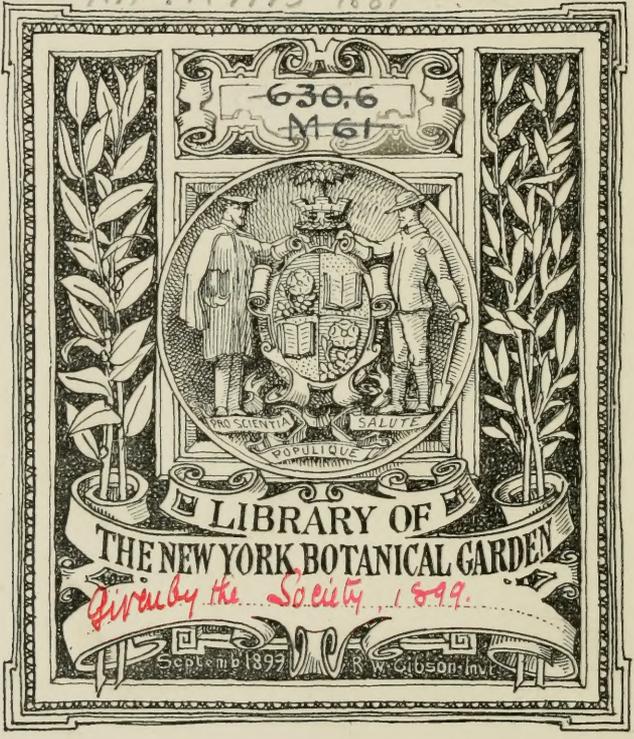


LA. N7775 1881



ELEVENTH ANNUAL REPORT

OF THE

SECRETARY

OF THE

STATE HORTICULTURAL SOCIETY

OF

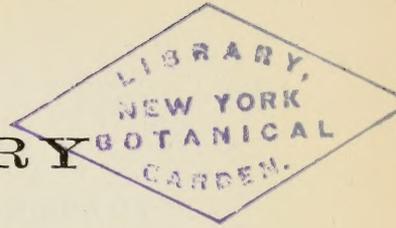
MICHIGAN.

1881.



BY AUTHORITY.

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1882.



REPORT OF THE SECRETARY

OF THE

MICHIGAN STATE HORTICULTURAL SOCIETY.

GRAND RAPIDS, Michigan, December 31, 1881.

TO DAVID H. JEROME, *Governor of the State of Michigan:*

I have the honor to submit herewith, in compliance with legal requisition, the accompanying Report of 1881, with supplementary papers.

Respectfully yours,

CHAS. W. GARFIELD,

Secretary of the Michigan State Horticultural Society.

REPORT OF THE SECRETARY

NEW YORK STATE BOTTLED BEVERAGE COMMISSION

The Commission on Bottled Beverages was organized on July 1, 1934, by Chapter 100 of the Laws of 1934, which amended the Alcoholic Beverage Control Law. The Commission was directed to study the various problems connected with the sale and distribution of bottled beverages and to report thereon to the Governor and the Legislature. The Commission has the honor to submit herewith its report.

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OFFICERS OF THE STATE HORTICULTURAL SOCIETY FOR 1881.

PRESIDENT—T. T. LYON, South Haven.

SECRETARY—CHAS. W. GARFIELD, Grand Rapids.

TREASURER—S. M. PEARSALL, Grand Rapids.

LIBRARIAN—F. W. KING, Lansing.

EXECUTIVE COMMITTEE.

E. H. SCOTT, Ann Arbor, 3 years.

A. D. HEALY, South Haven, 3 years.

W. K. GIBSON, Jackson, 2 years.

E. F. GUILD, Saginaw, 2 years.

JAS. SATTERLEE, Greenville, 1 year.

N. CHILSON, Battle Creek, 1 year.

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ON NEW FRUIT—T. T. LYON, President; G. H. LAFLEUR, Allegan; GEO. C. McCLATCHEE, Ludington; C. ENGLE, Paw Paw; DR. A. CONKLIN, Manchester.

ON FINANCE—N. CHILSON, E. F. GUILD. E. H. SCOTT.

ON ENTOMOLOGY—ALBERT J. COOK, Lansing.

ON LANDSCAPE GARDENING—R. HAIGH, JR., Chairman.

ON VEGETABLE GARDEN—PROF. W. W. TRACY, Chairman.

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VICE PRESIDENT—HON. J. WEBSTER CHILDS, of Ypsilanti.

HON. GEORGE W. PHILLIPS, of Romeo.

HON. FRANKLIN WELLS, of Constantine.

HON. T. D. DEWEY, of Owosso.

HON. HENRY G. REYNOLDS, of Old Mission.

DAVID H. JEROME, GOVERNOR OF THE STATE,

THEOPHILUS C. ABBOT, PRESIDENT OF THE COLLEGE, } *Ex Officio.*

SECRETARY—ROBERT G. BAIRD.

TREASURER—EPHRAIM LONGYEAR, of Lansing.

OFFICERS OF THE MICHIGAN STATE AGRICULTURAL SOCIETY FOR THE YEAR 1882.

PRESIDENT—HENRY FRALICK, Grand Rapids.

TREASURER—A. J. DEAN, ADRIAN.

SECRETARY—J. C. STERLING, Monroe.

EXECUTIVE COMMITTEE.

Terms Expire January, 1884.

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D. W. HOWARD, Pentwater, Oceana Co.
H. O. HANFORD, Plymouth, Wayne Co.
F. L. REED, Olivet, Eaton Co.
A. F. WOOD, Mason, Ingham Co.
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M. P. ANDERSON, Midland, Midland Co.
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C. A. HARRISON, Paw Paw, Van Buren
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Terms Expire January, 1883.

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O. A. HYDE, Marshall, Calhoun Co.
W. H. COBB, Kalamazoo, Kalamazoo Co.
E. W. RISING, Davison Station, Genesee
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PHILO PARSONS, Detroit, Wayne Co.
I. H. BUTTERFIELD, JR., Port Huron,
St. Clair Co.
JOHN LESSITER, Jersey, Oakland Co.
WM. CHAMBERLAIN, Three Oaks, Ber-
rien Co.

EX-PRESIDENTS.

GEO. C. MUNRO, Jonesville, Hillsdale County.	GEO. W. GRIGGS, Grand Rapids, Kent County.
M. SHOEMAKER, Jackson, Jackson Co.	CHARLES KIPP, St. Johns, Clinton Co.
JAMES BAILEY, Birmingham, Oakland County.	E. O. HUMPHREY, Kalamazoo, Kalama- zoo County.
H. G. WELLS, Kalamazoo, Kalamazoo Co.	W. L. WEBBER, East Saginaw, Saginaw County.
W. G. BECKWITH, Cassopolis, Cass Co.	GEO. W. PHILLIPS, Romeo, Macomb Co.
W. J. BAXTER, Jonesville, Hillsdale Co.	

