the farm, was a great deal better than no fruit. One or two varieties are fairly good and long keepers.

Our ancestors, as you know, when they came into this country planted trees, and planted seeds, and they grew old, they probably did not receive much attention. At first the struggle for life, for existence, was so close in those early years, especially in New England, that but little attention was paid to their cultivation. But the historian tells us that some of these trees lived to the age of two hundred years. A little later after the Pilgrim immigration and the population floated westward they brought with them seeds and trees, planted them and results were obtained. They came to Michigan along the St. Joseph river. I find mention made of seeds planted there and some of the trees survived the age of one hundred and fifty years. Then the advance of civilization came beyond Lake Michigan, where we met a great many more difficulties than our ancestors. But as I understand this subject, and I have pretty good authority for it, men who have devoted the greater part of their lives to its study, the true way to improve our fruits is from seed, and that you may understand me I will quote from the volume of 1877 the words of the late Marshall P. Wilder as found in the memorial address by J. C. Plumb. He made a speciality of new fruits, and studied the best methods of obtaining them. He says in his last published address "and now in fulfilment of my promise to urge upon you while I live the importance of producing from seeds, new varieties adapted to the various soils and climates of our vast territory, these are the means and the only means which God and nature have provided for the improvement of our fruit." Further on he says: "Whatever some may think of variation, evolution and transformation of species, the

great fundamental laws of life and its reproduction will remain unchangeable and immutable as long as the earth bears a plant or tree, or nature holds her place in the universe." That I think covers pretty much the whole subject and I am happy to know that our horticulturists here in the northwest are waking up to its importance.

I see at a late meeting of the Iowa State Agricultural Society a recommendation by its president, Mr. Patton. I have not his address in my hands. All that I had prepared to say on this subject at this meeting I had wrapped up in a package and left in the office of my son, and last night, thinking it was a volume that should be taken home, he took it home and there it is. So I am under the necessity of speaking extemporarily. He recommends the gathering of seeds in accordance with this recommendation which I have just read in your hearing, collecting a quantity of them, and through the society distributing them over the state. Now that may seem unimportant, but let us look at it. We have 150,000 farmers at least in the state of Wisconsin. It is not probable that any such number of farmers plant seeds as are furnished them, but through the interest that our brothers could awaken in the various communities in which they reside; and they represent every portion of our state, some might be induced to do it. The result would be that we should have thousands and thousands of seedling trees growing which may result in the improvement of which Mr. Wilder speaks. Some certainly would come that would be valuable even in this generation. Now we have lost about thirty years' time I think, here in the northwest, by not paying more attention to this one point. But I know the idea of planting seeds would not be received, at least in many communities after our experience with hard winters, sweeping away our orchards as they have in the last few years. All nonsense, they say, we can buy our fruit. Well, it is not very agreeable to be obliged to clear away the old orchards, but it is certainly agreeable to nourish young ones, to plant young trees. I believe it has a good influence upon us who are pretty well along in life's decline to take care of young trees, see them grow and come into bearing.

Talk about life's being too short, I tell you gentlemen it has been well said by a writer that life is longest if it answers life's main end.

I said that trees and fruit were planted by our ancestors, and we should work on, as Mr. Wilder says, in the same old way. It is the best means within our reach to improve our fruits, and obtain those which are adapted to our conditions here in the northwest. It will take some time, it may take two or three generations; I don't think it will as long that with the knowledge we now have and the line of work in which we are now engaged. I think some good results will come to us in the course of a quarter of a century which will be permanent. As to us who are so far along in life's decline, I don't know of any better way that we could make ourselves more useful than in doing this very thing. I think it will tend to keep the life in us, that youthful feeling which all will do well to nourish while here on earth.

Mr. Plumb—I wish to endorse everything which the speaker has said on this question, because it is a question which I feel we do not appreciate. Some of us have been trying to do this and nature has been trying to do it for us for all these years gone by, when we have been simply witnesses. But his remarks remind me of what my father said when he was between seventy-five and eighty years old. The orchard which he helped to plant some thirty years before in the state of Wisconsin was then in full blast, and he used to get over the fence, fill his pockets with apples and sit on the fence and wait for people going by, and if he saw a man he thought was one of the new-comers getting his lumber for the house, he would say, "Well, mister, have you got an orchard?" "No, sir; I have not got my land broke." Well, he would take out two or three of those apples and say, "Won't you take these apples and divide them up between your wife and children, and I want you to save the seeds and plant them." That was repeated for ten years of his later life. I hear of the results of that every time I travel through Dane or Columbia county, and in my travels I find occasionally a man who did save the seeds from some of those apples. They were planted, and

from them were produced some very fine seedling apples which were exhibited year after year and took premiums. The larger debt has never been paid.

This society has never by word or act acknowledged the work of that old man. And now right here I want to say to you my friends, to-day Iowa has a larger appreciation of Wisconsin seedling apples than Wisconsin has. Charles Patton said to me the last conversation I had with him, "Plumb, if your state society only had half as much appreciation of your seedling fruits as I have you would do differently from what you do." He comes here every year and picks out the best seedling apples and takes them to the state of Iowa. I wan't to urge upon the Wisconsin State Horticultural Society that we should take measures to recognize in some proper way the seedlings of Wisconsin. I understand that we are to have an experimental station sometime, and we are to have a professor of horticulture, and that a part of his work will be to institute certain lines of experiments for the benefit of the horticulturists of this state, and I hope that seedling apples will have attention I mean seedling apples produced through the line of experiment crossing! Not the result of accident but the result of purpose. Now I want to say further that the apples that our old brother, E. W. Daniels, has presented from time to time, have drawn prizes, and he has persistently pushed them before this society, and this society once made a partial record of it, and made an acknowledgment of it in years gone by, but to-day an apple which stands second to none of the Wisconsin seedlings and is known clear across into Nebraska, all over southern Iowa, and southern Wisconsin, has no record upon the volumes of the state society. I protest against this.

Mr. Hirschinger—Inasmuch as Mr. Patton's name has been mentioned I feel as though I had a debt to pay. Mr. Patton showed his seedlings at the Dane county fair last fall, at that time I was one of the judges and I examined his seedlings very closely. I got a history of them somewhat and then said what I had to say in regard to them and spoke to the superintendent to make mention of it in the

Western Farmer. That mention has not appeared and Mr. Patton, after coming up here with his seedlings, was perhaps not well pleased from the fact that they never paid any attention to them. They were not recognized. They were brought from Iowa here, and I will say that he has got some seedlings that appear to have very fine flavor and a very good quality. I think that perhaps Mr. Adams will find what I did say by just simply going to the editor.

HORTICULTURE IN COMMON SCHOOLS.

BY WERDEN REYNOLDS, GREEN BAY.

I am asked the question, Ought horticulture to be taught in our common schools ? and I answer: Most assuredly it ought. Why should it not be ? Can any one conceive of a reasonable objection to its being taught in our common schools ? Some one replies, "It would take time." Yes, it would take time. That is a reasonable objection, if it is any objection at all, and I will consider it.

To learn to read takes time; to learn to write and cipher takes time, to learn book-keeping and geometry takes time. Do you know of any science that can be learned, or of any useful information that can be acquired *without* "taking time?" Your objection is manifestly too broad. It lies with equal force against *all* attainments, against *every* industry; and if enforced as an objection unmodified, would bring common schools and all other human enterprises to a dead and eternal standstill.

"It would take time"; true, and that is exactly what we want it to do. We want it to take that time which is, perhaps, not much better than wasted and lost upon comparatively unimportant and even useless topics of study that have been and still are pressed upon the time and attention of youthful learners, even in our best common schools. We want it, also, to take a portion of the time allotted to the acquisition of other equally useful and valuable knowledge. We want it, in fine, to take its share of the *whole*

time of young life preparation for the duties and responsibilities of middle life, and for the rational enjoyments and amenities of aged life. Let it "take time."

Again, we ask, why should not horticulture be taught in our common schools? Botany has long been taught there, and botany has no better claim to be recognized as a proper subject for systematic school instruction than has horticulture. The teachings of botany can be no more readily and conveniently presented to the child's mind in the form of lessons to be learned than can those of horticulture, of which, indeed, botany is but a constituent department.

The spirit of the age favors practical education from the first; and elementary text books on chemistry, physiology, botany and other branches of natural science constructed and arranged under recognition of this ruling tendency of the times, and adapted for use in common schools, have been provided and given their place in the school curriculum. What more practical than gardening? What science or art more directly serviceable in a practical way, than that which teaches how to procure straight from the bosom of mother earth those food supplies and luxuries so indispensable to bodily comfort and health? Surely, if *practical* knowledge—that is, knowledge which may be directly applied and used in the ordinary transactions of life, in contradistinction to that which is merely theoretical—is to be desired and sought, no branch of human learning capable of being taught in common schools or in schools of higher grade, would, within its own range, more fully and satisfactorily respond to that desire than would the art and science of horticulture as a branch of systematic juvenile education.

But we anticipate. In a formal essay it is customary and doubtless proper to set forth the topic in a formal definition; and so we will conform to custom, and give a compact verbal explanation of our subject. In this instance, however, the definition is needed only because of the custom just alluded to, for the reason that you all know what is the nature and field of our theme, as well as did Noah Webster when he wrote, "Horticulture—The cultivation of a

garden," and, "Garden — A piece of ground appropriated to the cultivation of herbs and plants, fruits, flowers and vegetables."

Webster's definition shall suffice; but to make the relation of our subject to kindred sciences apparent, it may be explained that agriculture, which includes all that relates to the cultivation of the soil of the earth for the purpose of bringing forth living products therefrom for the sustenance and comfort of man and his domestic creatures, comprehends horticulture as one of its distinct departments. It *comprehends*, we say, though it does not *absorb*. The two branches of soil cultivation, one within the other, stand, none or less as separate and individual arts, each based upon its own scientific principles, and each capable of being learned and practiced with little regard for extended knowledge of the other.

Arboriculture, or the cultivation of trees for timber or ornamental purposes, is another branch of the general subject co-ordinate with horticulture; and floriculture, the cultivation of flowering plants for the sake of their beautiful products; pomiculture, or the growing of small fruits, including the grape, the currant and the berry; and the culture of herbs, vegetables, melons, condiments and other products of culinary gardening, are all subordinates of horticulture, being entirely embraced within the limits of that branch of husbandry.

Having thus defined and placed the subject matter of this paper we proceed to our argument.

We strongly advocate early instruction in the science and art of horticulture to begin in the common schools — *scientific* instruction, systematic and thorough *practical* instruction, such as will give the learner ability to go into a garden of moderate dimensions and do or direct the work of it as readily and economically, or approximately so, as if he had been there as many years as John M. Smith had been there.

We thus advocate mainly for the following reasons:

First. Such schoolship would be in full accord with the educational spirit of the age.

We have just explained that the sentiment of educators of the present day strongly inclines to replace old inanimate methods of intellectual culture by methods which are inspired with life and activity, which have in them close connection with bodily weal, and which embrace in their beneficial results an elevating and improving influence upon the social and ethical nature.

The intellectual faculties of the human soul are not the only powers of our being embraced in the scope of modern man-cultivation. It is a wise and much to be commended advancement, that made during the past and present generations, in the purposes and the processes of common school education. Formerly the end was simply to know; now it is to think, to do and to feel as well. Formerly the methods were purely theoretical and mental, now they are largely practical and physical. Horticulture is eminently adapted to illustrate and support these commendable aims of modern pedagogical science, and is, therefore, in full sympathy and accord with the advanced and advancing educational doctrines of the nineteenth century. For this reason we would give it a prominent place in the curriculum of common school education.

Second. We thus advocate because the art and practice of gardening presents an employment which is in unbroken harmony with natural instincts and harmless lives of children.

"Do children love to pull weeds?" you distrustingly interrupt. Undoubtedly they do. They surely love to pull nearly everything else. In fact to pull, to pull apart, to pull to pieces is a prominent instinct of child nature, often not a little developed before the young analyzer lets go his mama's apron strings. We say this seriously to prove that all the weed-pulling a class would have to do in a course of lessons in garden work would not only not tend to create disgust, but would, in most cases, afford a welcome opportunity to gratify a leading instinct of juvenile nature — one of the harmless loves of children.

"There is toil in garden work," objects another, "backache, it may be — is that, too, one of the child's harmless

loves?" We will answer: There is toil in garden work. true, just enough to qualify the body for sympathizing with the soul in the spiritual enjoyment of seeing good and lovely things come into being and grow under the child's fostering care. No boy or girl not phenomenally indolent or unspiritual would ever fret or frown over the manual labor of a garden school. You don't see them flagging nor hear them grumbling when it is "play in the dirt," and the garden work designed for a practical illustration of the processes taught in a course of horticultural instruction, would be, to most pupils, scarcely more than "play in the dirt."

Do not forget that we are arguing for horticulture in the common schools where our little ones daily gather to be taught something, and for placing that subject among the somethings to be taught and learned there *because*, among various reasons, of its emnient harmony with child instincts and loves.

"All work and no play," as we once reminded this association, "makes Jack a dull boy; and all play and no work makes him a mere toy." But when all work is play, and all play is work, there is neither work nor play — neither dull boy nor mere toy — there is only a healthful and agreeable activity which keeps both soul and body in harmonious cooperation and diffuses through the entire being a continuous glow of pleasurable emotion.

It is time that the acquisition of the abstract principles of our science could of necessity, be made only by dint of mental effort. This of course, would be the indoor employment of the young horticulturists and might, to some of them, prove to be little else than irksome task-work; but certainly not more likely to become so than would any other purely mental effort inside the school-room.

And this suggests a third argument for including practical horticulture in the regular course of common school education. It would provide a welcome variety of school work — a grateful relief from the uninspiring monotony of continuous mental exertion. It would, indeed, operate like recess between study hours and better, it would be a re-

laxation though not a cessation from the regular routine of school duty. We have, however, not much argument to offer under this head beyond that which has from time immemorial, been argued and universally accepted in favor of sandwiching school study hours with liberal recesses and out-door recreation seasons.

It may be added, however, that while practical horticultural study would quite fill the bill for recreation purposes merely, it would, at the same time, afford opportunity for the acquisition of knowledge no less valuable than any which could be acquired inside school room doors and within school study hours. It would, in fact, be a substitution for the mere *play* of the recess, of a season of practical education without the faintest abatement of the exhilirating efficacy of such recess.

Our fourth argument for placing the art and science of horticulture on the programme of common study, is, that the mind and the heart of the little child, while in as pliant a condition as possible, and more open to the reception of good impressions than at any subsequent period of its being, would, thereby, be brought into immediate contact with the works of the Infinite Creator, and would have opportunity to gain knowledge of a vastly higher order than any which could be derived from the works of man, or from the doctrines of human science.

The most exalted ideas that ever enter the finite intellect, the best and noblest affections ever cherished by the human soul are to be accredited for their primal source, always and only to the Infinite Being, who is the author of every good thing. Through His word and His works they come down to the souls of the children of men.

Applying these principles to the special object of this paper, we say that the practical science which we wish to introduce as a subject of regular study into the common school, would, by bringing the young learner into immediate contact with the works of the Creator, present favorable opportunity for the inculcation of living truths of the highest order that can be entertained by the soul of man, and we boldly take occasion right here, to say further, that

in our individual opinion, no person not qualified in heart, as well as in head, to propely improve such opportunity, ought ever to be entrusted with the education and therefore, to a large extent, with the destiny of young immortals.

We fully believe that under the guidance and with the aid of the duly qualified instructor, the sublime doctrines we would inculcate through horticultural study, can be so intimately and so firmly interwoven with the very fibres of the young soul that no sophistry of this worldly-wise age could ever shake or disturb his faith in the existence and infinite perfections of the great source of all good.

It may be said that close and thoughtful observation of other portions of the Creator's works would naturally lead to the same results. True, but no other portion, so far as we can see, could be so readily and conveniently made available for use in this early instruction—no other portion could supply just when, where and as often as they might be needed, the material facts required for the illustration of the spiritual truths to be imparted and impressed.

The garden lies before the scholar continually. It does not have to be driven there, nor have to be brought there in baskets and wagons. It does not have to be carried away from there when the bell sounds the close of out-door lessons. It is always there, during the growing season of the year, with its material for work and thought always ready. No other examples of God's handy-work could, by any means, so readily supply facilities for soul-cultivation as the soil on which the foot of the learner treads and the living thing it gives forth in response to his industry. Beyond and above such practical knowledge as, of itself, contributes so largely to the making of a useful man or woman, we should, in a garden school, find in every square inch of ground, in every observed phenomenon of growth, both material and opportunity for the inculcation of soul-educating knowledge.

For these reasons we choose horticulture first and foremost, practical horticulture for the purpose of using it as our unwritten lesson book to instill into the minds and hearts of the children of our common schools, a store of in-

formation of inestimable importance and surpassing interest — knowledge of the existence and infinite attributes of that Being who, "in the beginning, created the heaven and the earth, and without whom, was not anything made that was made."

We have now submitted and briefly considered four arguments for an affirmative answer to the interrogatory at the head of this paper, namely:

First. Such schoolship would be in accord with the prevailing tendency of the age to practical education.

Second. Such schooolship would be in special harmony with the natural instincts and inclinations of children.

Third. Such schoolship would provide a welcome and profitable variation from the ordinary routine of school requirements.

Fourth. Such schoolship would offer favorable opportunity for the inculcation of the primary truths of morality and religion.

We have, moreover, failed to find any valid objection to the measure herein advocated.

Other arguments might be adduced and elaborated, but the faithful watch reminds us that our twenty minutes of time have already became a portion of past eternity and we must retire from the stand.

We only observe that there is room on the subject of this paper for another one to discuss the general question of its practicability; to suggest measures for its accomplishment, and to propose a suitable plan and programme of daily school work.

But in an excellent and instructive essay on floriculture, in connection with common school or ornamentation of school grounds, read at the summer meeting of the State Horticultural Society at Ripon, last June, by our friend D. Huntley, of Appleton, these points, or a part of them are treated with much ability, and in a manner quite fitting to our special need. With his consent, therefore, we appropriate his remarks as the additional paper just suggested, and hold that we have, to the best of our ability, performed and completed the duty assigned us for the present occasion

and are prepared to affirm, unequivocally and emphatically, horticulture ought to be taught in our common schools.

SOME QUESTIONS IN HORTICULTURE.

BY PROF. E. S. GOFF, GENEVA, NEW YORK EXPERIMENTAL STATION.

I have purposely chosen a broad subject in order that I may not be restricted in the field covered. One usually talks or writes most fluently upon the questions that are uppermost in his mind. It will not be strange then, if one whose occupation is to carry on experiments in connection with horticulture should write from the standpoint of the experimenter, rather than from that of the practical gardener or fruit grower. But all intelligent and thoughtful tillers of the soil are interested in experiments that promise to throw light upon the many dark questions connected with their occupation. I shall not attempt to consider all the unsettled problems of horticulture, but only a few that apply to fruit growing in Wisconsin.

Can the parts of Wisconsin in which our present varieties of apples fail, hope to produce their own apples?

Many observing men are becoming convinced that the apple problem for the northwest is not to be solved by adopting Russian varieties. It does not seem difficult to find sorts that can endure Wisconsin winters, but other difficulties are encountered. Many Russian varieties that are perfectly hardy to resist cold, suffer severely by blight in summer. Very few of them are of high quality, and most of them are found to ripen early in the season, and to keep poorly during winter. I am not without hope that varieties of Russian apples may yet be found that shall prove hardy both in winter and summer, that shall be of fine quality and that shall be good keepers during winter.

But even if we are compelled to admit that the Russian apple is a failure, need we give up the problem? I say emphatically NO. The fact that our Russian neighbors, by long continued propagation by seed, and careful selection, have found varieties suited to their wants, is the very best

argument that by adopting their methods to some extent, we can develop varieties that shall be equally well suited to our wants. We have not only their successful example to encourage us, but we have their cold resisting varieties to cross with ours that are of better quality, of more congenial season, and that are able to endure our summer heat. Herein lies our hope. We must give up the idea that we can transplant our orchards bodily from Russia, and resort to propagation from crossed seeds. Nature will assort our seedlings with respect to hardiness, and we need select only with regard to quality and season. And right here let me emphasize one fact. We can do nothing at acclimatization so long as we propagate by grafting or budding, for this reason. When we propagate a plant in this way we are only dividing up a single individual into new plants. All the true Baldwin apple trees in the world have been grown from parts of one original seedling Baldwin tree. We may take buds or cions of the Baldwin apple where we may; under conditions where the original Baldwin tree would not have succeeded, the tree worked with its buds or cions will not. But when we grow plants from seeds, there is variation in the progeny, and even if the conditions are quite different from those that surrounded the parent plant, some of the seedlings may very likely prove able to endure the new environment. This fact is well illustrated by a statement made by Mr. Darwin in relation to growing the sweet orange in Italy. For centuries the sweet orange in that country was propagated exclusively by grafts, and so often suffered from frosts that it required protection. After the severe freeze of 1763, so many of the orange trees were destroyed that experiments were made in growing seedlings. The trees thus raised were found to be larger, more productive and hardier than the former kinds, and now it is said that the orange in Italy is propagated to a large extent from seeds. It is stated that more was accomplished for the sweet orange in that country through the growing of seedlings during a period of about sixty years than had been effected by the grafting of old kinds during many ages.

At the Wisconsin Experiment Station should be planted out a small collection of trees of our finest native varieties of apples, and closely intermingled with these, trees of the hardiest and longest keeping Russian sorts, in order to furnish, when they come into bearing, crossed seeds for distribution to various parts of the state. Trees from these seeds should be permitted to grow without grafting or budding to bearing size, when those unworthy of preservation can be top-worked if desired.

I sometimes question if it would not be better to permit all seedlings to grow to bearing size before working. Who can tell how many truly valuable varieties have been sacrificed by grafting or budding the seedling trees to sorts of only ordinary merit? Mr. Downing relates of the Washington plum, one of the finest of all varieties, and one which has been a standard for sixty years, that the original seedling tree had been grafted to another variety, but a sucker which grew from its roots was transplanted and by good fortune, escaped destruction by the grafter's art.

I recently met an interesting note in relation to the origin of the Bartlett pear, the acknowledged standard summer variety of America, England and France. This note was quoted by the *Gardeners' Chronicle*, from an old report of the Horticultural Society of London (1816), and reads: "This pear * * * appears to have sprung from seed in the garden of Mr. Wheeler, a school-master, about twenty years ago (which would place its birth about the year 1794) *and was suffered to remain in order to prove the value of its fruit.*" Fortunate, indeed, is it for the world that Mr. Wheeler was not a nurseryman. If he had been, this best of all pears would in all probability have been sacrificed to serve as a stock for some coarse-grained and gritty sort of which we have never heard.

This brings up question number two. Could we prevent cross fertilization in the blossoms of our fruit trees, how far would varieties reproduce themselves? It is well known that certain varieties of the plum and peach may be depended upon to reproduce themselves from the pit, and in Russia, certain varieties of the apple, it is said are propa-

gated by seed. Possibly, by protecting individual branches on our fruit trees from cross fertilization, by inclosing them in sacks, we should discover that many of our varieties are capable of reproducing themselves from seed. As is well known, seedling trees are longer lived, and often much more vigorous than the trees grafted from them. In the indiscriminate grafting of seedling stocks with named varieties, it doubtless often happens that the stock is not well adapted to the variety worked upon it, and a short lived, or unproductive tree is the result.

Prof. Henry's experiments with grapes at the Experiment Station have raised another question in my mind. His results have been very satisfactory, notwithstanding the fact that he leaves on much more wood than is regarded as orthodox in the east. I have often seriously questioned if the removal of so much of the annual growth of wood as is practiced in the eastern vineyards can be other than detrimental. We know that under the present system of culture the grape is peculiarly subject to disease. Prof. Scribner has described six different fungus diseases of the vine, three of which are extremely destructive in certain parts of our country. The query arises, may not this great liability to disease be the result, in part at least, of weakness due to excessive pruning? Some experiments seem to show that the productiveness of the vine might be increased by a less vigorous system of pruning. An editorial note in the *Country Gentleman* for 1885, p. 108, states that in a trial made in a Cincinnati vineyard in which vines were planted twelve feet apart as an experiment, the bunches averaged fully double the size of those on vines planted at the ordinary distances. In another instance, mentioned in the same article, the owner of a successful Isabella vineyard near Peekskill, who had placed his vines at the usual distances, allowed the outside row to extend twice as far over a roadway. The superior size, quality and appearance of the bunches on these extended vines were in striking contrast with the others. I am told, however, that similar experiments made in the Chautauqua vineyards did not show any advantage in productiveness from giving the

vines increased room. The influence of a less rigid system of pruning upon the health of the vines has not, so far as I know, been made the subject of investigation.

This brings up the question: To what extent can we prevent injury from fungus diseases by the use of preventive applications? Prof. Scribner hopes that he has found a remedy for the black rot of the grape. Our experiments at Geneva show that we can diminish the damage from the apple-scab and gooseberry-mildew by spraying the foliage with soda-hyposulphite or potassium-sulphide. An experiment made in France offers promise that we may be able to prevent the ravages of the potato disease by treating the foliage with some of the compounds of copper. These suggestive facts open a broad field to the experimental horticulturist. The partial success already attained in combatting parasitic fungi offers grounds for hope that very much more may be accomplished hereafter.

Are any of our wild fruits so far susceptible of improvement that they may become valuable additions to our gardens or orchards? As a matter of fact we have severely slighted our native fruits. In the countries of the old world, where horticulture has been nourished by thousands of years of civilization, a class of fruits has been developed admirably adapted to their soil and climate. We have sought to reap at once the benefit of that long process of improvement by removing their fruits to our land, with its widely different climatic conditions. To what extent our precarious fruit crops are assignable to this cause I do not know. The foreign grape we have been compelled to abandon, and in its stead has sprung up within the past few years a multitude of vastly improved varieties of our native grapes. The same may be said of the raspberry. I question if it would not have been a good fortune for us had the imported plum and cherry been a little more susceptible to injury from the curculio, and slightly less able to endure our winters. We should then have been driven back upon our native species of these fruits, and by this time might have been rejoicing in a long catalogue of delicious native plums and cherries that should be as hardy as their unim-

proved parents. I believe that one boon that the experiment station is to confer upon horticulture is the demonstration that, with some exceptions, America's native fruits are capable of furnishing varieties equal in quality to those of the old world with the very great advantage that they shall be able to cope with our climatic conditions.

Whether or not we have wild fruits not yet introduced into culture that are capable of amelioration is another phase of the question. The Dwarf Juneberry, *Amelanchier Canadensis*, has been tried in certain localities and offers some promise. The different species of the huckleberry and blueberry, though taking less readily to culture than the above, are enough superior in quality to merit more persistent efforts for their improvement. We have domesticated the cranberry, a cousin of the huckleberry, not by compelling it to adapt the conditions of ordinary culture, but by suiting our treatment to its ascertained needs. I know of no reason why the huckleberry and blueberry should not become profitable market fruits when we have learned how to make the compromise between their exacting requirements and our arbitrary culture.

One more question and I shall close. To what extent can the vigor of trees or plants that are propagated by grafts, buds or cuttings be increased by selecting the parts for propagation from exceptionally vigorous plants? It is distinctly stated in works on grafting that weakness and disease are transmissible through the graft, but, with what seems strange inconsistency, it has been maintained by horticultural writers and nurserymen, that any increase in vigor through selection is impossible in plants propagated by division. Notwithstanding, the experience of President Smith with the Wilson strawberry and the trials made at the New York Agricultural Experiment Station with potatoes have shown conclusively that in these plants, at least, which are propagated by offsets, much can be gained by selections from the strongest individuals. If it should be found that our fruit trees may be increased in vigor in a similar way, a very important point will be made. Indeed, the whole matter of the relation of the grafted or budded

tree to its parent needs to be thoroughly investigated. Nurserymen have assumed that it makes little difference where they obtain their cions or buds so long as they are of the proper variety, but the most observing and skillful grafters insist that it does make a great difference. Carrière, a learned French horticulturist, declares* that in budding roses, he can produce plants that flower profusely, that flower sparingly, or that do not flower at all by selecting his buds from different parts of the same plant, and he adds that it is very probable that the same principles apply to fruit trees. Evidently the whole science of propagation has not yet been worked out.

I have perhaps already suggested work enough to occupy the experimenter much of his time through some years of patient labor and investigation. Experience has taught me that it is far easier to lay out experiments than to execute them, especially when they must extend through a term of years before yielding their results. But that which is easiest accomplished is not as a rule most valuable. Thanks to the generosity of our national government, our experiment stations are now in a situation to undertake lines of investigation for which the rewards can be expected only after the lapse of years. Not that it is pleasant to look forward to long years of patient watchfulness, but because of the conviction that the most truly valuable results are attainable in no other way. Those who are so impatiently looking to our experiment stations for a harvest, should temper their disquietude by reflecting how much more anxious must those be to whose lot falls the execution of these experiments. Instead of manifesting impatience at the slowness of results, we may better rejoice that a new era is dawning for horticulture, and rest assured that valuable results are certain to follow in due time.

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* Production et fixation des variétés dans les végétaux, p. 60.

REPORTS FROM LOCAL SOCIETIES.

REPORT OF RIPON HORTICULTURAL SOCIETY.

This society is in a prosperous condition, having a membership of thirty-five. Its meetings are held on the third Wednesday of each month. Nearly all who belong to the society are engaged in growing small fruits.

Our strawberry crop the past season was good. Raspberries wintered better than usual and consequently the crop was rather above the average. Blackberries were affected with a disease, resembling rust, that killed the leaves, and a large part of the fruit did not mature properly. We got a fine growth of cane, however, and are hopeful of a good crop next season. Our annual meeting was held January 23 and following officers chosen for the next year:

President — R. D. Mason.
Vice President — Mrs. L. Hood.
Secretary — A. S. Crooker.
Treasurer — E. Woodruff.

The members of our society feel that great benefit was derived from the summer meeting of the State, and we trust that its influence may be increased more and more.

A. S. Crooker,
Secretary.

WAUPACA HORTICULTURAL SOCIETY AND IMPROVEMENT ASSOCIATION.

[Organized January 4, 1889.]

The Waupaca Horticultural Society and Improvement Association elected for its officers for the year 1889:

President — Chas. Churchill.
Vice-President — I. N. Dakin.
Secretary — A. D. Barnes.
Treasurer — Mrs. I. N. Roberts.

We secured a charter membership of over sixty names. We will hold another meeting on February 9th. Our society surely has a flattering prospect. We are bound to instruct the good people of Waupaca county of the benefit of growing gardens and small fruit. We shall also use every endeavor to urge people to *fix up.*

ASA D. BARNES,
Secretary.

REPORT OF JANESVILLE HORTICULTURAL SOCIETY.

Our society has just entered on its twenty-second year. There have been but few changes, some have died, others moved away, and the few that are left meet occasionally. The annual meeting was held January 3d and the following officers elected:

President — Geo. J. Kellogg.

Vice President — James Helms.

Secretary — E. B. Heimstreet.

Treasurer — Dr. J. B. Whiting.

Board of Trustees — D. E. Fifield, Dr. O. P. Robinson, I. C. Sloan, John R. Bennett, J. J. R. Pease, B. Spence.

Geo. J. Kellogg and E. B. Heimstreet were elected delegates to the meeting of the State Horticultural Society at Madison, February, 1889. It was decided to hold a meeting for the exhibition of fruits, in September, at Janesville. Our society now numbers about thirty members, and we are in good shape financially.

E. B. HEIMSTREET,
January 5, 1889. *Secretary.*

REPORT OF THE AMHERST HORTICULTURAL AND AGRICULTURAL CLUB.

This society was organized at the town hall in Amherst, April 23, 1888. The object of the organization was to meet together and discuss questions relating to horticulture and agriculture; to elicit information, and to advance the in-

terests of those engaged in these pursuits. The meetings were held monthly through the summer, a part of the time at the town hall, and a part of the time at members' houses. At the meeting in July, President and Mrs. J. M. Smith, attended, and gave us valuable advice and counsel. Our annual meeting was held in October, 1888, at which the following officers were elected for the ensuing year:

President — J. H. Felch, Amherst Junction.
Vice-President — G. W. Thompson, Amherst.
Recording Secretary — A. J. Smith, Amherst.
Corresponding Secretary — E. Grover, Amherst.
Treasurer — Mrs. B. Rice, Amherst.

S. N. Buswell, B. Rice, Wm. Robatham and J. Harkness, additional members of the executive board.

From October to April, our rules required semi-monthly meetings. As two fairs are held yearly in Portage county, no provision was made for holding exhibitions.

A. J. SMITH,
Secretary.

Amherst, Wis.

REPORT OF OSHKOSH HORTICULTURAL SOCIETY.

The active membership of this society is very small, and consequently the interest is in the same direction. We are now considering the question of inviting the state society to hold their summer meeting with us, to if possible enthuse more life.

The officers for the ensuing year are:
President — K. M. Hutchinson.
Vice-President — Andrew Haben.
A. H. Bartlett — Secretary.
Treasurer — George Reese.

A. H. BARTLETT,
Secretary.

REPORT OF LA CROSSE COUNTY AGRICULTURAL, HORTICULTURAL AND DAIRY ASSOCIATION.

This society has been organized nearly two years; has held regular monthly meetings during the year past on the first Saturday in each month. One-third of the time is given to horticulture, but generally one-half is taken. Last June we held a strawberry exhibition, at which about thirty dollars was paid in premiums. At the last annual meeting held Jauuary 5, 1889, J. S. Harris, of La Crescent, Minn., was elected president for the ensuing year. By this acquisition we hope to make our meetings more interesting during the coming year, and it is hoped that President Smith or Secretary Hoxie may be present at some of our meetings.