PROCEEDINGS OF THE WINTER MEETING.

HELD IN LANSING, JANUARY 31 AND FEBRUARY 1, 1881.

It was thought desirable by the Executive Board to give the winter meeting entirely up to matters of business, inasmuch as these things had been neglected in the carrying out of several previous programmes. The meeting was called for the last day of January, and there were present the entire Executive Board (except Mr. Gibson), and a number of the members of the society.

The first session was in the evening, and was held in the Pioneer room of the State capitol. The minutes, of the last meeting of the Executive Board were read and approved, after which the question of

THE DISTRIBUTION OF OUR REPORTS

was suggested by the Secretary as a proper one for discussion, and one upon which he would like the advice of the society. He said several articles had appeared in the State press criticising severely the action of the society in not sending out the volumes for 1879 as usual to any one who would pay the freight on the boxes. Even conventions of agriculturists had censured us because we were not more liberal with the volumes. In the distribution, the Secretary said he had been acting under instructions from the Executive Board, and personally was well satisfied with the plan. The local branch societies should take the responsibility of the distribution wherever these were organized, and in the course of a few years these organizations would be established in every county where the volumes were needed, provided we are allowed to continue this plan. That is, the volumes themselves under proper restrictions and regulations as to their distribution will accomplish the work of sustaining the branch societies, and in time the most valuable material for sustaining the high character of the reports will be furnished by the societies.

It is not the policy of the State to furnish the volumes to every person within its borders, but rather to furnish the information to the people who most need it, who will best use it in the interests of the State.

The Secretary remarked further: "Our interpretation of the requirements for the distribution, it seems to me, is a most proper one in that we do not give the volumes out to all who will hold out their hands to receive them; but require that the recipient shall do something to render the appropriation of the State more effective. Our State has peculiar capabilities in the field of horticulture. We know it. We desire the world should know it. There is no more effective way of spreading the intelligence than by securing the testimony of actual,

successful settlers. These men rarely write essays for reviews or articles for the newspapers; but when gathered in council they give freely their experience and couple with it statistical information of great value to others. This is garnered into a report and published and sent out. Our capabilities are advertised more effectively than in any other way. The men and women who have added to this work ought certainly to be the ones who should be rewarded by the State in preference to any others, and this, as I understand it, is just what we are aiming at in our plan of distribution. Can there be a truer policy than this? And are we not justified in holding our volumes for the organization and maintenance of the societies that are willing to do the work I have indicated. In saying this my object is to open the question so that if there are varying views we may have them to aid in such a modification of our system as will commend itself to all, if possible."

A. S. Partridge, Flushing: The volumes of this society are very valuable, and in our section those who have them would not part with them for a great deal. I am satisfied that there is sufficient interest in horticulture in Genesee county to support a society devoted to this important interest, and the volumes could be employed in furtherance of this design.

B. F. Partridge, Bay City: For a number of years I have received boxes of these books, paid the freight on them, and spent more or less time in trying to get them into the hands of the people who needed them. This year the box was sent containing the quota for Bay county, and with a letter asking that we form a branch society and use the volumes in building up and sustaining it by making each member entitled to one. The idea struck me favorably, and this is the way we purpose doing up there; it is the right way. A man who will not turn over his hand to aid the horticulture of this State ought not to have a volume of our proceedings. It is the men and women who do some work that should have them, and then I fear there will not be enough to go around.

N. E. Smith, Ionia: Give the ones who are willing to aid in this work, and be sure they are supplied before throwing them away upon people who will only use them for scrap books. In Ionia a good many of us value these reports next to our Bibles, and we have been willing to come to the support of the Society actively to aid in the continuance of its good work, and I think the list of life members from our county will bear me out in this statement. I am glad to see our Society taking measures that will secure, if possible, every volume that is issued to some person who needs it and is willing to aid in our work.

Geo. E. Steele, Traverse City: I have served my time in paying freight and distributing our volumes. They have done a good deal of valuable work in our county, too. We have not much surplus of money there but I am strongly in favor of any plan by which the burdens of maintaining the high character of our work shall be more evenly distributed. Let each one who receives a volume pay something toward the support of his local and State society and thereby help to render each year's transactions as valuable as those which have gone before.

Chas. E. Reeves, Benton Harbor: I have had some experience in this report business; have seen volumes sold at ten cents apiece to pay the freight, and I am thoroughly glad that we are getting at some system by which the people who need them and are willing to help support their issue can have them in preference to any one else. They are too valuable to be thrown away, and every volume issued will be wanted by people especially interested in fruit

growing. I have a deep interest in the development of the local horticultural societies, and believe that the handling of the reports may most properly constitute a portion of their work. In Berrien we have a thriving association, and we know who need the volumes better than any one outside the county, and I can guarantee that the volumes sent us will be used judiciously.

Mr. Wyckoff, Oakland county: For two years boxes of reports have been sent me for distribution, and I think our people value them more than any volumes they get, and it seems to me we are nearing the time when perhaps we may form a local organization which can and will take charge of the distribution for our county. Certainly in Oakland, where so much fruit is grown, we should and can support a live horticultural society.

Mr. Pearsall, Grand Rapids: The trouble is, people do not understand this business; they draw false conclusions. It is in the interests of Michigan horticulture that our society exists, and every branch that is so formed strengthens the whole work, and every man who supports either the parent society or an auxiliary helps to build up the valuable reports which come back to him and requite him liberally for his investment. Our people, now that they understand it, are well pleased with the new system of distribution and the plan of forming auxiliary societies.

President Lyon: There is probably no single State in the Union, if we except possibly California, in which horticulture, including all its branches, from the growing of fruits and flowers to the cultivation of trees and plants, whether for ornament or utility, finds so congenial and favorable a field as in Michigan, especially in the lower peninsula. We are led to suppose that it may have been in consideration of this fact, and possibly in view of the further and obvious fact that its demonstration must necessarily involve the conclusion that the same causes operating together to such result are equally effective in favor of agricultural pursuits generally, that the Legislature was induced, in providing for the organization of a State Pomological Society, to provide also for the publication of its transactions, as one of the most effective means of publishing to the people of the State and to the world, the special capacities of our soils and climate for such purposes; and thus fostering and developing these pursuits among our own citizens; while at the same time the attention of horticulturists abroad, (who are notoriously a reading and thinking class of people), would be strongly drawn to our State, and thus the immigration of a most thrifty and desirable class of persons be encouraged.

Previous legislation in providing for the publication of the transactions of agricultural societies had not only assumed the labor and expense of their preparation and publication, but had also assumed the expense and responsibility of their distribution by retaining the whole matter in the hands of its paid officials. In providing for the publication of the transactions of the State Pomological Society, however, the expense of collecting and arranging the matter therefor, and the labor of editing the same, is left to be supplied by the society, while the volumes committed to its charge are required to be distributed at the expense of the Society under more or less specific provisions, which leaves the process very considerably at its discretion.