A. J. PHILIPS,
Secretary.

REPORT OF GRAND CHUTE HORTICULTURAL SOCIETY.

[Appleton, Outagamie county.]

This society was never in more prosperous condition than at the present time.

The meetings have been more interesting the past year than ever before, and the attendance has been larger than at any former time; fifteen new members have been added to the society the past year.

It has been the custom for some time past to have an exhibition of the fruits and flowers of the season at each meeting, and after the picnic dinner, which is always a social and refreshing feature of the occasion, the fruits and flowers are displayed on a long table in the center of the room; the meeting is called to order and the merits of the fruits discussed, papers read, etc.

The annual meeting in January is a business meeting and social gathering, and an opportunity for rehearsing the experience of the year.

The April meeting is one of anticipation mostly, and preparation for purchasing seed and for spring work.

The summer meeting or strawberry festival, in July, was one of special interest. Nearly all our members grow strawberries for their own use and some for market. At this meeting many showed specimens of their finest berries in such quantities that the table was abundantly supplied with all the fruit required for a company of sixty persons.

Flowers, also, were exhibited in large quantities, especially roses; the display of this grand old flower was the largest and best ever made in this county. There were also syringas, peonies and pansies and other flowers of the season. Of strawberries we have many of the new varieties, prominent among these is the Jessie; many of our members have planted this famous berry, some very good specimens were shown, but we have not as yet realized our expectations in regard to size or productiveness. There were also shown some very fine specimens of the Sharpless and the Manchester, which we consider one of the best of all our strawberries. The Crescent and the Wilson hold a prominent place. We are trying a few varieties, new in this locality, such as the Jewel, the Crimson, Chester and the Bubach, all of which promise well.

Mr. Bounds, one of our members and largest gardeners, has been very successful in propagating seedling strawberries. He has three varieties that are very fine, one of them gives promise of great excellence. The discussion at this meeting was on different varieties and best methods of cultivation.

The autumn meeting or grape festival held in October was one of the largest and most interesting meetings of the year. All our members are interested in grape culture. We have some of the best of the white grapes, also of the red and the black. The Niagara, in this locality, is very productive and very satisfactory in every particular. The Pocklington is a beautiful grape and becomes more productive with age. The Martha also gives good satisfaction. The Brighton, the Delaware and the Agawam are the best red grapes; the Concord, Worden and Moore's Early are the best black grapes for this locality.

Of our orchards we can say but little; the old hardy kinds

are nearly all dead; a few have set the new Russian varieties. Some have grafted young trees with scions of the old Harvey, presented to the society by Mr. L. Witt of Sheboygan county. This apple has proved hardy in Wisconsin, is a good bearer and will keep till spring.

One of our oldest members, Mr. L. L. Randall, has been very successful in propagating seedling apple trees. He has a large number of seedlings of the Duchess that are very promising, and as hardy as the parent trees, some of them especially fine, excellent for cooking and much longer keeper than the Duchess.

The annual meeting of this society was held January 3d. E. Spencer was elected president; A. H. Bush, treasurer; Mrs. D. Huntley, secretary.

MRS. D. HUNTLEY,
Secretary.

WAUPACA COUNTY HORTICULTURAL SOCIETY.

We have now about forty members. We keep up our meetings, some of which are quite interesting. This has not been a very favorable year for most kinds of fruit. Apples have not done much and grapes lacked flavor.

Still, at our September meeting, a few kinds of our Waupaca seedling apples were on exhibition, bravely sustaining their high reputation. Our present officers are:

President — A. W. Balsley.
Vice President — John Almon.
Secretary — J. Wakefield.
Treasurer — Jas. Jenney.
Executive Committee — E. W. Wrightman, W. A. Springer, W. Wilson.
Delegates to State Society — Hollis Gibson.

J. WAKEFIELD,
Secretary.

Fremont, October, 1888.

FREMONT HORTICULTURAL SOCIETY.

We have about twenty members. Our officers are:

President — C. F. Eaton.

Vice President — Paul Scheisser.

Secretary — J. Wakefield.

Treasurer — Jacob Steiger.

Executive Committee — W. A. Springer, Henry Spindler, C. B. Barnes.

Our meetings are quite well attended, and many good specimens of fruit are generally placed on exhibition. There is quite a demand for the reports of the state society, and their cost is certainly not thrown away.

J. WAKEFIELD,
Secretary.

REPORT OF THE WAUKESHA COUNTY HORTICULTURAL SOCIETY.

Report of this society is but little changed from the last. A few members have been added but the old ones put their shoulders to the wheel and still move forward. We have held a few meetings during the past year which have given much pleasure and profit to those present.

The annual meeting, held March 16, 1889, elected the following officers:

President — Alex Cook, Waukesha.

Vice President — A. U. B. Dey, Pewaukee.

Treasurer — A. I. Gale, Waukesha.

Secretary — Isaac Gale, Waukesha.

Executive Committee — G. P. Peffer, O. P. Clinton, S. Eales.

ISAAC GALE,
Secretary.

REPORTS OF COMMITTEES ON OBSERVATION.

DISTRICT NO. 1.—GEO. P. PEFFER, PEWAUKEE.

Conditions of Temperature, Storms, Etc.

March 22, mercury was eight degrees above zero. The previous warm weather had invited robins and blackbirds, but the morning of the 23d our evergreen grove was filled with bluebirds and robins, who had found shelter from the cold. These stayed nearly a month before they went further north. On the 25th we had a cold snow storm. April 9th, commenced to rain and we had rain most every other day through the month, which made disagreeable and late seeding on clay soil. May 6th. Southern birds are on hand; oriole, warblers and martins. May 16th. Currants, gooseberries and early August plums in bloom. May 27th, apples and pears were in bloom. Cherries were killed in the bud. The month of May was favorable for planting trees and seeds; plenty of rain but cold; fruit blossoms nearly two weeks later than usual. June 17th. Saw the first grapes in flower; wild natives, Florence and Janesville. Saw some rust on apple leaf, owing to warm, moist weather, but no signs of blight yet. June 24th, we had our first ripe strawberries.

Nearly all varieties of grapes are in bloom with no signs of mildew yet. Nearly all the plums are dropping off, stung by an aphis; all seem to be fated. Clover, white and red, full of weevil; nothing for bees in the blossoms. Trees of all kinds, grass and grain, making a strong growth.

July 18—Little rain this month; a small shower to-day. Tetofsky and Yellow Transparent getting ripe; perfect in fruit. Grapes setting well on vines.

August 1st—Warm and dry. Codling moth and apple gougher are having a good time. Small fruit, good; black-

berries are yet in season and doing well. Early apples plenty and low in price.

Varieties Fruited the Preceding Year.

Owing to the dry fall late varieties of fruit matured early, consequently smaller in size than that grown further north.

Commenced feeding our stock the middle of August as fall pasturage was dried up. Trees ripened up their wood early, so we predict no bark bursting this winter.

Apples and plums blossom well, but pears and cherries were killed in the bud. Small fruit varieties all blossom and most everywhere in our district fruited an average crop, except the grape. They bloomed late and late varieties did not ripen before frost took them, these on high ground, more exempt from frost, all ripened before frosty weather set in, and were satisfactory.

Soils, Sites and Resources.

Page 159, transactions of 1888, gives full account for this district.

Fruit Growers, Seedsmen, Gardners and Nurserymen.

I refer to last year's list. No new nurseries.

Fruit List, Showing Best Selections of all Kinds and Varieties for this District.

Our district varies so much on account of its facing Lake Michigan, and the soils and elevations are so in variance so that nearly 200 varieties were fruited, but of course, not every where, as the list would be too long to name here. I refer to pages 251 and 252, transactions of 1887. With us, twenty miles west of the lake and elevated about 384 feet above Lake Michigan, this list did the best, viz.:

Summer Apples.—Tetofsky, Yellow Transparent, Lyman's Red, Golden Sweet, Wm. Favorite, Sour Bough, Duchess and Summer Rose.

Fall Apples.—Fall Orange, Fall Greening, Fall Stripe, Clark's Orange, Haas, 20 Ounce Pippin, St. Lawrence, Lyman's Yellow, Wealthy, Fameuse, and others.

Winter Sorts.— Pewaukee, W. Seek-no-further, Talman Sweet, N. Spy, Willow Twig, Golden Russett, Walbridge, Jonathan, Canada Red, and others.

Crab Apples.— Gibb, Thompson, S. Russet.

Pears.— Flemish Beauty, Seckel, Clapp's Favorite, Ananas d', etc., Summer Bergamot, Winter Nillis, White Doyenne, B. d'o Aujn, Swan's Orange, Matilda, Pfs. No 3.

Plums.— Most all the European varieties near Lake Michigan, also Desota, Weaver, Forest Garden, Miner, Early August, Winnebago and other native varieties in the western part of the district.

Cherries.— Early Richmond, Kentish and Morello.

Grapes.— Moore's Early, Florence, Worden, Delaware, Concord, Brighton, Niagara, Rog. No. 4.

Raspberries (Black).— Nemaha, Gregg and Souhegan.

Raspberries (Red).— Turner, Clark, Cuthbert, Shaffers, Brandywine, Marlboro and Philadelphia.

Blackberries.— Ancient Briton, Stone's Hardy, Snyder, Erie and Lucretia.

Strawberries.— Wilson, Crescent, Jessie, Manchester, Jewell and Bubach.

Currants.— White Grape, Red and White Dutch, Fay's Prolific, Lee's do. (black), Long Bunch Holland.

Gooseberries.— American, Houghton, Downing, Smith's Improved and Mountain.

Juneberry.— Dwarf.

Fruit Crops, Acreage, Markets, Prices, Etc.

Fruit crops were large, above an average, and the acreage is increasing from year to year, small fruits in particular, and remunerating prices were realized. Strawberries in the Milwaukee market for home grown fruit, averaged about ten cents per quart net.

Raspberries, black, per quart		$0 13½
red, per quart		12
Blackberries, per quart		10
Grapes, Concord, 2c per pound, 10 pounds per basket		20
Delaware, 10 pounds per basket		32
Brighton, Worden & Rogers, 10 pounds per basket		35
Gooseberries, per quart		10
Currants, per quart		8
Cherries and plums, per quart		8
Summer and fall apples, per bbl	$1 25 to	2 00
Winter apples, per bbl	1 75 to	2 75
Pears, per bbl	3 00 to	5 00

Horticultural Exhibitions, Meetings and Societies.

Waukesha County Horticultural Society held their annual meeting the second week in January, and elected Alexander Cook president, Isaac Gale secretary and N. J. Gale treasurer; had their annual exhibition in connection with the County Agricultural Society, in August last, had a very good show, and is financially in good standing.

The Wisconsin Florist and Gardening Club, held regular monthly meetings during the year, and will probably report to this society themselves. C. B. Whitnall is president and Jas. Alex. Fraser, assistant secretary, Milwaukee, Wis.

Diseases, Insects, Etc.

Our friends that were so useful last year, preyed on destructive insects. We lost the lady bug and midge that preyed on the cabbage worm and codling moth and aphis during last winter or wet spring, or perhaps that frost on the 15th and 16th of May last killed them, for the cabbage worms, codling moths and aphis were very plenty during the past season, also curculio and apple gouger; the last named is on the increase, and we find many varieties stung by this little beetle, and no remedy has yet been found, because it doesn't feed on the foliage, but stings the fruit and eats the inside. Owing to our dry fall no mildew was noticed on the leaf, nor have we seen any fire blight on fruit trees of any kind.

Vegetable Gardening.

This was very successful during the fore part of the season, and every thing planted grew well, but varieties of vegetables that were to mature late suffered some from drouth, such as celery and late cauliflowers, etc. Cabbage was, and is now, very cheap, and so is all garden stuff, and no family need be without vegetables even if they did not raise it themselves, as they can be bought very cheap.

Cabbage, $1 to $2 per 100 heads; carrots, $1 to $1.25 per barrel; rutabagas and turnips, 75 cts. to $1.25 per barrel; onions, beets and turnips, same prices; potatoes, 25 cts. to

35 cts. per bushel; squashes (Hubbard), $2 to $3 per 100, and other vegetables in proportion.

Flower Culture, Tree and Ornamental Planting.

This last spring all have done well where the trees or plants were not dead before they were planted, as last spring was about as favorable for transplanting or seeding as could be wished for, although it was very dry the last of summer and fall, all good trees and healthy well-rooted plants got well started before the dry weather set in, and our favorable winter thus far in their favor will make big growth next summer. Fall planting fruit trees we don't recommend in this district as there mich sso risk in this climate on account of some of our long cold winters; only once in about six or eight years fall planted trees will succeed.

Methods of Culture, Training and Management, Worthy of Note.

All small fruit should be planted in rows and far enough apart to let a horse and cultivator through between the rows, as one of the main requirements is *clean culture* and plenty room for roots and sunshine.

For Bush and Berry Plants.— Pinch out ceuter or brake off the new shoot when about two or two and one-half feet high, when in full growing season, in order to make side branches and a strong cane.

Orchard Trees.— When first planted, keep ground cultivated with some hard crop, and body shaded on the south, until branched out enough to protect the body from the noon-day sun.

Grape Vines.— Keep ground clean, cut back first year's growth to two or three eyes; second year two canes to same; third year, one branch, five eyes, one branch, one eye; each vine having now two branches, will be bearing now, and from five to eight clusters to grow from each vine hill; renew next year.

New or Specially Valuable Sorts and Their Tests with Regard to Hardiness and Adaptation.

The Jessie strawberry has proved a better bearer and a healthier plant than what we had expected from last year's experience and planting, and therefore make mention here. New varieties of seedling apples, Peffer's No. 20, took the first prize at the late state fair, as a fine, large and showy, and good, quality fall fruit; it is a seedling of Duchess fertilized with Red Winter Pairman tree over twenty years old; has fruited alternate years for ten or twelve years; always fine fruit every other year; similar in shape and color to Duchess, but better in quality.

Peffer's No. 3 pear is a seedling of Flemish Beauty, fertilized by Paradise de Autumn; seed planted in 1871, and is a perfectly healthy tree; has not been affected by cold or sun; has not shown any blight nor colored wood by cold; cions have been sent to many parts of the northwest some eight or ten years ago; those that have reported say it is hardy, but only a few have yet fruited it; with us it is very satisfactory.

Quality—It takes more after Paradise de Autumn, and is almost a fac-simile of Flemish Beauty in shape and size; is better for canning, preserving, etc., but not as good as Flemish for dessert or from the tree; has fruited now six years.

Lucretia (dewberry), a low trailing vine, produces a fair fruit; right after the Nemaha and Gregg raspberries; it is a sure bearer, as the buds seldom kill in winter if snow at all is on the ground; it is about the only variety of the blackberry family that is sure to bear, as it is naturally protected by the snow.

Dwarf Juneberry—This is getting introduced in parts of our district. The fruit resembles the blueberry and comes in with the late strawberries and currants; is a great favorite for with robins, cherry bird, and other fruit eating birds, they prefer it to the cherries, and it will pay to raise them on purpose to feed to them, as it will save the more useful varieties of berries and cherries.

Matilda Pear is a seedling of the Seckel, raised by a daughter of Mr. J. M. Alcott, of Milwaukee. The original tree is now about twenty-three years old and stands in a yard on Jackson street; seems hardy; fruit as fine as Seckel; good size, and one of the finest for the lake shore.

DISTRICT NO. 2 — FRANK PHŒNIX, DELAVAN.

Varieties Fruited the Preceeding Year.

Apples — Fameuse, Fall Orange, Golden Russet, Forest, Cardinal, Cellini Russian, Alexander, Ramsdell's Sweet, Fall Strawberry.

Siberian crab — Florence, Martha.

Gooseberries — Industry, Downing, Triumph, Champion, Orange.

Currant — Red Dutch, White Dutch, Victoria, Cherry, Fay, Stewart's Seedling, Long Bunch Holland.

Currant, black — English, Lee's Prolific.

Strawberry — Wilson, Manchester, Jessie, Crescent, Cumberland, Sharpless, Bidwell, Jewell, Bubach.

Raspberry, black — Gregg, Ohio.

Raspberry, red, etc. — Turner, Cuthbert, Marlboro, Reliance, Golden Queen.

Blackberry — Snyder, Stone's Hardy, Thornless, Kittatinny.

Grape — Delaware, Concord, Lady, Brighton, Worden, Elvira, Wyoming Red, Niagara, Duchess, Pocklington.

Soils, Sites and Resources.

Soil opening, clay loam on gravel subsoil 1 to 3 feet from surface. Surface mostly level, say 30 feet above creek one-fourth mile distant. Location of fruit garden, in village of Delavan. Some stable manure, wood and coal ashes, house slops and a little bone dust for experiment. Also beginning with wire screened plastering sand to cut the surface clay thrown up from deep spading.

Fruit List, Showing Best Selections of all Kinds and Varieties for the District.

Choose most hardy, healthy, productive sorts. I most profoundly believe in planting apple trees stem-worked 3 to 4 or 5 feet from ground on approved Siberian crab stocks.

Fruit Growers, Nurserymen, Seedsmen and Gardeners.

Joseph Wright, gardener; Alex. Miller, gardener; Mr. Hollenbeck, small fruit and vegetables; Mr. Griffin, vegetables; Mr. Converse, vegetables and fruit; Horace Sheldon, strawberries; C. T. & H. Smith, potato farmers.

Diseases, Insects, Etc.

Potato bug, striped bug, currant and gooseberry worm and rose slug, all yield very readily to Church's Bug Finish, made of land plaster with small per cent. of Paris green ground in, kept by druggists, five cents per single pound. It is very easily dusted on, and for potato bugs, currant, gooseberry worm, with their four crops a year, should be applied four times more or less in a season as needed.

Fire blight, after three years' practical subsidence, has re-appeared this year, 1888. Orange rust on raspberry and blackberry plants, I think, was nearly killed out by the great heat and drouth of the past two seasons. If this proves to be a fact it will go far toward establishing blood-poison, sap-deficiency as the cause, and properly saturating the soil with needed preventives as sulphur, lime, salt or whatever else will best prevent, as the true treatment. Curculio is the toughest pest, a living refutation to our boasted prowess; but we will conquer even that little Turk yet.

Flower Culture, Tree and Ornamental Planting,

Seems rather on the gain in this neighborhood, but organized, systematic work is greatly needed. It often seems to me many people otherwise capable, are briefly too lazy, too finicky to work in the soil and grow flowers and fruits, earth's most beautiful plant children. They buy fruits and flowers, but alas how many deny themselves the privilege,

the health, the glory of growing them! producing excels and gives double zest to consuming.

Methods of Culture, Training, and Management Worthy of Note.

Culture—yes! Cultivate the child cultivator first. No person should be considered half educated that is not filled full of cultivated love of nature and nature's God the Father of all.

Good soil and culture. Good care for trees and plants as well as for young live stock. A genuine love for them and interest in them. A place in every cultivator's list of farm and garden necessities for health, culture and profit's sake. The soul, the brain, the stomach, the palate, the pocket of the owner, all plead trumpet-tongued for trees, fruits, flowers and plants on every farm and home plat of ground as the poetry perpetual. The perpetual human gala-day, adornment of our northern earth, the bride of Father Sol. I pray let horticulture fully into our souls, homes, churches and schools. Then farewell to beer gardens and all such!

Fight fire blight with sulphur, lime and salt, the three great enemies of vegetable fungi, ferment, mildew and disease, which practically all, as we believe, come from deficiencies in the soil salt; apply carefully as surface manure sulphur, one part well slacked and uncaustic lime four parts, well mixed; dust dewy mornings over foliage three or four times during growing seasons, commencing as buds open in the spring; also stir some into whitewash and apply to trunks and main limbs of trees every year, spring and fall early.

New or Specially Valuable Sorts and Their Tests With Regard to Hardiness and Adaptation.

New and most valuable sorts best adapted to our peculiar soil and climate may be best grown by sowing seed and raising seedlings from our best ironclad fruits, hardihood being the very first requisite. Sow millions of Flemish Beauty pear seed, of Ironclad Russian and Siberian apple seed and so on the whole round of fruits, trees and plants.

Japan plums, two sorts, Ogon, Bohan, trees out past two severe winters seem worthy special mention for promise of hardihood. Trees too small to fruit yet. Foliage peach tree like.

Fay currant, Industry gooseberry seem fairly productive of very showy fruit.

Jessie strawberry grows well this moist season and brings the largest, most delicious berries in our collection or experience.

Champion gooseberry, a native of Oregon, earliest bearing bush, most productive, very healthy plant; fruit medium size and above, greenish or whitish color; tested here three seasons.

Sand cherry, a low dwarf western wild sort, 25 6-year plants 5 feet high gave us in 1887 a bushel of fruit, some yellow, but mostly of black seedlings, ripened in August and useful for cooking and some for eating. A great oddity and very worthy to breed from for the cold northwest.

DISTRICT NO. 3—WARREN GRAY, DARLINGTON.

Conditions of Temperatures, Storms, Etc., and Their Effects.

January and February was extremely cold, the thermometer going as low as 40° below zero. Spring came about the middle of April, followed by frequent showers until about June 10th, when they came less frequent and soon ceased altogether, so that the drouth became very severe in August and September.

Strawberries came late but was a fair crop; picked first ripe ones June 10th.

Raspberries were a light crop, except those that were protected by covering during the winter.

Blackberries that were protected during the winter were a good crop, as the new canes shielded the fruit from the sun.

The latter part of the season was cool as well as dry, causing grapes to ripen very slowly, and were not fully ripe when frost came September 29th.

Varieties Fruited the Preceding Year.

Strawberries — Crescent, Downing, James Vick, Manchester, Bidwell, Wilson and Miner's.

Red Raspberries — Turner, Cuthbert and Brandywine.

Black Raspberries — Mammoth Cluster.

Blackberries — Snyder and Kittatiny.

Grapes — Hartford, Concord, Delaware and Moore's Early.

Apples — Tetofsky, Duchess, Alexander, Fameuse and Willow Twig.

Plums — Miner, Wild Goose, Desoto and Forest-garden.

Soils, Sites and Resources.

Soils varying from sandy loam to stiff clay.

Apples and plums succeed best on clay soils with northern inclination.

Berries and grapes do well on both clay and prairie soils.

Fruit List, Showing Best Selections of all Kinds and Varieties for the District.

Apples — Duchess, Tetofsky, Sweet Pear, Fameuse, Willow Twig, Roman Stem.

Plums, Miner, Desoto, Forest-garden, Wild Goose.

Grapes — Concord, Moore's Early, Delaware.

Blackberries — Snyder, Kittatiny, Ancient Briton.

Raspberries — Turner, Cuthbert, Mammoth, Cluster, Gregg.

Strawberries — Crescent, Downing, Vick, Jessie.

Fruit Crops, Acreage, Markets, Prices, Etc.

Orchards decreasing in number and size. Hard winter killing many trees and damaging others. Quality of fruit poor, prices low. Marked increase in small fruit acreage, especially blackberries and raspberries. But there is not enough to supply the market and prices are good.

The demand for good fruit of all kinds is increasing every year and it will be a long time before the market will be overstocked.

Horticultural Exhibitions, Meetings and Societies.

No exhibitions, except at the county fairs with the agricultural societies.

No horticultural societies in southwest Wisconsin, but we hope to see some before another year.

Fruit Growers, Nurserymen, Seedsmen and Gardeners.

Fruit growers — Geo. Robins, Platteville; R. D. Wilson, Platteville; E. France, Platteville; Wm. Harris, Mineral Point; G. W. Jett, Belmont; Frank Buckmaster, Fayette; D. Clements, Fayette; Silas Hill, Darlington; A. Baker, Darlington.

Fruit and garden — John Peterson, Darlington; Philip Fallows, Brodhead; D. Young, Monroe.

Diseases, Insects, Etc.

Rust seems to be the worst disease we have to contend with, and its effects are seen on nearly all kinds and varieties.

Some black raspberry plantations have been nearly or quite destroyed by it.

Its effects are seen less on red raspberries. The Kittatiny blackberry suffers greatly by it, and there seems to be no remedy but extermination. The thrip has damaged the strawberry crop some, the past two years.

The severe late drouth has nearly destroyed our prospect for a strawberry crop next season.

Vegetable Gardening.

The demand for vegetables is increasing along with that for fruit and, although many have gone into the business, prices continue fair.

Tree Planting.

Ornamental tree planting has taken quite an impetus lately, especially evergreen hedges used for wind breaks, screens, or for ornaments only.

Methods of Culture, Training, and Management Worthy of Note.

It has become an established fact that we must use every possible way to protect our fruits and flowers from our severe winters, and no method seems to be so cheap, and effective as to lay them down and cover them with the soil.

New or Especially Valuable Sorts and Their Tests with Regard to Hardiness and Adaptation.

Moore's Early grape is a new variety and will ultimately take the place largely of the Concord, as its earliness brings it inside of the frost line.

The Jessie strawberry seems to be among those that are coming to the front.

DISTRICT NO. 4—MRS. IDA TILSON, WEST SALEM.

As one of the Committee of Observation, I send in the following notes, only sorry that they are not more interesting and important.

The moisture of spring and early summer gave vegetation a good start, which later dry weather served to mature. The cold, unusual storm, May 9th to 11th, did not prove so disastrous to fruit as was expected. Strawberries were luscious in quality and fair in quantity. As usual, Sharpless, Longfellow, etc., were favorites for home consumption, while Crescent and Wilson were suited to shipping. The promising Jessie is being introduced and tested about here. Mr. A. J. Phillips, our veteran in apple culture, had over a thousand bushels of beauties. His apple exhibit proved one of the most attractive displays both at our home fair and in Monroe county. At our agricultural hall here, Mr. Wilcox, of La Crosse, placed in competition a fine display of apples. Huckleberries, cranberries, and wild blackberries came in wagon-loads. Potatoes were an immense yield and good quality, likewise corn and hay. Oats alone were a partial failure, in consequence of becoming lodged. Prices have ruled fair throughout.

We, as a family, had our first radishes June 3; peas, June 28; raspberries, July 16; blackberries, August 4; tomatoes, August 7; cabbage, August 15; strawberries, June 19.

The Farmers' Club, successor to Horticultural Society, Grange and Alliance, holds regular and enthusiastic meetings at the county court house. J. S. Harris, of La Crescent, Minn., is president, A. J. Phillips, secretary and J. J. Johnson, treasurer.

DISTRICT NO. 5—WM. TOOLE, BARABOO.

Conditions of Temperature, Storms, Etc., and Their Effects.

The winter of 1887 and 1888 was long, an abundance of snow and intense cold, yet apples and small fruits commenced the spring in good condition. The worst ice storm we ever had caused great injury to fruit, forest, ornamental trees and nursery stock. There was some wet weather for a short time, but the summer and fall were an alternation of severe drouths with fairly good weather. The soil was unusually dry when the present winter commenced, but an early protection of snow has prevented the root killing which otherwise might have been feared, and the present outlook is for a good condition of all horticultural stock when the coming spring opens.

Varieties Fruited the Preceding Year.

Of apples, there was a large yield of Fameuse in good quality. The local market was abundantly supplied with Duchess, and a fair supply of other varieties, such as St. Lawrence, Fall Orange, Drap d'Orr, Plumb's Cider, etc. Talman Sweet was in fair supply, but not nearly enough for the demand. The season was off for Siberians. The new Russians yielded fairly well, but the crop was not equal to that of the two preceding years. Codling moth caused an excess of wind falls as well as wormy hard picked fruit.

Strawberries were in good supply and freely used.

Rasperries were not so abundant, and meeting no competition of wild fruit, the supply was scarcely sufficient.

Protected blackberries good. Currants scarce as usual.

Blueberries in good supply and demand.

Soils, Sites and Resources.

We still have the same soils as heretofore, and a few orchards having been placed in the best situations showing that for apples a well drained heavy soil with altitude and northern exposure without very much slope afford the best sites for apples. Altitude, loamy soil, and southern exposure furnish the best sites for grapes. Fortunately with small fruits we can have a wider range of choice, being able with preparation of soil to some extent furnish conditions necessary.

Fruit List, Showing Best Selections of all Kinds and Varieties for the District.

For the best locations previously indicated, the following varieties of apples may be planted: A judicious selection of the new Russians, such western seedlings as N. W. Greening, Wolf River and Winter Orange, with Duchess, Tetofsky, Alexander, Fall Orange, Plumb's Cider, Hass, Wealthy, Drap d' Orr, Golden Russett, Willow Twig. For less favorable sites we must hope for success from the new Russians with Duchess.

Grapes — Moore's Early, Concord, Worden, Brighton, Delaware, El Dorado, Lady and some of the Rogers'.

Blackberries — A. Britton and Stone's Hardy.

Raspberries — Tyler, Doolittle, Gregg, if protected, Cuthbert, if protected, Marlboro.

Strawberries — Crescent, Cumberland, Jessie, Bubach.

Fruit Crops, Acreage, Markets, Prices, Etc.

The utter neglect of any prevention of the ravages of the Codling moth, causes our apples to be too wormy to compete in quality with those from New York, and we still lack winter varieties, so it seems as if to help ourselves and

hold any place in the market, we must give better care to what we have, and try the more promising new varieties and fairly test the new Russians.

There being no opportunity to ascertain the acreage of small fruits, we will state the growers are numerous, the demand great, while the supply is large of good, bad and indifferent. Prices low for apples; very low for poor berries. Very fine fruit bringing from eight to twelve cents per quart.

Horticultural Exhibitions, Meetings and Societies.

We have a county horticultural society which held no meetings of any kind except to elect officers for the present year. The incoming officers have planned for a season of activity, and joint conventions will be held with the county agricultural society and exhibition at the propor season.

Fruit Growers, Nurserymen, Seedsmen and Gardeners.

There might be some additions made to the list in last season's report, but we will hope to make a more full report under this heading another year, through the assistance of our county society.

Diseases, Insects, Etc.

There was a considerable show of blight this season, varieties which were free last year being affected the present season, while the Duchess and some other kinds were not affected. We still have no reason to believe that the average Russian varieties will be more affected with blight than our older varieties have been. Codling moth Cutworm and White crub have given us the greatest trouble among insects. White grub has done more damage to crops of all kinds than all other insects combined.

Vegetable Gardening.

In the market of Baraboo there is much competition in quality, a number of persons giving their main attention to market gardening, while the supply is greatly augmented with surplus stock from farmers. Celery is almost wholly supplied from abroad, but it could be easily crowded out.

Flower Culture, Tree and Ornamental Planting.

In the city of Baraboo one sees a good showing of flowers in the windows, and occasionally a well-kept flower garden and many good lawns. Generally there has not been much judgment shown in the planting of shade trees or shrubbery, but there is a decided improvement in later work of this kind. Through the country opportunities for ornamental horticulture are sadly neglected, although a few farmers deserve much credit for the neat attractive appearance of their homes. There should be more evergreens and more lawns as well as more flowers.

DISTRICT NO. 6—ASA D. BARNES, WAUPACA COUNTY.

No bad storms during the last season to do any damage except one or two bad winds, one in April and one in August. Very deep snow last winter and no frost in the ground when spring came. Small fruits wintered finely, though some were broken down by heavy snow. Apple trees did not winter kill, though one of the coldest winters we ever knew of. Trees ripened early last fall, deep snow and plenty of moisture saved our trees.

Varieties Fruited the Preceding Year.

Tetofsky, Duchess, Wealthy, Haas, Fall Orange, Wolf River, Walbridge, Perry and Golden Russett, with crabs in variety. Duchess, Haas and Wealthy fruited best. Ancient Briton blackberries, Gregg, Cuthbert and Turner raspberries and all kinds of strawberries but Jessie seems the most promising.

Soils, Sites and Resources.

We have all kinds of soils, from very sandy to a red clay. I consider this the best district in Wisconsin for raising small fruit. We have good sites for apple orchards and I consider a high northern slope well protected from winds near water, medium or sandy soil, with chocolate clay mixed, the best site for this county.

Best Fruits for This District.

Apples.— Duchess, Wealthy, Haas, Wolf River, Northwestern Greenings and the hardy Russians.

Cherries.— Early Richmond.

Raspberries.— Turner, Cuthbert and Gregg.

Blackberries.— Ancient Briton.

Strawberries.— Jessie, Bubach and Crescent.

Currants.— Victoria and Long Bunch Holland.

Grapes.— Concord, Moore's Early, Worden and Agwam.

Fruit Crops, Markets, Etc.

Apple crop good but acreage of bearing trees quite limited; thousands of new trees planted within the past two years. Apples last fall $1.50 and $2.00 per barrel. Acreage of blackberries good and excellent crops, except in some localities where they suffered from the drouth. Strawberries an excellent crop and prices good. I had Jessies that fruited from 26th of June to 8th of October. Market good.

Horticultural Exhibitions and Societies.

The State Horticultural met at Ripon last June. A good meeting and a good show of fruits and flowers. We had a most excellent show of apples at Waupaca County Fair last October.

Societies.

Ripon Horticultural, Rosendale Horticultural, Waupaca County Horticultural and Waupaca Horticultural Society and Improvement Association.

Fruit Growers, Nurserymen and Gardeners.

We have very many small fruit growers in this district, but more are wanted; the more raised the better the market. Many gardeners, all of whom were successful the past sesson.

Nurserymen.

John Hewitt, Waupun; Hewitt & Barnes, Waupun; Wm. Springer, Fremont, and A. D. Barnes, Waupaca.

Diseases, Insects, Etc.

Fire blight was our worst disease; trees killing back two years' growth in some instances. We can find no remedy but believe in good, steady growth, and thorough washing with strong soap suds. Green lice and caterpillars do some damage.

Gardening.

Gardening as an industry, is fast gaining in our district, and markets are the very best. Flower culture and tree planting are on the gain and more needed.