The present officers of the society, upon assuming charge of the affairs, found it to be the practice of annually sending out packages of Transactions to large numbers of more or less prominent citizens, many, if not most, of whom had no ostensible connection with fruit culture, and who received the same without pledge for their proper use, in nearly every case omitting to return any state-

ment or assurance as to the manner of disposal. An earnest effort, extending through two or three years, failed to secure improved results through this process, while earnest calls upon the society for these volumes by persons engaged or interested in fruit culture, had already become too numerous to be supplied. Feeling that, under this condition of affairs the society might be thought chargeable with lack of requisite care in the distribution, its Executive Board, under instructions from the Society, at its annual meeting in December, 1879, took the whole matter under careful advisement, and after mature deliberation devised the plan of promoting the formation of local, county, city, village, and town societies, either pomological or horticultural, as should best suit each locality. In very many places the local interest was found to be more horticultural than otherwise, and since the two are everywhere so intimately associated, and both seemed equally essential to the highest success of these local societies in the majority of cases, and especially since, in the modern sense horticulture has come to include pomology, it seems indispensable, if the general society would continue to be in fact a State, and not a local organization, that it should assume the more general title, which it accordingly did by vote of its members, at its regular meeting in June, 1880.

This plan for the organization of local auxiliary societies is coupled with a provision making every member the recipient of a copy of the current volume of the Transactions, and also making the local society the custodian and distributor of such portion of them as it can profitably use, and as can fairly be assigned to it. When we consider that the 6,000 volumes of Transactions to be distributed by the society will only supply one copy to each 250 persons in the State, it will easily be discovered that the supply must necessarily be inadequate to the legitimate demand; hence the desire of the society, in the advancement of the great interest it has in charge, to give the utmost effect to every volume distributed. And without claiming special wisdom in this particular, we may be permitted to remark that so far, results under the present process of distribution have been eminently encouraging. That the society has been charged with selling the volumes has absolutely no foundation, beyond the fact that a person's membership in a society is considered to be the best possible evidence of his interest in the subject.

The question is asked, What special claim has fruit growing, to be thus favored? We reply that unlike most prominent interests, neither the agriculturist nor the fruit-grower, as the rule, has any personal advantage to gain by advertising, since his products must make their way in the markets strictly upon their merits; while the increased reputation of these products, and the higher reputation of the State for such purpose only serves to increase the competition. If, therefore, the State would advertise its capacity in these respects, it is too much to expect it to be done at other than public expense.

That the efficiency and high standing of the State Horticultural Society, both at home and abroad, has excited a degree of jealousy in certain quarters, and that such feeling has found expression through the daily press of the State, and in covert efforts to prejudice the public feeling, and to some extent, as we are assured, the feelings of legislators, is our justification for these remarks.

On motion, the whole matter of the distribution of reports was referred to the Executive Board. A number of others took part in the discussion, and all seemed perfectly satisfied to trust the board with the subject, giving them power to act in their discretion.

SIZE OF FRUIT PACKAGES.

A letter was read by the Secretary from J. S. Woodward, of Lockport, N. Y., asking concerning the size of our standard apple barrel, and saying that a committee on apple barrels had been selected by the Western New York Society and the Ontario Fruit Growers' Association to confer with our society and the Ohio society, and, if practicable, get at a uniform statute apple package.

President Lyon also presented a similar communication from the Canadian society.

Mr. Baldwin, of Oakland county, said a standard measure might be a good thing, but it was hardly ever used. All sorts and sizes of barrels were used in packing apples, with little or no reference to any standard. The measurement of a Michigan apple barrel, according to the amended law of 1871, is the same as a flour barrel, to wit: Staves twenty-seven inches long and head sixteen and one-half inches in diameter.

Mr. Guild, of Saginaw, wished that we might have a more accurate standard than this, and thought the apple standard ought to be a standard of weight.

Mr. Reeves: We have a standard bushel weight; act number sixty-three of the session laws of 1877 declares that whenever apples are bought or sold by weight forty-eight pounds shall constitute a bushel. The barrel is not a very reliable unit of measurement I have found by a little computation. I have been down on the street and made some measurements which I give you. An apple barrel with twenty-seven inch stave and sixteen and one-half inch head with a two inch bilge contains 6,250 inches, or two bushels one and three-tenths pecks; but with a four inch bilge the barrel contains 7,215 inches, or two bushels two and three-tenths pecks. A cracker barrel with the same head and a thirty inch stave with a two inch bilge contains 7,589 inches, or two bushels three and three-tenths pecks, while a barrel with same measurement and a four inch bilge contains three bushels and eight tenths of a peck. It will be seen by this that when orchards are bought by the barrel and the buyer furnishes his own packages a great difference in the yield may be made by the use of varying barrels.

On motion of Mr. Mann, a committee of three was selected to take this matter of apple barrels into consideration and confer with like committees from other states with the object in view of securing a uniform standard.

The President named as such committee Messrs. Garfield, Guild and Mann.

MISSISSIPPI VALLEY HORTICULTURAL SOCIETY.

A communication was received from Mr. Wm. Rowe concerning the Mississippi Valley Horticultural Society. He spoke of the association in terms of praise, saying that the apparent failure in some points at its exhibition in 1880 was not due to any fault of the Society, but rather of the parties who guaranteed the payment of premiums and afterwards retreated from their guarantee. A request was read by the Secretary from an officer of the Mississippi Society that we select a vice president for our State to accord with the following articles of association of that Society:

ARTICLE I.—The organization shall be known as the Mississippi Valley Horticultural Society. Its object shall be the promotion of horticulture.

ARTICLE 2.—Any person may become a member upon the payment of two dollars, and membership shall continue upon the payment of two dollars annually.

ARTICLE III.—Its officers shall consist of a President, First Vice President, Secre-

tary and Treasurer, who shall be elected by ballot at each regular meeting; and one Vice President from each State, who may be elected to this position by the several State Horticultural Societies. Should there be no Vice President elected from any State, the vacancy may be filled by the Executive Committee of this Society. The term of office of the President, Vice President, Secretary and Treasurer, shall begin on the first day of January following their election. No person can act as an officer of this Society who does not maintain his membership by the payment of the annual membership fees.

ARTICLE IV.—The regular meetings of this Society shall be held annually on the first Tuesday of September, except when otherwise ordered by the Executive Committee, and continue for such time as the committee shall determine.

ARTICLE V.—The officers of the Society shall constitute an Executive Committee, at any meeting of which a majority of the members present shall have power to transact business.

ARTICLE VI.—Special meetings of the Society may be called by the Executive Committee, and meetings of the committee may be called by the President and Secretary.

ARTICLE VII.—This constitution may be amended by a two-thirds vote of the members present at any regular meeting.

On motion of Mr. Pearsall, Mr. Wm. Rowe, of Grand Rapids, was unanimously selected to fill the position.

The meeting now adjourned until morning.

Tuesday's Session.

There was a lighter attendance Tuesday morning, but the Executive Board were present and a few others.

The Secretary read the following letter:

Chas. W. Garfield, Grand Rapids:

DEAR SIR: Your attention is called to the History of the Massachusetts Horticultural Society, for fifty years, from its foundation in 1829. This work will be found of general interest, as the introduction comprises a sketch much fuller than exists elsewhere, of the history of horticulture in the United States, from the settlement of the country to the foundation of the Society, and the history of the Society onward is, in the language of President Hovey, in his address at the dedication of the present hall of the society "the history of horticulture in our country." It is handsomely printed, on an extra quality of paper, and embellished with a fine steel engraving of Gen. H. A. S. Dearborn, the first president, and heliotypes of the two halls erected by the society. Among other interesting matters, it contains an account of the foundation by the society of Mount Auburn Cemetery, the parent of all similar cemeteries in the country.

The work is furnished to members of the society at cost, \$2.50, and to others than members for \$3, but will be supplied to public libraries at the same price as to members. Please address the Secretary of the society, at Horticultural Hall, Boston.

ROBERT MANNING, *Secretary.*

BOSTON, MASS., *December 29, 1880.*

On motion of Mr. Chilson, the Librarian was instructed to purchase a copy for our library and render his bill for the same.

The Secretary read the following:

BOSTON, MASS., *Jan. 3, 1881.*

Mr. Chas. W. Garfield, Grand Rapids:

MY DEAR SIR: In a word the American Pomological Society will hold its eighteenth session in Boston, commencing September 14th, next. Please promulgate this announcement and send a large delegation from your great State and from your great resources.

Yours truly,

MARSHALL P. WILDER.

On motion of Prof. Beal, a committee was raised for the purpose of memorializing the Senate and House committees upon horticulture in the Legislature, asking for an appropriation to pay the expense of a Michigan exhibit of fruits at the next biennial meeting of the American Pomological Society.

Messrs. Lyon, Beal and Tracy were elected as such committee, and prepared the following memorial :

To the Senate and House Committees on Horticulture :

The American Pomological Society is one which for the past thirty-six years has been most influential in moulding and shaping the development of fruit culture in our country, and its biennial meetings have been of great value to pomologists, and through them have excited wide-spread interest among all classes. This society holds its next meeting at Boston, in September next, and efforts are being made to make it an exceptionally large and profitable one. The State Horticultural Society asks an appropriation of fifteen hundred (1500) dollars, to enable it to make there such an exhibit of the fruits of Michigan as will be creditable to our State and call the attention of future immigrants to its advantages for producing fine fruit.

REPORT ON LEGISLATION.

My Lyon, of the committee on legislation, made the following report :

The committee remark by way of suggestion that we should only look to dryers, whether private or commercial, to consume such fruit as may for any cause be unfitted for handling and sale in the fresh state. That the best and surest remedies for an overcrowded market will be found, first, in growing superior fruit; second, in thoroughly intelligent and careful handling; third, in selecting only the perfect specimens; fourth, in good packing and in good packages; fifth, in such handling and transportation that the fruit shall be laid down in the market sound and free from bruises. Till we shall have mastered these requirements there can be little use in seeking foreign or very distant markets.

The present mode of shipment to Europe, by rail to the sea-board, can never be safe, or on the whole profitable, for the reason that the preliminary railroad conveyance usually induces the condition of injury and incipient decay, which disqualifies it to bear the subsequent stress of water transportation; the consequence being that much of it reaches its destination in a condition unfit for sale or use.

The only apparent remedy for this difficulty would seem to lie in the establishment of a line of transportation "in the same bottoms," direct from our lake ports to Europe. To attain this object it will be requisite either to secure the enlargement of the Erie canal and the improvement of the capacity of the upper Hudson below Troy, or the increase of the capacity of the Welland and St. Lawrence canals, to in either case enable them to pass a larger class of sea-going vessels.

The attempt to secure the latter would very probably arouse at least tacit opposition from the entire northern sea-board interest of the United States, especially that of New York, Boston, Portland, and very probably even Philadelphia and Baltimore; while an effort to secure the former would doubtless be seconded by New York, and quite possibly Boston.

An effort to secure either object would be quite as much in the interest of mining, lumbering, and agriculture as in that of fruit-growing. Its success, moreover, is nearly or quite as important to the other northwestern States as to Michigan, and should command their thorough coöperation.

This is far too important and difficult an undertaking to be attempted by a society like this, or even by a State like ours, singly. Still, Michigan occupies the "key of the situation," and may very properly lead in such effort, and the united efforts of the States commercially interested could hardly fail to secure the opening of one, and quite possibly both routes; of which that via New

York would have at least a climatic advantage, while it would at the same time avoid all probable complications of a trans-foreign character.

Under these circumstances the committee advise that measures be taken to bring this matter to the consideration of persons representing the other interests spoken of, and if practicable bring the project in shape to command the attention of the legislature at the coming session. Steps have already been taken to obtain the statistical results of the present census at the earliest practicable date for use in this connection.

The attention of the committee has been called to the propriety of providing by law for the use of stamps upon fruit packages, specifying their capacity. The distrust growing out of the persistent use of "short" packages, disguised in various ways to hide the shortage, often, beyond doubt, exerts an unfavorable influence upon prices, even to the injury of those giving full measure, to say nothing of the imposition upon the purchaser.

In consideration of the importance of some of the subjects mentioned, and the possibility, not to say probability, that still others may arise, your committee recommend that the incoming board assign this entire subject to a committee, with instructions such as shall seem needful to most effectually secure the results desired, viz., the laying of this subject in a practical as well as influential form before the incoming legislature.

The committee also commend for careful consideration the question of the propriety of bringing before the legislature in the form of a memorial, or otherwise, the difficulties encountered by the society in the proper distribution of its Transactions, with a statement of the process now in use for this purpose, and the objects sought in its adoption, coupled with the request that if such procedure shall be approved, it receive the sanction of that body.