Methods of Culture and Management.

For apple and cherry we select good well drained choclate clay loam with northern slope well protected from south and west winds. Plant one rod each way; run rows towards two o'clock sun; lean tree to southwest; plant out early; mulch thoroughly; cultivate two years between rows with potatoes or vegetables; remove mulch first week in September so as to give time to ripen up the wood; bank up trees the last of Octobor with earth sixteen or eighteen inches high, level down the first May. After two years sow to clover; have seen Yellow Transparent fruited in Oconto and Marquett counties. Northwestern Greening seems to be our best new apple.

DISTRICT NO. 8—WM. A. SPRINGER, FREMONT.

The winter of 1887–88 was the coldest ever known in this part of the state, the mercury running as low as 46 and in some localities as low as 56 degrees below zero, which killed many half-hardy trees, outright as well as some Russian, Mulberry, Sycamore and other ornamental shade trees. But, strange to say, Catalpa (two kinds) and Chestnut were little hurt; Mountain Ash, Oak Leaved Ash, Weeping Mountain Ash, Weeping Poplar and Kentucky Coffee trees were not injured.

Varieties Fruited the Preceding Year.

The Duchess stands at the head for fruit and hardiness of tree. Tetofsky fruited moderately and is hardy. Probably no other one variety bore more apples than Wolf River, though the tree was injured some on low and level land. Wealthy did fairly well, and on more elevated land the Haas, Walbridge, Utter, Fall, Orange and some of the Russets bore quite a crop.

Soils, Sites and Resources.

The best orchards are all on high lands or bluffs. There are several orchards in Weyauwega that are doing well and in paying quantities. Mr. J. M. Jenneay has an orchard on the top of Weyauwega hill; his crop was 400 bushels and the principal varieties were: Duchess, 150 bushels; Haas, 150; Fameuse, 18; Utter's Red, Wolf River and some other varieties, making 345 bushels sold at $1 per bushel for the most of them. Mr. Wilson, on the same hill, had about eighty bushels divided among Duchess, Haas, Tetofsky, Walbridge, Pewaukee, Wealthy and Wolf River. Mr. Balch, in the same locality, has an orchard of sixty seedlings and about the same number of grafted varieties; orchard site sloping to the northwest. There are many other orchards of four to six acres that are doing well, and good winter apples sold for $1 per bushel while crabs carefully picked sold at 50 cents. Strawberries and raspberries were marketed mostly at ten cents per quart, and grapes, early varieties, at eight cents per pound. Roger's No. 15 and Concord were a little late and were frosted this year.

Horticultural Exhibitions and Societies.

The June meeting of the Fremont and Waupaca County Horticultural societies were held on the grounds of Wm. A. Springer, and the center of attraction was a bed of Jessie strawberries. All voted it a success but hard to start. The fall meeting of the Waupaca county society was held at Weyauwega and there were 153 varieties of seedling apples on exhibition, and it was estimated that not more than one-

fourth of the varieties grown in the county were on exhibition. At our county fair there was a fine display of seedling apples. A horticultural society and improvement association was organized at Waupaca January 4th, 1889.

Fruit Growers and Gardeners.

Besides the fruit growers I have mentioned we have Mr. A. Smith, of Weyauwega, who has a fine lot of seedling apples; three varieties of Duchess seedlings, quite good keepers, good quality and splendid tree. The small fruit growers in this town who make a business of it are R. Calender, John Billington and Wm. A. Springer, besides many farmers raise all they want and some to spare. O. A. Rich and James Jenney, of Weyauwega, and A. D. Barnes, of Waupaca, are professional fruit growers, as also I mention Charles Churchill, John Ware, E. L. Demerest, M. Raymond, J. M. Dakin and W. H. Holmes, of Waupaca.

Diseases, Insects, Etc.

Blight and sun scald are our worst foes. For blight we cut as soon as discovered, and for sun scald would prefer trees with low heads, or put a board over the southwest side of trunk; for mildew use slaked lime and sulphur put on when the sun is hottest.

Vegetable Gardening.

Many farmers raise fine vegetables for sale, but none make it a special business except in potatoes.

Flower Culture.

I do not know of any professionals, but many a farm yard is beautifully ornamented with choice flowers. Mrs. O. Kingman always has a choice lot; she raised a very choice white dahlia last season from seed, for which she took a premium of $25.

New or Valuable Sorts and Adaptation.

This county commenced settling in 1849, except a mile or two on Little Wolf river. Many of the farmers brought young trees with them, all seedlings; others brought seeds

and planted. Mr. Holis Gibson and others from Lower Canada, brought trees with them, and many of those trees are all right now in tree and fruit. Many of our seedlings have been propagated and scattered from Maine to Alaska; some do not prove hardy except where first grown, while others prove hardy in their new homes. Mr. E. Wrightman, on a southern slope, has a fine seedling orchard growing among boulders and wild grass; soil a clay loam. Mr. Bennett has ten acres in orchard, and mostly seedlings, and seedlings excepted, would plant Duchess, Haas, Fameuse, Wolf River, Perry Russett, St. Lawrence and Fall Orange.

To Mr. Springer's report I append letter of J. M. Dakin, of Waupaca.

[Left out for want of room.]

DISTRICT NO. 9—CHARLES SMEISER.

Conditions of Temperature, Storms, Etc., and Their Effects.

A dry summer and very warm, not many thunder showers and no strong winds and storms—no damage done by storms.

Crab apples do well here in Taylor county. Some farmers are planting out some of the standard sorts; as yet I have none in bearing.

Current bushes grow well, but no fruit ripens, for the worm kills them and it falls off when half grown, and the same with gooseberries.

Strawberries yield a full crop, and raspberries, a yellow variety, bear good crops; other varieties have not been tried yet.

Soils.

Our soil is sand and clay strong, rolling with heavy timber.

Transcendent crab apples sold last fall for one dollar per bushel. We have neither fruit-growers, gardners or nurserymen in this county. Vegetables of all kinds do well.

Our soil lacks lime, and for fruit trees we need to add something of that nature to make them grow well.

TENTH DISTRICT—MRS. M. D. ARNOLD.

DEAR SIR—I had hoped to report something of moment to your society but cannot do so with any satisfaction to myself and breifly will say: The Wilson is the favorite strawberry, Cuthbert and Gregg for raspberries, and Ancient Briton for blackberry. Concord grape for our locality is the one grown with the best results. Owing to the good work of the farmers' institutes several acres of small fruits have been planted within the past two years, and many have planted, for family use who never had more than a taste before. The Horticultural Society at La Crosse is the only organized society within the district. I hope the reports from other districts may be complete and that great good to the horticulturists may result from your painstaking and enquiry.

DISTRICT NO. 12—A. C. FISH.

Nothing very new or different from last year's report. Our spring was cold and backward for grapes, and too cold and dry for their maturity in the fall, consequently this crop was nearly a failure. Small fruits such as strawberries, raspberries and blackberries. Crab apples were plenty in market and I saw fine specimens of Wealthy and McMahan at our county fair as well as De Soto plums and canned fruits. We hope to raise all the fruit needed here as people are planting out more every year and in favorable localities apple trees are being set out.

THIRTEENTH DISTRICT—HORACE BARNES, FLORENCE.

The past summer has been very cool. Frost every month except July, but no bad storms. In apples we grow Duchess, and crabs in variety.

Soils, Etc.

Our soil is a sandy loam; the country new and heavy timbered generally; not much advancement made in horticulture.

Fruit, Crops, Etc.

Not much fruit grown, and fruit is brought in and sold for high prices. Vegetables of all kind do well here.

Flower Culture.

This is my experience last spring. I bought a package of flower seeds for ten cents, said to contain 100 varieties. I sowed them broadcast in the garden, and I think they all grew from a Moss Rose to a Poppy, and many kinds that I never saw before, and for two months we had the finest boquets I ever saw.

The Way We Raise Potatoes in a Timbered Country.

We clear off the timber and burn the logs in large heaps; then scatter the ashes; we then take a heavy shovel plow, with a tongue to the neck-yoke, with a colter so fixed that it will jump everything which it cannot readily cut. This is our breaking plow; we cut seed to about two eyes, and plant in hills about the size of a bushel basket, from six to eight inches deep. This is all the work we do to the crop except to Paris green them, and dig the finest potatoes one ever ate.

REPORT OF COMMITTEE ON PREMIUMS AWARDED AT MADISON, FEBRUARY 8, 1889.

Largest and best display of fruits of all kinds we find five entries, and we award:

Charles Hirschinger, Baraboo, first premium	$10 00
Second, Geo. P. Peffer, Pewaukee	5 00
Third, Geo. Jeffery, Milwaukee	3 00

Largest and best display Russian Apples — Five entries.

A. G. Tuttle, Baraboo, first premium	$8 00
Second, Geo. Jeffery, Milwaukee	4 00
Third, F. H. Chappel, Oregon	3 00

Crab Apples — Three entries.

Geo. P. Peffer, Pewaukee, first premium	$2 00
Second, Geo. Jeffery, Milwaukee	1 00

Pears — Two entries.

Geo. Jeffery, Milwaukee, first premium	$2 00
Second, Geo. P. Peffer, Pewaukee	1 00

Showy Apples — Four entries.

Charles Hirschinger, Baraboo, first premium	$4 00
Second, F. H. Chappel, Oregon	2 00
Third, Geo. Jeffery, Milwaukee	1 00

Adapted varieties — Best five Winter Apples in that portion of the state on a line west of Winnebago lake — Ten entries.

Charles Hirschinger, Baraboo, first premium	$5 00
Second, Geo. Jeffery, Milwaukee	3 00

Best five varieties for east Wisconsin, or that portion of the state east of said line — Five entries.

Chas. Hirschinger, Baraboo, first premium	$5 00
Second, F. H. Chappel, Oregon	3 00

Best five Fall Apples — Four entries.

Chas. Hirschinger, Baraboo, first premium	$4 00
Second, F. H. Chappel, Oregon	2 00

Winter Seedlings not less than three Varieties — Six entries.

E. Wilcox of La Cross first premium	$2 00
Second, Geo. P. Peffer, Pewaukee	1 00

Single Plate varieties for best Winter Seedling — Eight entries.

Chas. Hirschinger of Baraboo, first premium	$1 00
Second, Geo. Jeffery, Milwaukee	50

Single Plate varieties Alexander — Three entries.

Chas. Hirschinger, first premium	$1 00
Second, Geo. P. Peffer	50

Fameuse — Eight entries.

Geo. H. Haines, Waunakee, first premium	$1 00
Second, A. G. Tuttle, Baraboo	50

Golden Russet — Five entries.

Charles Hirschinger, first premium	$1 00
Second, T. H. Chappel	50

Orange Winter — One entry.

Charles Hirschinger, Baraboo, first premium	$1 00

Pewaukee — Six entries.

Geo. P. Peffer, first premium..... $1 00
Second, Chas. Hirschinger..... 50

Plumb's Cider — Six entries.

Chas. Hirschinger, first premium..... $1 00
Second, A. G. Tuttle..... 50

Rawles Janett — Three entries.

F. H. Chappel, first premium..... $1 00
Second, Geo. Jeffery..... 50

Red Romanite — Two entries.

Chas. Hirschinger, first premium..... $1 00
Second, Geo. Jeffery..... 50

Talman Sweet — Six entries.

Chas. Hirschinger, first premium..... $1 00
Second, Geo. Jeffery..... 50

Utter — Six entries.

F. H. Chappel, Oregon, first premium..... $1 00
Second, Chas. Hirschinger, Baraboo..... 50

Wealthy — Seven entries.

E. Wilcox, La Crosse, first premium..... $1 00
Second, Chas. Hirschinger, Baraboo..... 50

Westfield Seek-no-further — Five entries.

Chas. Hirschinger, first premium..... $1 00
Second, Geo. P. Peffer..... 50

Willow Trig — Five entries.

Chas. Hirschinger, first premium..... $1 00
Second, Geo. H. Haines, Waunakee..... 50

Jonathan — Three entries.

James O'Zanne, Somers, first premium..... $1 00
Second, Ges. Jeffery, Milwaukee..... 50

Yellow Bellefleur — Four entries.

Geo. Jeffery, first premium..... $1 00
Second, James O'Zanne..... 50

R. I. Greening — Three entries.

James O'Zanne, first premium..... $1 00
Second, Geo. Jeffery..... 50

New Town Pippin — One entry.

James O'Zanne, first premium..... $1 00

Northern Spy — Three entries.

Chas. Hirschinger, first premium $1 00
Second, James O'Zanne 50

Lowell — One entry.

Geo. Jeffery, first premium $1 00

Baldwin — One entry.

James O'Zanne, first premium $1 00

Winter Wine Sap — Three entries.

Geo. Jeffery, first premium $1 00
Second, Geo. P. Peffer 50

Walbridge — Five entries.

Chas. Hirschinger, first premium $1 00
Second, A. G. Tuttle 50

McMahon — Three entries.

F. H. Chappel, first premium $1 00
Second, Chas. Hirschinger 50

Haas — Two entries.

Chas. Hirschinger, first premium $1 00
Second, Geo. Jeffery, second 50

Green Sweet — One entry.

James O'Zanne, first premium $1 00

N. Y. Vandeveer — One entry.

James O'Zanne, first premium $1 00

Canada Red — One entry.

James O'Zanne, first premium $1 00

Barrett Russet — Two entries.

Geo. J. Kellogg, first premium $1 00
Second, N. N. Palmer 50

Ben Davis — One entry.

Geo. J. Kellogg, first premium $1 00

Roman Stem — One entry.

N. N. Palmer, first premium $1 00

Maiden Blush Seedling — Two entries.

Geo. P. Peffer, first premium $1 00

Rome Beauty — One entry.

Geo. Jeffery, first premium	$1 00
Second, Geo. P. Peffer	50

Fall Strawberry, Pound Sweet, Gilliflour, Phoenis, Winter, Penock and McAffe. One entry of each, by Geo. P. Peffer, taking first premium on recommendation of committee. White Pippin, Ohio, Nonpereil, Grimes' Golden, Peck's Pleasant, Valier's Seedling, Maiden Blush and Perry Russet, were entered by Geo. Jeffery, and entitled to premium under rule, as special awards by committee, of one dollar on each plate.

Best Display of Vegetables — One entry.

Geo. J. Kellogg, Janesville, first premium	$5 00
Best peck beets, Geo. J. Kellogg	1 00
Best peck rutabaga turnips, Geo. J. Kellogg	1 00
Best peck flat turnips, Geo. J. Kellogg	1 00
Best peck parsnips, Geo. J. Kellogg	1 00
Potatoes, two entries, F. H. Chappel taking first and second premiums	1 50

There were two entries made for premiums on grapes, but your committee under rule of the society, did not consider them worthy of premium.

All of which is respectfully submitted.

C. L. SMITH,
J. M. EDWARDS,
WILLIAM FOX,
Committee.

SPECIAL LIST OF RUSSIAN APPLES AS REPORTED BY COMMITTEE.

Transparent — White or yellow, tree hardy enough for the northwest; an upright grower, early bearer, and valuable because a very early apple; a fair shipper, good for cooking or eating.

Hibernal — Tree stout, irregular, with strong horizontal branches and heavy foliage; an early and good bearer of large showy apples, blushed with red and with large light dots, very fruitful but of poor quality for eating. Tree very hardy; fruit excellent for cooking and drying.

Wargull or Varqull — Tree hardy, slow in bearing; fruit when fully ripe a yellowish green, red on sunny side, sub-

acid, pleasant taste, soft and juicy; bids fair to be a valuable variety; not subject to blight.

Antonovka — A very hardy tree, good grower with strong foliage; slow and shy bearer, fair quality of fruit and extreme hardiness; recommends it to farmers.

Repka — Small apple, one of the best keepers, fair quality, great bearer; would prefer the tree top-worked on some of the hardiest stocks for the northwest.

Switzer — Tree quite a rapid grower, of fine form and productive; blights slightly on very rich soil; apples drop too readily from the tree; season of fruit from September to October; if picked early may be kept later; medium to good size; smooth, handsome, fine; red with white flesh and good quality.

White Russet — One of the best, taking fruit and bearing into consideration; color a greenish russet bronze; season early winter.

Raspberry — Tree upright, strong grower; fruit a beautiful red with white flesh. Its hardiness and fine eating qualities recommend it. Season early winter.

Longfield — An early winter apple; heavy, regular bearer; a fair tree in orchard; beautiful fruit but tree not hardy north unless top-worked on limbs of some hardy stock.

A. J. PHILIPS,
A. L. HATCH,
Committee.

Wm. Toole would add to this list the Saxonia for trial, a fine apple, and has succeeded well with him.

IN BUSINESS MEETING.

FEBRUARY 6.

Communications was received from the secretary of the proposed Dairy Fair Association inviting this society to co-operate with them and make a display of fruit products at the time of their holding a dairy fair in Chicago in the fall of 1889.