In regard to the matter of school-ground embellishment, referred to your committee, we remark:

Believing that anything that shall render the "common schools" of our State more attractive, and that shall operate to throw around that impressible season—the school years of the children of the State—restraining, yet attractive, refining, and elevating influences, must necessarily have an important and desirable bearing upon the future character of the great mass of those who shall graduate from the "people's colleges," and who must in the near future come to constitute the bulk of the citizenship of our country, we are impelled to invite the attention of the Legislature of the State to the importance of adding to the attractiveness of our school buildings, and especially of their surroundings. With reference to such improvement we submit the following as hints as to a possible direction for legislation of the desired character, believing that the processes suggested once fairly inaugurated, would themselves supply all the impetus needful for their active continuance and perpetuation:

When a school district shall become the owner in fee of a school-house site of not less than one acre for each 40 scholars in said district; and shall have constructed suitable school buildings thereon; and further, shall have properly prepared and (if needful), drained said ground, and adopted a plan for the planting of the same with screens or wind-breaks, where needful, together with suitable shade and ornamental trees; and when upon examination such plan shall have been approved by the township board of school inspectors; and when, in pursuance of such plan of ornamentation, the district shall have expended in such work the sum of \$50, to the satisfaction of said board, whether paid for by tax upon the property of the district or by voluntary con-

tributions in money or labor, such district shall be entitled to a certificate to that effect from said board, and thereupon to receive from the township treasury the sum of \$50, the same to be expended by the authorities of said district in the further ornamentation of said grounds in pursuance of the plan already adopted.

Inasmuch as the teacher of the school must almost necessarily be expected to afford important aid, if not in actually conducting such suggested ornamentation, at least in preserving, and possibly in perfecting it, we suggest the following with the apprehension that the qualifying of even a few teachers as hereinafter indicated, would afford them so decided an advantage in the securing of positions in the more desirable districts, that others would find themselves almost unavoidably impelled to strive for similar qualifications; and that by this means even the proposed ornamentation may finally come to be considered as an important means of illustration in the educational processes of the school-room. The importance of the influence of any extensive adoption of these or similar ideas upon visitors to our State, and through them upon the amount and character of immigration need only to be suggested to be at once comprehended and appreciated. As respects the qualification of teachers the following suggestions are submitted:

When a person shall apply to the proper authority for examination as a primary school teacher, and shall request to be examined as to his knowledge of the essential elementary principles of horticulture and forestry as bearing upon the above proposed matters, it shall be the duty of the officer to make such examination and to specify such qualifications in the certificate to be given in the case.

It shall be the duty of the Normal School Board to provide an adequate course of study for this purpose and to require such qualifications of all its future graduates. Any previous graduate may, upon subsequent examination, receive a certificate of qualification in this particular.

INVITATIONS.

Invitations were received to hold future meetings as follows: From the Berrien County Horticultural Society to hold the June meeting at Benton Harbor; from South Haven Pomological Society to hold its annual meeting at South Haven; from G. S. Woolsey, Secretary of the Calhoun County Agricultural Society to hold some meeting in the near future at Marshall, the guests of said society; from Weston Grange, through G. B. Horton, a similar invitation; from H. W. Norton, Secretary of Farmers' Union, Hudson, Lenawee county, an invitation of the same import. The invitation to hold the June meeting in Benton Harbor was accepted for such date as the Berrien society should select. The remaining invitations were referred to the Executive Board for further action.

STANDING COMMITTEES.

President Lyon called attention to the fact that our by-laws allowed us to appoint standing committees upon various departments of work, and spoke especially of the importance of filling the committees on the vegetable garden and upon landscape gardening.

Mr. Haigh spoke at some length upon the work that might be done in landscaping by the society, and was followed by Mr. Tracy, Prof. Beal, and others.

By election Prof. W. W. Tracy was made chairman of the standing committee on the vegetable garden, and Mr. R. Haigh chairman of the committee on landscape gardening, and each was given power to choose his own associates.

It was understood that these committees were to be permanent, and that reports were to be expected annually, or more often as the circumstances might dictate.

BRANCH SOCIETIES.

The secretary made an extended report upon the formation of branch societies. He reported working societies to the number of fourteen, while there were twelve more in process of formation. He thought the promises were good in this direction, and predicted, if the best effort was put forth, a useful future for the State society and its auxiliaries.

After auditing accounts and some informal discussion upon society work, the meeting adjourned.

THE SUMMER MEETING.

HELD IN THE VILLAGE OF BENTON HARBOR, JUNE 7, 8, AND 9.—
RECORD OF DISCUSSIONS AND TEXT OF PROMINENT PAPERS.

In acceptance of an invitation from the Berrien County Horticultural Society, the State society met in its June convention in Benton Harbor. Antisdale's hall had been secured for the occasion, and was tastefully decorated by a committee of ladies from Benton Harbor and St. Joseph. Evergreens had been used profusely, and plants in pots, cut flowers and trailing vines were all successfully employed in rendering the hall a delightful place of meeting.

There were visiting members from distant parts of the State, including Grand Traverse and Oceana on the north, and Wayne and Lenawee on the south and east. Delegates were also present from Illinois and Indiana.

Letters were received from a number of people who expected to be present, but were prevented by unforeseen circumstances. A number of these letters were read at the opening session, which occurred on the evening of June 7th, a few quotations from which are given in this connection :

FROM MR. J. D. BALDWIN, ANN ARBOR:

At our meeting last Saturday we appointed delegates to attend State meeting at Benton Harbor, but I fear from reports that none can go. I regret this because so many of our good friends came the same long road to meet with us last winter. Our zeal in the good cause is not one whit abated, notwithstanding our fruit prospects for the coming season are by no means promising. We have all of us lost a few peach, quince, and plum trees by the past hard winter,—generally on hills facing the west and southwest, or in depressed places where the drains could not carry off the surface water caused by the January thaw, on account of the frost below. The immediate prospects for fruit are about as follows: strawberries, rather less than a full crop; all hardy raspberries promising well; grapes everywhere first rate; hardy blackberries the same; apple trees blossomed full, but few are maturing, crop about one-fourth; peaches about the same with me, but in lower localities fine young orchards much less than one-fourth a crop. Hill's Chili with me have stood the battle, and my five hundred trees will have nearly a full crop; cherries very few; pears perhaps one-half a crop. Lard and sulphur are not very effective against the curculios here and so they have taken possession of the plum crop.

I wish to say a word on the third topic of your programme. We cannot

expect with any degree of certainty to have so long a period favorable to fruit-growing as we have had for the past five years. To guard against such winters as we had in '74 and '75 and the one we have just passed through, we must put out hardy plants and trees. From my experience, where the location is favorable, I believe we can get nearly every season a good crop of Snyder or Taylor's Prolific blackberries, also of Cuthbert, Gregg, and Henrietta raspberries; and as to peaches, the possibilities of Hill's Chili are entirely unknown to us. If we can get a fair crop of them from budded trees after passing through such a winter as the past, what may we not expect with this reproducing variety, when we run it through eight or ten generations of seedlings, rendering it, as we might expect, more hardy than it now is? I have thrown up my commission as a prophet, but will venture to say that if this thing is looked after as it ought to be, our children may hear of good peaches being grown in northern Minnesota.

Yours truly,

J. D. BALDWIN.

FROM HENRY HOLT, OF KENT COUNTY.

I am now in Lowell, Massachusetts, and have been in New England since April first, and shall not be liable to get home in time for your June convention. I have noted some things which may be of interest to the Society. The canker worm is here, and they tell me it remains several years, then disappears for a time. When doing their best the fruit trees are all denuded. The remedy is a paper band a foot wide smeared with printers' ink.

I was surprised in eastern Connecticut to see peaches that have stood perhaps 100 years still vigorous and blossoming with no sign of blight; and old apple orchards that flourished in my boyhood days now standing in the woods covered with moss, but still struggling for life and blossoming some.

The pear crop through Rhode Island, about Providence and so on to Boston and Lowell, is very promising, but the apple crop is expected to be small, it being what they call the odd year. They inquire whether this cannot be remedied by thinning the fruit while the trees are young, or some other method. I notice that the Baldwin, which is the apple of this section, is almost entirely destitute of blossoms this year. Some other varieties are blossoming lightly. I notice that peach trees, wherever there are any, are mostly killed, at least last year's growth is dead.

Yours,

HENRY HOLT.

FROM EDWARD BRADFIELD, ADA.

A death in my family prevents attendance with you at Benton Harbor. One of the first, and certainly one of the best, meetings held by the society out of Grand Rapids, was held there, and we were so very agreeably entertained by the people there that I had hoped to enjoy a second edition of the whole affair.

The first currant worm I ever saw in my life, I discovered on my bushes last week. I was taken all aback, not knowing how to treat them. Had heard of hellebore, but did not know how to use it. As a person "stalled" on the definition of an uncommon word resorts to Webster's Unabridged, so I resorted to the Pomological reports of the Society and soon found what I wanted in articles from President Lyon and others. Having nothing else at hand I dusted the leaves with a mixture, one part Paris green to thirty of fine flour. The next day not a worm was to be seen on those bushes, but plenty on some others. I

sent word to my daughter not to give away all her spare currants, as I was determined to kill the worms if I poisoned the currants.

By the way, I have a copy of every report issued by the Society, and if I were just going on the stage instead of going off, I would not take \$100 for these volumes.

Wishing you a prosperous meeting and many accessions to your number, I am,
Yours respectfully,

E. BRADFIELD.

ADDRESS OF WELCOME.

The address of welcome was given by Mr. S. G. Antisdale, president of the village of Benton Harbor, an abstract of which is here recorded, as follows:

“It has been assigned me as president of the village, to formally introduce and welcome you to the hospitalities of our happy and prosperous little village, once the center of peach culture of the west,—yes, the center of attraction for all lovers of fruit. Who would not be drawn to a place where the chief commodity was a fruit as delicious as the peach and one that is so inviting to the taste that when it is within your grasp you cannot flee from it. You may well inquire why our place is not an attractive fruit center to-day. Our queen is gone. The yellows came among us and took our peaches. We were so ignorant of its terrible effects that when it attacked our fruit at the outset we really thought we had a new variety of peach, and very much delighted over our new found treasure we commenced to bud from the very trees that should have been looked upon as we look upon the most venomous reptile that crawls, and should have hurled them into the fiery furnace where the disease might be consumed. In our ignorance we soon found, instead of a new variety of peach, we had something destructive to the tree itself, and of such a contagious character that most of the orchards were infected; before a remedy was declared the orchards had all to succumb to the fatal disease. Yet we are not discouraged, and with the enforcement of our new law in relation to the yellows, we hope to again raise peaches in abundance for the market, and regain our old time prominence in peach culture. Still, we claim, with all our misfortunes, to be in the center of the greatest market fruit region in Michigan. Statistics would plainly indicate this had they been gathered for the purpose. St. Joseph and Benton Harbor export great quantities of small fruits, and in this work there may be something for those to learn who visit us at this meeting. But we hope and expect to receive more than we give.

We are very glad to see that the question of fruit packages is to be canvassed during this convention. It is an all important one to us, and we desire the State society and all fruit growers to unite with us in the attempt to secure uniformity in size of fruit packages, and the stamping of capacity upon them.

The programme is a very excellent one, and our people will contribute to the discussions as their experience and observation dictate. The State society is cordially welcome to our town, and we hope when you leave us it will be with a feeling of good nature and gladness that you came.

President Lyon responded in his usually happy vein, recalling pleasant incidents in the growth of Michigan horticulture for above fifty years of his life in this State.

QUESTION BOX.

The Secretary said that a request had been sent to the desk that the balance of the evening be given up to the question box. There being no objections, the box was opened, and the first one drawn read as follows:

Section seven of the new game law reads like this: "Any person who shall at any time, within this State, kill any robin, night-hawk, whippoorwill, finch, thrush, lark, sparrow, cherry bird, swallow, yellow bird, blue bird, brown thrasher, wren, martin, oriole, woodpecker, bobolink, or any song bird, except for taxidermal purposes, or rob the nests of such birds, shall be deemed guilty of a misdemeanor, and on conviction thereof shall be fined five dollars for each bird so killed and for each nest so robbed, or confined in the county jail for ten days, or both such fine and imprisonment in the discretion of the court." My query is, Can this law be enforced in the lake shore fruit region?

Mr. Lannin, South Haven: The question all turns upon how broad a term the expression, "taxidermal purposes," is. I have seen all sorts of birds killed and their nests robbed with impunity in our vicinity, on the plea that they were to be used for scientific purposes. Now, I am not certain but we could clean out the feathered tribes entirely under this exception. In our vicinity we are, as fruit-growers, exceedingly tender of the birds; we recognize in them our warm friends, and could enforce the law as read, if the exception were not there. We have often discussed this subject in our local society, and in every instance the birds have the best of it. Although certain individuals take exceptions to certain birds, still there are so many earnest friends for them all that they have a fair chance for long life with us.

R. C. Tate, St. Joseph: I am a friend to birds in general, but I will not let sentiment so far overrule my judgment as to prevent my making exceptions. There are two species that I make war upon, and shall continue to do so, no matter what laws may be written upon our statute books. I refer to the wax wing and blue jay. The former is the more important of the two, because it comes in such numbers as to jeopardize our cherry crop. We shoot them by hundreds every year on my premises, and still they seem to be but little lessened in numbers. They come in great flocks, and shooting is the only way to preserve our cherries. The blue jay is the destroyer of the nests of beneficial birds, and this is reason enough for its destruction. There is nothing about the bird that is winsome, so we need waste no sentiment upon it.

S. H. Comings, St. Joseph: I think this law should be supplemented by one for the extermination of cats. They are greater enemies to the feathered tribe than the shot-gun.

President Lyon: My motto is to save the birds by the enforcement of the law. We cannot afford to kill them. I refer to the ordinary Michigan birds. I will admit that there may be some question about our imported noisy English sparrow, but as to other sorts we had better plant cherries for them and for us than to lessen their numbers.

Wm. Rowe, Grand Rapids: It seems to me that observation and experience can lead us to but one conclusion concerning the English sparrow. It is an unmitigated nuisance, and it were well if we were well rid of it.