On motion of Mr. A. L. Hatch, the communication was acted upon and the secretary of this society was directed io correspond with the secretary of the fair association in reference to the matter and lay the same before this society at our summer meeting.

Mr. J. C. Plumb moved that the matter of sending delegates to the American Horticultural society, which is to convene in Texas next winter, be left to the president to appoint.

Adopted.

Mr. Geo. J. Kellogg — As by the motion just adopted our president has the appointing power to select delegates I move that President Smith and wife be declared delegates to the American Horticultural Society next winter.

Motion adopted.

Mr. C. L. Smith and Mr. J. S. Harris, delegates from Minnesota Horticultural Society, were present, and on motion were made honorary members of this society and invited to take part in our discussions.

Mr. Smith thanked the society for this expression of good will and spoke of the friendly relations and the bond of sympathy existing between this and the Minnesota society. Dakota, too, was calling for our aid and our experience in the work of fruit growing and believes the surer road to success is in growing from the seed varieties of apples that will be hardy in this great Northwest region. Mr. Hoxie spoke of being in communication with the secretary of the Dakota Horticultural Society and of the very progressive and hopeful work being done at their experimental grounds at Brookins.

MEETING IN EXECUTIVE SESSION.

MADISON, February 7, 1889.

President Smith in the chair.

A sum of money not to exceed $300 is hereby appropriated for expenses of summer meeting.

A sum of money not to exceed $200 is hereby appropriated to pay traveling expenses of such members of the society as may be called upon to assist in organizing new societies, or aiding old societies in the work of horticulture; provided, such members are under the direction of the president.

That the arranging of program and premium list be left to the secretary and president. The secretary is also required to furnish a question box at our next meeting.

Concurred in by the Executive board.

On motion of B. S. Hoxie, the following rules and regulations were adopted.

1. No plate or exhibit shall compete for more than one premium.
2. All entries should be in the hands of the secretary on or before the Saturday preceding the meeting. Entry cards will be handed exhibitors on the first day of meeting.
3. All exhibits must be on the tables by noon the first day of meeting, properly arranged, and labeled with name of article, or fruit with name and postoffice address of exhibitor, and a list of articles for use of awarding committee.
4. All exhibitors must be members of the society or become such by the payment of $1, which entitles them to a volume of transactions and all the privileges of the society.
5. Plates of fruit must consist of four specimens, neither more nor less.
6. A fruit that has previously been named by this or any other horticultural society, shall no longer be considered a "seedling" or new variety.
7. All applications for entry of seedlings or new fruit must be accompanied by a full statement of the origin, habits of growth, number of years in bearing, the nature of the soil, exposure, hardiness, productiveness, etc.

☞ All fruit exhibited must have been grown in Wisconsin, and no inferior specimens will be entitled to premiums.

☞ The awarding committee may give prizes on single plates of fruit, which in their opinion may be considered worthy of cultivation.

The claim of Mr. Geo. P. Peffer, of Pewaukee, for services and premiums awarded at the New Orleans Exposition, was presented before this board, and after a full examination of the accounts presented, and a free discussion by the members, Mr. Peffer decided to take $107.50 in full for all claims against the society, and on motion of Geo. J. Kellogg, an order was drawn on the treasury for that amount.

Offered by B. S. Hoxie:

A rule of this society, either implied or understood, requires that for the locating of the summer meeting, the society so asking shall pledge the amount of $50. I suggest the propriety of changing or abolishing this rule so that meetings may be held in communities where no such society exists; provided, the citizens will furnish a suitable place for such meeting, accompanying such request, by a petition signed by at least twenty reputable citizens, that they desire the organization of an auxiliary society, and will co-operate with the members of this society in making such meeting a success.

Concurred in by Executive board.

Before our next annual meeting the American Horticultural Society will hold its bi-annual session, and Texas has been selected as the state wherein to hold it. Will our society take any action with reference to sending delegates? Left to the president to act at his pleasure.

LETTERS AND MISCELLANEOUS BUSINESS.

LA CROSSE, Wis., January 28, 1889.

J. M. Smith, President Wisconsin State Horticultural Society:

DEAR SIR:—It is many years since I have attended any of your meetings or written anything on the discouraging subject of apple growing in Wisconsin, and my age and infirmities warn me that I perhaps may never attend another of your winter meetings, yet I thought perhaps a short article from me might be acceptable. I am one of the few in this part of Wisconsin who have kept on setting apple trees during all these terrible three or four years back which have been so destructive to our orchards. My orchard is about two miles from the Mississippi at La Crosse in a narrow cooley among the bluffs. The mouth of the cooley is open to the northwest without any protection to my orchard in that direction. On the south side of the orchard is a high timbered bluff, so high that the sun is not seen except for about two hours in the shortest days. On the north side the bluff is not quite so high, with but little timber, soil lighter than the south side. Low down in the cooley there are some trees perhaps twenty years old, such as Duchess, Transcendent and Hyslop, nearly all in good condition. Where they have failed we have filled in, commencing, say eleven years ago. We have also been setting for about the same length of time on both slopes up to from 100 to 150 feet above the lower part of the cooley. We have perhaps 1,500, many of them not yet in bearing. Our losses have not been great and those grown in the usual way by grafting in the root, and the following varieties: Fameuse, Haas, Plumb's Cider, Golden Russet, Perry Russet, Fall Orange. A few of all the above are patching up and may yet be worth some-

thing. There are perhaps 150 Duchess from six to twenty years; have not lost to exceed six; have about twenty Tetofsky, and about six Peach Apple. These three kinds are hardy, and will stand, propagated in the usual way. We have some of the new Russians, both in the orchard and nursery which thus far have stood well.

We had more than thirty kinds of standard apples grown in our orchard last season. Many of these are top-worked by budding on crab stocks. And here let me say, I am still on my old hobby, top-working on hardy stocks, with J. C. Plumb's statement, keep congeniality always in view. If any of my apples are in condition I will send some for your meeting. Now permit me to suggest the necessity for our state to adopt some means to prevent New York, Minnesota and other state nursery men sending their lying agents here and selling their trees under the noses of Wisconsin nurserymen at seventy-five cents each for Hyslop crab trees, when as good ones, grown here, could be had for twenty-five cents each. No use talking about educating the planter; that's played out.

E. WILCOX.

Resolution offered by Wm. Toole:

Resolved, That the secretary have bound such books as he may have or receive hereafter as he shall deem best for the interests of the society.

Oh motion the resolution was adopted.

Resolution by J. C. Plumb:

Mr. President — In view of the fact that Mr. Anderson has served as treasurer of this society for many years, and oftentimes to his own inconvenience, I move that an order be drawn on the treasurer for the sum of $25 as a small compensation for services rendered.

Motion adopted.

MR. PRESIDENT:— The Finance committee have examined the account and vouchers of Matt. Anderson, treasurer, and find them to be correct. We have also examined bills and itemized account of the secretary and find due him from this society $57.38.

Respectfully submitted,

J. C. PLUMB,
A. L. HATCH,
Committee.

THE MINNESOTA STATE HORTICULTURAL CONVENTION—A WOMAN'S VIEW OF IT.

It was my unexpected good fortune to be invited to attend the last annual meeting of the Minnesota State Horticultural Society, at Minneapolis, and also to be sent as a delegate from our own Wisconsin society. These two honors gave your delegate the open sesame to the hospitality of Minnesota horticulturists. Of the right royal welcome and the charming manner in which I was entertained, of the efforts put forth to show every point of interest of which the city of Minneapolis has so many, I can give you only a very faint idea, and hope that each one of you may have the opportunity to enjoy the same privilege. Suffice it to say that my impressions of the Minnesota friends were of the most flattering kind, and my visit there will always be remembered with pleasure. What the impressions of Minnesotans were regarding your delegate you will see by referring to the *Tribune* of January 16th, which I have brought for your inspection.

The convention was formerly opened January 15th, at Market Hall, with prayer by Rev. Woodbury, pastor of one of the Congregational churches of Minneapolis. Owing to the inclemency of the weather but few were present, and the convention was adjourned until 2 P. M. At the afternoon session committees were appointed, and Col. J. H. Stevens, of Minneapolis, briefly welcomed the convention to the city, assuring the hospitality of the homes as well as the high appreciation of the efforts of the horticulturists by the people of the city. A. W. Sias, of Rochester, responded, saying that the term hospitable should be used in a limited degree because most of them were by no means strangers in the city, and asked why the beautiful city of Minneapolis was like Paradise? Because its first white settlers were horticulturists or gardeners.

The reports of local societies brought out an interesting discussion on how to build up horticultural sentiment throughout the state.

Mr. Harris, who is so well known in our own state, thought district and county societies were aids to the state society, but that the work in Minnesota was begun wrong; that it commenced with the state society instead of the counties. He said that the legislature was asked for money for experimental stations and to aid in distributing literature and it was granted.

There is one district society in successful operation, and there is room for three more. Mr. Sias thought the beginning, all right. The state was new and they commenced where there was an interest and if they had tried to organize counties first it would have resulted the same as it would to start a saw-mill where there was no water power to run it.

President Elliot introduced Prof. Ragan, of Indiana, Secretary of the American Horticultural Society, who spoke of the methods of keeping up and promoting the interests of horticultural societies. In the first place, he said, the matter of a fee is the one important thing. The plan hit upon in Indiana, although not working entirely satisfactory, provides that members of local societies may become members of the state society by paying one-half the usual membership fee. There are a number of local societies in the state and they are still building up new societies and the officers are interested in the work of going out and organizing new societies, their expenses being paid by the state society. This plan has the effect to increase the interest in horticulture in the state. There are six vice-presidents who are presidents of certain imaginary districts in the state, and these vice-presidents do not pay membership fees.

President Elliot then introduced delegates from Iowa and Wisconsin, also Prof. Green, of the horticultural department of experimental farm, to the convention. A discussion on the cultivation of the dewberry was then taken up. Instances were given of successful cultivation and still other instances were given where trials resulted in failure. The Lucretia was pronounced worthless and the opinion

was given that the Windom would be profitable for general cultivation. They trail on the ground and root from the tips. Those put out the first year made a matted growth like a strawberry bed. They should be put upon the poorest ground. Mr. Harris said the trouble with the native dewberry was they did not readily fertilize themselves.

Mr. Sias gave it as his opinion that the Windom was of Russian origin and was brought to Minnesota by the Menonites. One gentleman said he would rather have a lot of Canada thistles than dewberries, for his dewberries had never borne and they had entire possession of his garden so that he would be obliged to plow it up and summer fallow to get rid of them.

At the evening session the address of the president, Wyman Elliot, was very fine. He returned thanks to the state superintendent for his efforts in introducing the study of horticulture in the public schools. He referred to the summer meeting and excursion to Lake Minnetonka, and said that the visit to the experimental farm was of value to all who availed themselves of the privilege. He spoke of the new seedling strawberry, the Princess originated by Mr. Kramer, that yielded at the rate of 830 bushels per acre, but said: "This does not compare with a story told by a Wisconsin horticulturist of the Jessie, twelve plants of which yielded thirty-five quarts, one berry measuring nine and three-fourths inches in circumference.

The report of the Seedling committee on Wild Fruits of Minnesota, was very interesting and full of suggestions.

Mr. Taylor, who had cultivated and experimented with plums for over twenty years, gave an interesting account of his experiments. He said he had planted more than 150 varieties of wild plums, collected from every portion of the United States where that fruit grows. He said he had no faith in wasting any time on the wild plum, for it was like the Indian and disappeared with advancing civilization. A peck of first-class plums could not be found in his section of the country. The fruit degenerated as well as the trees. He had planted out many hundreds of the very best kinds, had raised trees in the nursery and fruited in the

orchard, and the trees with any culture given them degenerated. He had tried cutting off tops, and had year after year cut off the entire tree near the ground. Another gentleman said, "To have plums we must plant every few years because the native plums are short-lived trees and we must copy nature in this instance." Mr. Harris said that the De Soto are still bearing a very fine grade of fruit, trees over thirty years of age and ten inches through. The young trees coming up as suckers bear a fine grade of fruit, and if that would bear cultivation, he believed there were other varieties that would. Col. Stevens said he had the De Soto twenty years of age bearing fine fruit.

Mr. Underwood thought location had much to do with success.

Mr. Taylor replied that he would not be discouraged even now if he did not live in the very paradise of wild plums. The rivers were skirted with the trees formerly, and you could get a train load of them, but now there were no plums that were worthy of the name.

O. M. Lord, of Minnesota City, committee on Native Fruits, said that native plums had not received as much attention from good cultivators as its merits demand, and its unsymmetrical appearance does not make it a favorite with nurserymen. A few varieties are so fine as to lead people to think they had been improved by grafting with Russian varieties, but this is not correct. Fruit can be much improved by pruning. No mistake can be made by buying the De Soto. The Cheney is about ten days earlier. The Weaver can be relied upon as a fine fruit of fine skin and excellent for cooking. The best remedy for non-bearing is to plant closer together; six feet one way and twelve feet the other is the proper distance. This method will have the effect to resist more successfully the ravages of the curculio. They may be successfully top-grafted, but the trees, though more symmetrical in form are not so long lived. As to prepotency there is a wide field for observation. The De Soto, Weaver and Rolling-stone, will fertilize themselves. Much more stress should be laid upon *planting* these varieties than on cultivation, soil or other things.

Mr. Dart warned people not to plant suckers from grafted fruit, but taking sprouts from good qualities of native fruit is the proper way to propagate.

Committee on Evergreens reported that "next to the growing of fruit, and inseparable with it, is the growing of evergreens." The utility of growing them for protection, health and beauty is beyond dispute. Satisfactory results are not obtained until five or six years after planting. An experiment was made with three rows of Tetofsky. One row was protected by evergreens, and the other two were not protected. This experiment showed plainly the advantage to be gained by the protection. He found in Florida where the orange groves were not well protected, they suffered severe loss by the noted cold wave, where the forests had been cut off the avenue was opened up for the tornado to follow.

The idea of putting so much expense in planting out evergreens is all a humbug. Let the farmer touch only seedlings three years old, set White Pine, Scotch Pine and Balsam of Fir. Surround yourselves with evergreens and it will be possible to have almost a summer climate, even in Minnesota.

A letter from the committee on Russian apples was read by the secretary, which said that the Russian friends were fully up on their exhibits, and if you had taken out the Russian apples at the display last fall at the fair, the exhibit would have been very meager indeed.

In the discussion that followed, one gentleman said that while the Russians showed good wood as compared with other varieties, they were good for nothing to bear fruit and showed wood from a Russian, name not known, that had not borne a half dozen apples in its whole existence. It was stated on authority, that the Duchess was not a Russian, but was of Swedish origin, and Mr. Budd was quoted as saying that he was unable to find it in Russia. A statement was made that Mr. Tuttle called it a Russian, and several said they considered Mr. Tuttle better authority than Mr. Budd.

Mr. Harris read a short paper on the Russian apple, in

which he said: "We shall no doubt find difficulties in transplanting them across the continent, but may not some of their seedlings prove of value to us? I presume that in twenty years from now there will not a dozen of them worthy of cultivation be found in any nurseryman's list." A lecture in the evening by Prof. Lugger, of the Agricultural College, on carnivorous plants, was finely illustrated, and although long was valuable and interesting.

Report of Seedling Commission.

The committee found apple trees growing at Mr. Dart's where the ash-leaved maple is said to be useless. Mr. Dart is making a specialty of seedlings and is trying several varieties. One very promising seedling was found at a Mr. Miller's, said to be a seedling of the Wealthy and as hardy as a crab, that bore three apples last year.

Mr. Harris, in his report on seedling fruits, said he had examined a seedling strawberry named the Martha that was larger than the Wilson or Crescent, of a bright red color, sprightly flavor and firm quality. A seedling originated by Mr. Kramer surpassed anything he had ever seen in the strawberry line. The fruit stems are long and strong, bearing its fruit well up on the stem until the immense weight of the fruit bears it down. It took the premium over the Jessie and the Bubach for berries for size. It measured six inches in circumference, and is a pistillate variety. He was watching some seedlings of the Duchess apple and De Soto plum that are expected to be very valuable. Discussion regarding the Peerless apple developed the facts that the trees had been injured by cutting scions from them, and it was said that some trees could not survive severe cutting, and the Wealthy and Duchess were given as examples of trees that could not endure severe cutting without having their hardiness affected.

The afternoon session Thursday; was very interesting, and after the election of officers was devoted to papers and talks upon gardening, but your delegate being one of a committee of three on the general exhibit which occupied all of the afternoon, is unable to give any report.

The session Thursday evening was also a very interesting one, and the attendance of ladies was said to have been larger than usual, although we would think we had very few ladies present if we had no more than they had. Friday was given almost wholly to reports of experimental stations and of several committees.

There was eleven entries of fruit, and sixty-two plates of apples, a fine showing of vegetables and a grand display of green house plants from Mendenhall greenhouses. Also a fine display of canned goods and honey.