W. A. Brown, Stevensville: The wax-wing or cedar bird eats no animal food, living upon cedar berries in winter and in summer preying upon our fruits the entire season. Most birds named in the law are useful, but I doubt its enforcement with regard to the cedar bird.

H. J. Edgell: My opinion is if we were to refrain entirely from the

destruction of the feathered tribes it would not be long before we should pray to be delivered from our friends.

Mr. Tate: One thing is true of the English sparrow however destructive it may be of grain crops. It never disturbs fruit of any kind.

Question No. 2. Is there any way of restoring apples once frozen so that they can be made available?

D. Woodward, Clinton: My experience has been so slight that I scarcely venture an opinion. I know of no practicable method of restoring frozen apples. Still, I know that apples may be frozen and come out all right. This was the case with some Talman sweets that I buried in barrels. They were covered so lightly that it was certain that they froze solid, and when opened later, after they had thawed out, they were as crisp as one could ask apples to be.

Alvin Chapman, Bangor: I know of a case in which a large quantity of apples in the barrels were frozen solid. The fruit was removed to a cellar where the thawing process would be exceedingly moderate. A few barrels were opened and the apples shipped. In every instance where the apples were removed from the barrels in which they were frozen their texture was destroyed. All the others came out in good shape and sold at remunerative prices.

Mr. Comings: You cannot make a rule. We do not understand enough about it yet to do that. In one case fruit frozen badly can be thawed out with care and all saved. In another the same caution may be employed and every apple lost. It is a matter for serious study and well worth, from a pecuniary point of view, the most careful consideration.

Question No. 3. Can we destroy the rose bug, and if so how?

Mr. Edgell: I have tried every powder and lotion that has ever been suggested and am as much in the dark as ever as to a successful remedy. The insect is with us in large numbers.

Mr. Lannin: Mr. A. S. Dyckman of our place fights the rose bug by gathering and destroying them. He employs boys to gather them, and it is astonishing how many he has thus destroyed. A smart boy has been known to get as high as four quarts of them per day. Mr. Dyckman saved his grapes by pursuing this method. One thing is quite noticeable, that the rose bugs gather where the curculio has made its puncture. These insects may be gathered in the same way as the curculio, by the sheet method if the weather be cool.

D. Woodward: I have tried London purple thoroughly and without success in fighting this insect.

President Lyon: Mr. Bailey of our place declares that London purple will have no more effect on them than so much dust or flour.

Question No. 4. What varieties of strawberries are planted here and in what proportions?

Mr. W. A. Brown: In southern Berrien, as I think here, nineteen-twentieths of the crop are Wilsons. A large number of other varieties have been tried, but unsuccessfully as far as market is concerned.

Mr. Edgell: About South Haven the Wilsons predominate, but there are some quite large plantations of Captain Jack, Crescent, Jucunda, and Sharpless.

A voice: We have yet to find a strawberry for Chicago distributing market to take the place of the Wilson.

Question No. 5. How shall I preserve fruit trees from mice?

Mr. Lannin: Keep your ground perfectly clean and there will be no danger.

S. M. Pearsall, Grand Rapids: For years I practiced mounding the earth about my trees until they were quite large, and found this a successful method of outwitting the mice.

H. G. Reynolds, Old Mission: Neither of these methods is practicable with us. We do not consider it safe to keep the ground clean, and mounds a foot high would avail nothing with our depth of snow. My practice has been to let the mice do what damage they saw fit, which has been very little, and early in spring cover the wounds with liquid grafting wax.

Mr. Steele, JaPorte, Ind.: I use tar paper.

Mr. Reynolds: This will do very nicely with a few trees in a garden, but when you come to put tar paper over a hundred acres of orcharding it will be found a costly business.

Meeting adjourned until Wednesday morning, 9 o'clock.

Wednesday Morning Session.

The first topic of the morning was

THE UTILITY OF HIGHWAY TREE PLANTING.

Upon which Mr. Henry G. Reynolds, of Old Mission, remarked:

Not the least valuable among the labors of the legislature during the session just drawing to its close, is a modification of our highway laws, which will within a few years go far toward making every country road throughout the State a delight to the eyes, a pleasure to the weary traveler, a source of pride to every citizen. Truly a large promise, but it seems to me fully warranted.

This modification of the laws is of two parts, by the first of which our former law relative to cattle at large has been made an active reality which can only be locally annulled by special action of the board of supervisors, instead of being, as heretofore, a dead letter unless especially rendered operative by such board. Henceforth our lands are to be condemned for public use only as common highway, not as common pig yard or cattle pen, unless we locally decide to make it such.

This measure by which our highways will be cleared of all animals not under control, prepares the way for the second step, viz., the gradual planting on each side of every highway of a row of trees to be from eight to ten feet from the fence, and as near as may be, sixty feet from tree to tree. This will, within a score of years, line every public road in the State with handsome trees, and make Michigan well worth traveling far to see.

There was some opposition to the passage of this law, based upon the idea that large trees along the roadside exert an unfavorable influence upon the road-bed by preventing the drying effect of sun and wind, and thus keeping the road muddy and ensuring deep ruts. If such were to be the result of the law, it certainly was a blunder; and as pictures of mud and deep ruts rise before imagination it is true that with them are generally associated the deep shade of the forest. Is this, then, what we are coming to? No! emphatically not. Who of us in this part of the State cannot call to mind long stretches of road buried in the deepest forest, where the track is always good. Between Lansing and Owosso, a distance of twenty-five miles, the only uniformly good stretch of road is a distance of two miles through dense forest. On the light soils of a

large part of our State nothing assists more to keep the track in good condition than moisture, and on all such there is no danger from a heavy roadside planting.

But how about our heavier soils? On them, certainly, the clearing away of the forest improves the track by making it dryer. But proving that a forest is had no more proves a single line of trees to be so, than the drowning of a man in the ocean proves that a foot bath is dangerous.

Let us reflect a little on the process of drying or evaporation. This is an absorption by the air of the moisture contained in those substances with which it comes in contact, and its rapidity varies according to the degree of saturation of this air. Without wind, this soon reaches a point that produces equilibrium and so checks evaporation entirely, except as upper strata may gradually absorb part of the moisture of the lower. A wind, however, soon changes all this, and by commingling the different strata of air, constantly brings new portions of unsaturated air into contact with the moist surface and so dries it much more rapidly than still air can. It is an error to say that the sun "drinks up water." Except through heating the air and thereby increasing its capacity for holding the vapor of water, it does not help at all in the process of evaporation. It is the air that is thus made thirsty by the action of the sun, and it is the air which drinks up the water from the surface of the earth or of the ocean. Thus we see that it is of comparatively little moment whether or not we shade our road bed, if we do not at the same time shut off the winds from blowing upon it.