Tne points of interest visited were the Mendenhall greenhouses, the Agricultural College and Experiment Station, the State University and the Pillsbury "A" mill. The entire day, Saturday, was spent in sight.seeing.

A delightful visit was enjoyed at the fine home of a former resident of Wisconsin, W. A. Johnston; also a ride with Mr. and Mrs. Johnston, to points of especial interest in the city, a visit to the West hotel and some of the fine business blocks. Saturday evening found me homeward bound, having spent one of the pleasantest weeks of a lifetime.

I found that my report was getting to be so lengthy that I omitted reports of sevoral fine papers, among which was one from Prof. Ragan, of Indiana, on, "Method of Teaching Horticulture in Schools."

V. H. CAMPBELL.

THE POWER OF AN IDEA.

BY MRS. HELEN M. CHARLTON, BRODHEAD, WIS.

An illustrious scientist on being asked a few years ago, what he considered the greatest discovery in modern science, replied, "That the dynamo is reversible," that is, is a generator as well as a receiver of power.

We sometimes speak of the electric current of thought, and a fact analogous to that of the dynamo is found in the mental world. The mind receives an idea, grasps it, makes it its own, and the conditions are at once reversed, the idea

becomes the power, the generator of new force; it controls the mind and dominates the life of the individual. Like the electric current guided along the proper channels it becomes a gentle radiance or a brilliant light, illuminating his pathway and that of his fellow mortals, or misapplied, misdirected, it becomes a source of death to all who come in contact with it. More subtle, more powerful, more hidden from the comprehension of man than the electric fluid the current of thought is the motor which moves the world, ideas are the impelling force beneath or behind all progress. As we measure an engine by saying eight, forty or two hundred horse power, so a man's influence may be measured by the thought that animates him.

More than two thousand years ago the Hebrew sage and philosopher uttered the saying, "Money answereth all things," and to-day the words are repeated and cherished as the controlling power of many lives. What the "preacher" uttered as a mere observation on the weakness and vanity of human life, has been exalted into a truth, and made the guiding rule of conduct. That this was not the preacher's own belief is shown in the fact that elsewhere he pronounces other things of more value than money. He says, "Happy is the man that findeth wisdom and the man that getteth understanding, for the merchandise of it is better than the merchandise of silver, and the gain thereof, than fine gold. She is more precious than rubies, and all the things thou canst desire are not to be compared unto her." Again he says, "A good name is rather to be chosen than great riches," and if in looking over the kingdoms of this world, we conclude that his first observation in regard to money is still correct, and that to the majority of men money still answereth all things, we must also conclude that a man's influence is not always measured by the size of his bank account; that other things besides money must be potential factors in any wide or lasting exercise of power.

The pursuit of money as an end dwarfs the man himself and thus perverts the use of life which is not given that one may see how much of this world's goods he may ac-

cumulate, but to how great a stature he may grow. You may place a seed in the ground, and no matter how much you have enriched the soil, how often you may water, how closely you may watch it, or carefully tend it, if the seed does not germinate and grow until the plant matures, your labor is in vain. So with man; no matter how much of this world's goods he may accumulate, no matter how rich and fertile his surroundings, if he does not grow, if the powers of his soul do not expand, if he does not develop day by day more in the likeness of that divine image in which he was created, he is like that dormant seed, and the better, the more productive the surroundings in which he is placed, the greater the waste in the garden of the Lord. He, who reading the observation of the "preacher" grasps it as a truth, and says to himself, "I will get money, for having money I can get every thing else, handsome equipage and apparel; troops of friends; servants to do my work and obey my will; learned men to instruct me; beautiful pictures; costly books; leisure to travel and see the world," will find ere long that to him "money answereth all things" in quite another sense, that he will give up luxury and learning, sacrifice friendship and comfort, to obtain and to heep it. "For he that loveth silver shall not be satisfied with silver, nor he that loveth abundance with increase." But money is nevertheless a needed blessing to be sought after, and a wise expenditure of money is a liberal education in itself. Money has been called the "sinews of war," but given the army and the money, a Napoleon is still needed to plan and carry out the campaign so that we come back to our first idea, the controlling power of thought.

That man makes the greatest success in life who chooses for a calling that which is best adapted to the growth of his own mental and moral nature, rather than that which will bring him in the most money in the shortest time. The desire of ease, of sudden riches, of public position, leads many a man to make a wrong choice, and the trite saying: "He is a round peg in a square hole," is fitting description of the failure he has made. But such mistakes

would not so often occur, were it not for our false ideas of value, the undue estimate put upon money and place. When God gave, to Adam and Eve, the garden, to keep and to dress it, he placed them in the best position, and with the best opportunties for their own growth. And despite all the ills incident to man's fallen estate, the garden is still the best place to make progress toward wisdom, and "in her right hand is length of days, in her left are riches and honor."

"Farming is servile labor," says one. It may be when slaves till the soil that others may be enriched by their labor, but when the owner of the soil carries out his own plans and purposes, and pockets all the returns it ceases to be servile and becomes masterful. Yet many a freeman to day is slave to an old idea, the idea of caste. We boast of our independence, we say, "all men are born free and equal," but the man who quotes it oftenest and shouts it loudest is very often the one who clings most strongly to old traditions and would most gladly shake hands with the effete aristocrocy which he affects to despise. Born free and equal let us prove it in our lives and let the company we keep bear witness to the truth of our pretensions. No association, no sitting in the shadow of greatness, no profession can make a man, no honest occupation can undo one. Whatever the place or the calling, the man must dignify and ennoble it or dignity and nobility must remain wanting.

As we look over the broad fields of Wisconsin and note their extent and fertility, we exclaim: Here is wealth. As we look at the men who own and till the fields, we say, here is power. Here is, indeed, the standing army in which the commonwealth may trust, the manhood bred beneath these skies and in these homes will lack no element of patriotism, of that true loyalty to country which stimulates one to live to her honor as well as to die for her glory. We smile at the plausible address of the politician who speaks of the farming population as the "bone and sinew of our land." He speaks the truth but not the whole truth; they are the vital blood which must feed and nourish every por-

tion, from them must the ranks of statesmen and heroes of poets and scholars be replenished.

Farming is no longer a "happy-go-lucky vocation which any one may follow; thought, which has been the impelling power to progress in every other pursuit, has here found perhaps its widest field, and has already lifted agriculture to the rank of a learned profession. Others may be specialists, but not the farmer. He must be many sided; to grow the largest crops, to make the best use of them when grown, that he may get the largest returns for his labor he needs the aid of chemistry, botany and physiology; to handle well and care properly for the machinery he uses he must understand the principles of natural philosophy; to carry on his business he must know how to keep accounts; he must know how to buy and when to sell; but not to enumerate farther, what other profession requires so many and so varied attainments?

Whence is the man of limited income and more limited time to acquire all this needed and most desirable information? Perhaps he has just graduated from an apprenticeship of hard work on some other man's farm, and is starting in business for himself, or worn out in the narrow round of some city persuit has gone upon a farm for the double purpose of earning a living and regaining his health.

His work keeps him close at home and he has not the time to glean from books that which he needs if he had the judgment to do so. But this is a parental government. The state comes to his relief. A farmers' institute is held at his very door, and, in the two days' discussion of practical matters, the subject of farming is so illuminated for him as to appear wholly new. He sees where he has made his failures and learns where he may hope for success. This idea of a farmers' institute seemed a little ridiculous to him at first, but now that he has grasped the idea, has seen it practically carried out, he is heart and soul in favor of the people's peripatetie college. And why, indeed, should a people who have experienced the blessed helpfulness of an itinerant ministry of the gospel of peace hesitate to

accept an itinerant ministry of the gospel of successful labor? The one unlocks for us the treasures of earth, the other gives us the key to treasures in heaven. Our universities, which have been supposed to furnish only an equipment for clerical pursuits, but which are in truth a help to all, inspired by the thought that sound learning must be behind successful farming, have now successful departments of agriculture. Nor are they behind the other learned professions, for while there is a short course to the ministry and a short course to teaching there is also a short agricultural course, and the farmer's boy may emulate the bee, by reversing the seasons, what he stores up in winter he may put to profitable use in the summer.

In what other arena of life is there such stimulus offered to honest, healthy competition? Read the programme of any farmers' convention or of the autumn exhibitions of the State Agricultural Society and frankly answer, nowhere. Yet with all his knowledge of "intensive agriculture," which gets two crops where before one was raised, with his blooded stock and his knowledge of how to make dairying pay, with all his labor-saving machinery is the average farmer finding any more time than before, is he shortening to any perceptible degree his hours of hard labor? When he learned that five acres well cultivated was worth more than fifty poorly cared for, did he not at once try to enclose the whole fifty in his five-acre plat and strive to get the increased results from the entire farm? Is there not a tendency to turn the leisure he might otherwise obtain into increasing his material gains? Even the farm garden must go for he can raise something more profitable with the same labor, and he is advised to buy his small fruits and vegetables. But where will he buy? Does not the garden represent something more than the market value of the crop? Has it not a value to the farmer's family which cannot be estimated in dollars and cents? Is there, indeed, any way to purchase the convenience, comfort and enjoyment which a garden brings without making and tending the garden yourself? As you ride along through some unfamiliar country, you judge of the people who reside there by the

appearance of the dwellings and the farms. You say of this one, "He is a good farmer," or of that one, "He does not understand farming," according as the grain, the meadows, the stock, reveal the care bestowed upon them. You judge the farmer by his work, but you look at the home to judge of the man, for in farming as in any other calling the man must be broader than his profession or he will be lost in it. Not the broad and fertile fields, but the home, the garden and the lawn are the exponents of the true worth and value of the man, as shown in his home life.

Let us be practical. Let us apply some of our newly acquired knowledge of farming to the home. In intensive agriculture you prepare thoroughly, enrich heavily, plant good seed and cultivate carefully; great pains, too, is taken to adapt the soil to the plant to be grown, and in the abundant crops raised you get back from the soil just what you have put into it. So with the home. A man gets no more from it than he puts into it. No matter how stately the residence, nor how costly the furnishings, if it is built only of pride and money it will not return peace and content. So with the child, the parent need look for no harvest in manhood of which he did not sow the seed in childhood and youth. Would you have the boy love the farm you must implant that love early in life; you must prepare a soil adapted to its growth; you must cultivate it carefully. It will not grow if let alone. Don't tell the boy that Cousin Tom will have to have a college course because he is going to be a doctor or a minister, but that he, Dick, needs nothing more than the free township school can give him because he is to be a farmer. Whatever the boy may be or do his first work is to become a man, a citizen, the finished product of all the advantages this free land offers for growth and development. Do you build silos and fill them with succulent food and then turn out your cattle to pick for themselves, or feed them on dried grasses, giving just as little as will possibly keep them alive? Why, then, keep the child on starvation mental diet, ignoring the grand opportunities the state offers, and offers because the economy to

the state of intelligent citizens is as well known as the economy to the farmer of well-fed cattle.

"But a farmer's boy needs a practical education." What is a practical education? Define it who can. "One that helps a man to make his own living" is the definition most frequently heard. It is then, not a special education which limits a man to doing one thing and leaves him helplessly stranded, if by any circumstance, he is cut off from that employment. Is it not rather such a training of his faculties and powers as will in any emergency make him master of the situation. But culture is defined as that control of the mental and physical powers which enable a man to adapt himself to the situation, to learn quietly, and to perform even a new task well. Practical education and culture are then one and the same.

The young man, going into a new country to take up a farm, needs, more than he needs money, that mental wealth which will enable him to find companionship in himself; that strengthening of principle which will lead him to resist temptation; that power to do and to endure which is inspired only by contact with noble minds.

"But in in the race of life, half the learning of the schools is forgotten." As you water your strawberry bed with some prepared fertilizer, do you expect to find it again in the soil, or to have it returned to you in a larger fruitage of ripe and luscious berries? Just so from many acquisitions of knowledge absorbed, springs the consummate fruit of perfected power.

This principle of thorough preparation, careful adaptation, lavish enrichment and rentiring cultivation, is the thought underlying all healthy human progress. Teach the boy that life like his little garden plat, will return to him what he puts into it, that in every vocation in life, a man reaps what he sows. If he plants the seeds of ignorance and discontent, their abundant growth will choke his happiness and blight his success; that in farming, as in any other calling, he will reap an abundant harvest of all the learning, the dignity, the character he puts into it.

In Memoriam.

One of the noted pioneers of Wisconsin, and one of the first members of the State Horticultural Society, J. Gillett Knapp, died suddenly of apoplexy July 2, 1888, at Limona, Florida, aged nearly eighty-three years. He was born at New Lebanon, N. Y., September 21, 1805; his parents were poor, but in youth his thirst for knowledge and a determination to overcome all obstacles in his way enabled him to acquire an excellent education. After studying in the district schools and Casenovia Seminary, Madison county, N. Y., he entered Geneva College, and graduated from this institution with high honors. He was well qualified to enter professional life as a teacher, and his first work in active life was performed in this capacity. He came to Wisconsin in 1835, settled at Green Bay, and was a teacher in the Episcopal Mission School, established at that place. Judge Knapp was a consistent and valued member of the Episcopal Church. He remained three years at Green Bay, and came to Madison in 1838, and served as one of the subordinate clerks for the first territorial legislature that assembled at this capitol that same year. He was connected with the first paper published by Josiah A. Noonan, at Madison, *The Wisconsin Enquirer*, and in 1842 became its editor and proprietor. He served several years in territorial times as Superintendent of Public Property. In this position his excellent horticultural taste was manifested in his management of the Capitol Park, which was then as he described it, "more than half covered with hazel brush and oak grubs." Under his direction the grounds were cleared of brush, the native trees trimmed, and the first fence enclosing the park was built, composed

of red cedar posts and pine boards. Then he commenced planting elms and maples around the park and along the main avenues leading to the capitol. This work was not much appreciated at that time and was condemned by some as useless, but the present generation value it highly as they sit and walk under these same trees, while the oaks, like the pioneers, have nearly all disappeared. While holding this office, he commenced reading law, and subsequently qualified himself for practice, and continued in it for many years.

In 1861 he was appointed a judge in New Mexico. During his sojourn there he wrote many interesting letters giving accounts of its inhabitants, its products, its fruits, its climate, its mines and mountain scenery. He was a close observer, nothing escaped his notice, especially if it related to his favorite art. Later in life's decline he wrote of Florida as one in the full flush of vigorous life. His writings on various subjects, horticultural and scientific, are numerous, and throughout his career were scattered in newspapers, periodicals and magazines. His domestic life was clouded many years ago by the death of his first wife, and a few years later his second wife also died. He remained a widower the remnant of his days with no children to gladden his home. His love for horticulture was a leading characteristic, and in the study of nature's work, he found pleasure and a field in which he was well-fitted to pursue investigations. A ready and forcible writer on these subjects he enriched the volumes of our "Transactions" with contributions which for clearness of expression and vigorous thought, are models of their kind. His paper on "The Native Vegetations of Wisconsin," and "The Isothermal Lines of Wisconsin," are productions manifesting study, scholarship and sound judgment. His essay on "Management of Sandy Lands of Wisconsin," was awarded first premium by the State Agricultural Society, and published in its Transactions for 1871. Judge Knapp was also active in organizing, and became one of the first members of, the Wisconsin Academy of Arts and Sciences.

The true taste and character of the man is nowhere more clearly manifested than in his last letter addressed to our society, and published in Vol. 11, of "Transactions," Writing of his residence in Wisconsin, he said: "The long sermons preached by trees, shrubs and plants to me will never be forgotten; the cold and hot winds had messages — some of these I have clad in weak words for the benefit of fruit growers and the farmers of your state. For the past few years the Great Teacher has been instructing me under the evergreen trees in the unfailing flowers and fruits of south Florida. No lessons have been more pleasant than these last, and listening to them I expect to close my work." His life covered nearly the whole period in which advancement has been made in horticulture in this country, and it can truly he said of him that for more than fifty years he labored faithfully to impress his ideas on this subject on the public. His last years were spent far from the scenes of his youth and his old-time Wisconsin friends in a sunny land which he enjoyed, and in the soil of which he was finally laid to rest. Let him be remembered as a zealous student, a Christian gentleman, a genial and instructive companion and a veteran horticulturist whose enthusiasm remained unabated until the close of his career. Friends of horticulture as they contemplate his long and eveutful life will "honor his memory and embalm his fame."

B. F. ADAMS.

HORTICULTURE UPON THE FARM.

BY J. M. SMITH, GREEN BAY, WIS.

Shall our farmers turn horticulturists? To a certain extent I say, yes, most decidedly. Beyond a certain extent I say, no, just as decidedly. It seems to me that there has been as much unmitigated nonsense written upon this subject within the last ten years, as upon almost any that could be named. I am not sorry to have an opportunity to express my views upon this subject. Whether I shall be any more sensible than some others have been you must be the judges. I will at least try to be very plain and practical. To what extent then, shall the farmer be a horticulturist? In answer, I say to the extent of furnishing a full and abundant supply of fruit and vegetables for himself and family for the entire year. Shall he raise them to sell? As a general rule, no. Then, why not? Because experienced growers can, and generally do supply the markets at such low rates that the farmer would find it a losing business to attempt to compete wlth them. If that is true then why not purchase his own supply instead of attempting to grow it? The majority of the farmers of our state live from two to twenty miles from any market where it would be possible for them to get a full supply of fairly good fruit. A second reason is, that in addition to the time required to get it, the cost during the season would amount to a large sum; in many cases much larger than the financial circumstances of the average farmer would justify him in incurring. Consequently his family would do without it. The farmer's family will average, as a general rule, not less than six persons. One quart per day for each person is not an extravagant allowance if we include what we give away to those around us. My own family dispose of much more than this amount. A third reason is, that if the farmer grows his own fruit, he can have it in much better condition, and of a finer quality than he can buy in the market, as nearly all growers for market are compelled to pick and send it out before it has fairly reached its best, that it may be in good condition

when it reaches its destination. Now with these little mists and cobwebs out of our way, we will try to find a plain and practical way by which the everyday hard working farmer may have a full supply for hie entire household from about the 15th of June until Christmas, and then plenty of canned fruit for the balance of the year.

First the soil and its location. I prefer, other things being equal, a dark sandy loam with a southern slope. If this is not readily attainable, remember this, any soil that can be made to grow good crops of corn and potatoes, can be made to grow good crops of fruit and vegetables. One thing more, any manure that will enable you to grow good corn or potatoes, will also enable you, with good care, to grow fair crops of fruit or vegetables. If you wish very large garden crops, you must put on an extra amount of manure. The land selected should be thoroughly drained. Underdraining is best, but if this cannot be done at the start, do not fail to have the land selected thoroughly surface drained.

Let the garden be long and narrow rather than square, running the rows of both fruit and vegetables lengthwise, that the cultivation, which should be nearly all done with the horse and cultivator instead of by hand, may be more easily performed. Having the land in good condition for the plants, what varieties shall we set, and how large a plat of each? First, strawberry plants. With fairly good care it is not unreasonable to expect one bushel of fruit per square rod. If raspberries or blackberries, perhaps two-thirds as much as of strawberries. If currants of best varieties, one peck per bush or stool, after they come into full bearing, is not an extra yield. Of grapes, 10 lbs. per vine is by no means an extra yield. On my own land I expect more than this, but the amount I have stated I believe within the reach of any good careful cultivator. It is a well-known fact that a fruit may be of much value in its native home, and yet nearly worthless when carried any considerable distance from its place of nativity. Hence, my advice is, stick to some of the standard varieties that are known to be valuable, and go slow with any of these new

and high priced plants and seeds, unless you have plenty of time and money to spare, and a disposition to experiment with new plants. If you have all these, go ahead. There is a broad field where you can spend time, money, and patience to your hearts content, or more probably discontent, as there is a small chance that you will get any valuable cash return for your expenditure.

After spending much time and money for nearly thirty years, I have never yet been able to get any variety of strawberries, that upon my soil, and under my cultivation will do as well as the Wilson, unless some of the varieties now under trial shall prove to be its superior. Hence I recommend the Wilson first, the Manchester second and the Crescent third. After these it has been with me simply guess work. Of the three above named, the last two are pistillates, and require to have about one-fourth of the plants set to be Wilsons, or some other perfect flowering variety in order to have the blossoms fertilized. The Manchester is, with me, a good bearer, with fruit large, smooth, and of a fair quality, and about one week later than the Wilson, and is I think the most beautiful fruit on the table that I ever saw. If you decide to take the Wilson, set them in rows about three feet apart, and the plants 12 to 15 inches apart in the rows. If Manchester or Crescent, or both, make rows four feet apart, and set plants 15 to 18 inches apart in the rows, as they are much stronger growers than Wilson. Observe the following rule closely in setting all kinds of plants. Set them just a trifle deeper in the soil than they stood before transplanting, and be sure to pack the earth closely and firmly about the roots. A word about the selection of plants.

Never purchase of a tree peddler of whom you know nothing. There are growers of plants who will gladly fill your orders, and who will at least try to deal uprightly and honorably with you. They may make mistakes, but in all my dealings with them, I have yet to find the first one who refused to rectify any mistake that he had made, as far as lay in his power. After the plants are set, they need good care, keeping them free from grass and weeds. It is a great

advantage to the growth of the young plants, to go through them and pick off blossoms, thus throwing the entire growth of the first season into the plants. The cultivating may be done with the horse and cultivator, except in the rows where a hoe is needed. After the ground is frozen in the fall, cover the plants with marsh hay, putting it on evenly, in quantity sufficient to fairly hide the plants from view. Straw is equally good if it contains no foul seed to grow and annoy you the following season. Leave the covering on the plants in the spring until all danger from freezing and thawing is past.

When taking off the cover, if there are vacant places where the fruit will be likely to get sandy, leave some of the cover around the plants to protect them from dirt, and remove the balance and stack it for use the following winter. By following these few simple rules, supplemented by your own every day common sense, you may have plenty of the best of all our small fruits, and have them every year. I have failed but once in thirty years, and then only on account of my own ignorance and stupidity and not from any fault of the soil or climate. I prefer to set new strawberry beds each year rather than to keep the old ones cleaned out, and then get less than from a new bed.

Raspberries.— By setting Souhegan for an early black cap, and the Marlboro or perhaps the Hansel for an early red, you need have no break after the strawberry. In fact, last season we had both strawberries and raspberries in abundance upon our table for nearly or quite a week. For the late black cap I have found none equal to the Gregg, a very large blackcap, and with me a good bearer of excellent fruit. For late red, the Cuthbut stands decidedly at the head of the list, and is, in my opinion, the best raspberry that I have ever known. I set the rows seven feet apart with plants from two to two and one-half feet apart in the rows. The season's cultivation need not be expensive. Simply keep the ground clean, and this can nearly all be done with the horse and cultivator. In the fall before the earth becomes frozen, they should be laid down and covered with earth sufficient to hide the canes from

view, or from one to two inches deep. This is far from being as serious a job as is often imagined. If you wish to lay down a bed of canes toward the north, let one person take a common hoe, or with a four pronged digging hoe or fork, and loosen the earth upon the north side of the plant or stool, while a second boy follows and carefully bends the canes over toward the north until they lie nearly flat upon the ground. The third one takes a shovel full of earth from between the rows and throws it upon the tips of the canes to hold them down, and then they pass on to another stool. A fourth person follows with a shovel and covers the balance of the canes. In this manner we cover them at a cost of about $5 per acre. It will cost nearly as much to uncover and put them in order the next spring, as the dirt should be drawn back to its place between the rows. Do not uncover them until all danger from frosty nights has passed.

I am well aware that many growers will tell you that this or that variety is perfectly hardy and needs no winter protection, but the truth is that while many varieties will endure a moderate winter and still give us a fair crop, I know of none that will not pay well for protection by their extra crop, both in quality and quantity. I have rarely had my canes killed outright by a severe winter, and as rarely have they given a satisfactory yield without winter protection and otherwise had proper care. Immediately after the picking season is over, we go through and remove all the old canes, as they only bear one season, also the weak ones of the new growth, leaving just what we wish for the next year's crop of fruit. Raspberry beds set and cared for in this manner, will last from eight to ten years and give a good yield of fruit each year. The rules for cultivating the blackberry are practically the same as for the raspberry, including winter protection. In northwestern Wisconsin, many thousand bushels of them are now grown, the Ancient Briton being far more largely grown than any other. Stones' Hardy and Snyder are both a little earlier, and are generally good bearers. Much has been said and written within a few years past about the Dewberry. They are

simply varieties of the old running blackberries that all of us who came from the eastern states, have seen and picked along the old fences and stoneheaps around our early homes. I have had the Bartell for some years, but have never succeeded in getting what I considered one-fourth of a crop. The Lucretia is said to be a better bearer and I hope to know more of them when mine come into bearing the coming season. My present advice to farmers is to let them alone. The currant has of late years been sadly and unjustly neglected. For table use there are probably none better in quality than the old red and white Dutch. For jellies and preserves I know of none that I consider equal to the Long Bunch Holland and the Prince Albert. I set my bunches six feet apart each way and cultivate with a horse and cultivator. Currants need no winter protection.

Grapes.— It is but a few years since it became well known that grapes were a reliable crop except in the southern part part of the state. At present there are many varieties that are perfectly reliable as far north as 45 degrees, and several of them that will doubtless succeed to the shores of Lake Superior. Among those that do well with me are Moore's Early, the Worden, Massasoit, or No. 3, Lindley, or No. 9, Delaware, Concord and Niagara. I have named them about in their order for earliness, though the last three ripen nearly together, the Concord, I think, being the latest of all. The Niagara is a white grape of fine appearance, but only moderate in quality. I set vines eight feet apart each way, trim them in the fall when we are done picking, and before winter sets in, and then lay the vines down and cover them about in the same manner and depth as the raspberries. Do not be in too much of a hurry to uncover them in the spring, but leave them until freezing nights are over. Much has been said and written within a few years past about putting paper bags over the bunches. With me those in bags have been a little later ripening, and unless it is necessary as a protection against birds, I have not yet found it a paying investment. I have never failed of at least a fair crop when the vines were laid down and covered, and think the farmers need seldom fail. I

have now briefly gone over a list of such small fruits as the Wisconsin farmer may safely attempt to grow. The tree fruits I shall leave for others and turn for a few moments to the list of vegetables, although I can do but little more than give a list of such as have proved both profitable and reliable upon my own ground.

In growing vegetables on the farm I should certainly recommend the same methods of cultivation as in small fruits. Plant or sow in long rows a sufficient distance apart to use a horse and cultivator. Make the land rich and sow good seed and cultivate well and an abundance of vegetables of good quality are almost a certainty. In giving a list of such vegetables as I have in the following list I do not claim that I have in all cases made the best selection possible, only that after having tried many varieties of most of those named, I recommend only those that have proved best with me after many years of careful cultivation.

Peas.— Extra early Dan O'Rouke for first early, and American Wonder for second early and main crop. The first named should be sown as early as the ground can be put in good condition in the spring, and if we have heavy frosts even after they come up it will not damage them. The others are not so hardy, and should not be sown until daager of heavy frosts are past. A second sowing of the last named is advisable to lengthen the season. Neither variety needs bushing.

Radishes.— A few of the French Breakfast for very early, and Short Top Early Scarlet for main crop. To have them at their best they should be grown upon a light soil, and if a good supply is to be kept up during the season, a new bed should be sown at intervals of ten days or two weeks.

Onions.— Black seed sets for a few early bunch onions, and the Yellow Globe Danver for the main crop.

Beets.— Early Egyptian for first early and Early Blood Turnip for fall and winter use.

Carrots.— Short Horn or stumprooted.

Turnips.— Purple top short leaf.

Lettuce.— For hotbeds, the Boston Market. For outdoor garden, the Curled Simpson.

Rutabagas.— American Purple Top.

Cabbage.— Early Jersey Wakefield for first early, and Premium Flat Dutch for fall and winter use.

Cauliflower.— Snowball.

Celery.— Whiteplume for early, Golden Dwarf for winter use.

Pie Plant.— The Linneas.

Parsnip.— Dutch Hollowcrown.

It should here be stated that all the plants thus far named, will bear a little frost after coming through the ground without being seriously injured, and as a rule, it is safe to plant or sow the seeds about as early as the land is in first rate condition in the spring.

The following list are more tender and, potatoes excepted, should not be planted or sown until all danger of frost is past and the earth is getting somewhat warm.

Potatoes.— Early Ohio for first early, and Beauty of Hebron for main crop.

Beans.— Golden Wax for early summer and the Early Limas for fall and winter use.

Corn.— A small quantity of Cory for first early. Early Minnesota for second, Crosby for third and Stowell's Evergreen for late. These varieties all planted at the same time will give a supply for the entire season until frost.

Tomatoes.— Acme and Trophy.

Cucumbers.— Early Frame and White Spine.

Muskmelons.— White Japan and Hackensack.

Watermelons.— Mountain Sweet.

Squashes.— Early White Scallop for summer. Boston Market for early fall, and Hubbard for late fall and winter.

Peppers.— Large Sweet or Bull Nose.

This about completes the list of such annuals as are, or ought to be found in every good and well conducted farmer's garden. A few words about an asparagus bed. I doubt whether a given area devoted to any other crop upon the entire farm, will, or can be made to add more to the comfort of the family, or can furnish a greater amount of food, than can a well kept asparagus bed. Let me tell you in as few words as possible how to make one. Select a spot where

you will not need to make a change, for when once well made, if properly cared for it will last for a life time. The land should be very rich. Put on all the manure that you can plow under, and plow deep. Harrow or cultivate it until it is in the best of order, then with a plow furrow it about six inches deep, making the furrows three and a half to four feet apart. Get roots of the Conover Collossal variety, not more than two years old from the seed, one year old is as good. Spread out the roots of the plants in their natural position, and place them in the bottom of the furrow fifteen or eighteen inches apart in the rows. Be sure that the crown of the plants are not less than four, or more than six inches below the surface after the bed is leveled off. Then fill up the furrows making the ground level and your asparagus bed is made. There is not a farmer within the sound of my voice who cannot make a good one without any difficulty. The after culture is equally plain and easy. Keep out all weeds and grass and let it grow without molestation the first year. The following spring cut off all the old tops, put on a coat of manure and dig it in. We use our six-tined manure forks for this purpose, being careful not to dig deep enough to disturb the crown or roots of the plant. This season (the second) you may cut some from the bed. but not longer than thirty days, and then leave them the balance of the season to grow and strengthen themselves for future usefulness. The third and every spring thereafter, repeat the process of cutting off the old stalks, putting on and digging in some manure. Keep the beds free from weeds and grass, and when cutting always be sure to cut the beds clean, leaving no small stalks to run up to seed during the cutting season. The third year and every year thereafter you may cut to your heart's content.

It will take the bed about five years to get to its best. My oldest beds are now about twenty years old, and we are yearly cutting from them an immense crop of as fine asparagus as I ever saw, except some French canned stock that I saw in Philadelphia in '76. There is a bed in the garden at my native home in the east that is not less than sixty years old, still yielding its annual crop.

So much for fruit and vegetables. We must not forget a flower bed for the wife and daughters. The same principles in cultivation apply here as those given for the small fruits. My good wife has furnished me the following list that she deems applicable to out door cultivation. I will only say with regard to them that her flowers are very beautiful in their season. The following is from her pen: "We are told in the good book, that man does not live by bread alone, and we might also add, nor by fruit and vegetables. The tired farmer's wife, much as she may enjoy the nice fruit and good vegetables, needs something to relieve the monotony of her daily routine of hard work, for however much may be said, or sung, of the beauty, healthfulness, independence, etc., of life on the farm, the fact still remains, that there must be plenty of hard work for the farmers' wife, and whatever may be mingled with it to cheer and lighten her home life should be liberally provided. Probably the cheapest help from the money standpoint, is the presence around the home of fragrant and beautiful flowers. First of all, I would have roses whose wondrous beauty and delicious fragrance will pervade the entire garden. I can never forget the rose bushes that grew in my mother's garden. We enjoyed them while fresh, and when they began to fade, we gathered the leaves and sprinkled them in our drawers and trunks of clothing, where we enjoyed their perfume until the roses came again. My little daughter used to wish for a whole garden full of roses. The lilac bushes, too, were delightful in the early spring time, and the gorgeous peonies as year by year they bloomed with very little care, always brought delight to our childish heart. I have mentioned the perennials first as they remain from year to year to delight our hearts, with very little labor or expense.

"But we want, too, some of the bright and beautiful annuals which will give us a constant succession of bloom from early summer until almost winter. First I would place the pansies, which with their great variety of colors and markings are a source of unending delight during the entire season. They, if covered with straw or marsh hay, will be

ready to bloom again very soon after the frosts are over the following spring. Next I would place the sweet peas and mignonette, which combined, give the very perfection of fragrance. A few verbenias of different colors which may be bought of almost any florist for five cents apiece, will give an abundance of flowers during the season. Next I would have the phlox in mixed colors, which in beauty are about equal to the verbenias. Then for late summer and fall a variety of Dahlias and Astors will give constant pleasure. I knew a young wife who always wanted a bed of mixed portulaccas near her kitchen door, as she said their bright beauty helped her ever so much with her work. The list of floral beauties might be enlarged indefinitely, but must be left for each to fill out according to their individual tastes. To the husbands and brothers, I will only say, do not grudge to your wives and daughters or sisters, the money or time it may cost you to help them carry out their wishes. If the chickens are troublesome, put a light fence around a plat of ground such as they may need, and don't be stingy about the space either; give them all the room they wish. Enter fully into the spirit of the matter and help them cultivate and enjoy them and you will soon wonder how you managed to get along so long without them. It will help the children as much as the mothers. If you would have sunny-faced wives and bright and happy children, help them in all practicable ways to put all the brightness and beauty possible into and around your homes, remembering that good and happy homes are the nurseries of the nation."

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