There is no danger of our doing this to an injurious degree if we plant no closer than provided for by the law, especially if we take care to trim so as to have no branches within eight or ten feet of the ground. Such trees standing sixty feet apart will serve to modify the violence of heavy winds, but they will produce none of the effect of a dense thicket, which, by shutting off all wind, almost prevents evaporation, and so keeps the ground beneath it moist at all times.

Many muddy roads are inexcusably so because nothing has been done toward shaping them so as to shed water from their surface. A road on heavy soil, to be good at all times, should be rounded up from the sides toward the center, with a good open ditch at the sides. Where this has been thoroughly done, there will be very little cause to complain of the effect of road-side tree planting. No farmer need be reminded of the influence of isolated trees in his fields, which is rather to dry up than to keep moist the soil about them, and by thus drying out to stunt the growth of smaller vegetation near them.

The practice of perfect road-making is wholly unknown in this country as compared with England, Germany, France, and Switzerland, and yet in those countries nothing is more common than to see long lines of trees on each side of roads, the surface of which is as smooth and free from ruts or standing water as a parlor floor.

James Satterlee, Greenville: It seems to me that trees in the highway to do any good for a long time after planting should be less than 60 feet apart. One great benefit of trees along the highway is to prevent the snow from drifting, and I would certainly plant them as near together as 40 or even 30 feet.

Mr. Lyon: If we wish the trees to thoroughly develop in all their beauty, 60 feet is near enough, provided both sides are planted and the trees alternate.

S. B. Mann, Adrian: I consider the road-bed of a great deal more importance than the tree planting. We had better spend our time and exertion in getting good road-beds first, then let the embellishment be taken in hand.

Secretary Garfield: It is urged that farmers cannot afford to have trees planted along their farms. It is such a draft upon the soil.

Mr. Mann: As to that a farmer can afford it a great deal better than he can afford the foolish expenditure of money in a hundred ways that I might mention. The trees are a luxury and when a man gets fairly settled in his home he cannot afford to do without them. I am now speaking of a man as a farm owner rather than as a payer of road taxes.

Alvin Chapman, Bangor: There is no doubt but that there is a great draft upon the soil. Two acres are about wasted for every half-mile of road lined with trees. We might as well look the matter squarely in the face. Can a man with a mortgage upon his farm for half it is worth afford to lose this amount of land?

Mr. Steele: I have never seen very disastrous results from trees planted along the west side of a farm.

Mr. Irwin, Buchanan; I am satisfied it makes little difference which side of the field the trees are; wherever their roots extend crops will be enfeebled.

President Lyon: It must be remembered that the utility of the highway planting has been entirely left out of the latter part of the discussion. The roots of these trees damage crops only as far as they make draft upon the soil; the tops of these same trees are protecting the entire fields.

Mr. Lannin: Well, I am willing to place it entirely upon the other basis of ornament. Half the money we get we spend in one way or another on the beautiful, and three-quarters of the comfort we get in life comes from the enjoyment of the beautiful. We always expect to pay for it and we should be willing to sacrifice the little land for the sake of having our highways so lined with trees as to make our country attractive—a country of which we can feel proud and in which we can get wholesome satisfaction by living in it. I am willing to plant the trees and suffer the consequences. As to the trees by their shade injuring the road-bed, there is nothing in it as far as highway planting is concerned.

Mr. Tate: I am very glad that in this discussion most of the horticulturists are on the side of highway planting. There is nothing we can do for our country with so little outlay that will return as much.

The next topic taken up was

LESSONS FROM THE WINTER OF 1880-81.

The discussion was opened by a paper from the pen of Mr. S. B. Peck, of Muskegon, which is given in full:

On receiving a request from Secretary Garfield that in case I could not attend this meeting I would prepare an article to be read here on the lessons of the past winter, I replied per postal that, on that head I could not say much, as I had seen little or no difference between the effects of the past winter and its two predecessors, so far as pomology was concerned. I soon learned, however, that in this remark I was a little hasty, having examined only my own premises; and that whereas in the two past seasons every healthy peach tree throughout this region bore fruit in abundance, the prospect now is that they will only bear this season in favorable locations. Herein consists, in my estimation, one of the great, even the greatest, possible lesson in peach culture. The present season shows most unmistakably that to insure any degree of success for any term of years, with tender fruits such as peaches and grapes, they must be planted on favorable locations. This fact being admitted, the question then

arises, what and where are these favorable spots? I reply they are more plenty than we sticklers for the peach belt are apt to admit.

I say this with no disrespect for our enviable position on this lake shore, but I still hold to the position I took fifteen years ago, that there are few farms in the southern and central portion of this State, north and south, where these favorable positions may not be selected, and peaches planted with a fair prospect of success.

The study of pneumatics is one of the most interesting in the world. People go hundreds and thousands of miles to see the falls of Niagara and the Valley of the Yosemite, seemingly ignoring the fact that they have a greater natural curiosity in the atmosphere that surrounds them. All seem to understand that its weight is fifteen pounds to the square inch, and that its height is estimated in miles, but many do not seem to comprehend that the weight of a given volume at the surface of the earth depends entirely on its temperature; that its mobility exceeds that of any other fluid, and that its elasticity is ten times greater than India rubber. How beautiful would this atmosphere be, could we only see it as we see trees and flowers; its waves and ripples of sound booming near by and dying away in the distance, crossing and intermingling as it comes from different sources. No frostwork on the windows can equal its beauty, nor snowflake excel its delicacy. Wonderful and beautiful, not visible to the eye, comprehensible only to science, the fanciful dream of the poet, or the aerial flight of the imagination.

Well, what has all this to do with pomology? Why, it helps to teach us how to avoid killing frosts, by choosing the ground on which to plant our tender fruits; for these frosts are more to be dreaded by the cultivator of peaches, grapes, and kindred fruits, than all the insects to which they are heir.

Here is a man who has several acres in peaches; his ground slopes lightly to the north, towards Black Lake (lately given the more poetic name, Mona Lake). He tells me that though many buds are killed, there is a great plenty of sound ones. Here is another man who has acres on nearly a dead level, surrounded by high grubs and forests. I felt for him when he was planting peaches there, but it was none of my business. They grew well the past two years, and bore a nice crop last year, but they were only playing April Fool with him; this season the buds, branches, and trunks are dead down to the snow line. To-day (May 12) I have visited, half a mile from Lake Michigan, a nice thrifty young peach orchard that evidently bore last year; it was on a flat, bounded north and west by a bold bluff, certainly very highly protected. On a slight elevation were a few live buds, but none on the flat.

It is not strictly altitude nor contiguous water that saves from frost. The Secretary will remember my showing him a nice warm valley, less than a quarter of a mile from, and from fifty to one hundred feet above both Lake Michigan and Muskegon Lake, with a consumptive fruit tree in its highest corner. This snug little valley, so nicely protected on all sides by hills and forest trees, was very carefully cultivated, and planted to peaches about the year 1870, but the sweeping destruction of the winter of 1874-5 found nothing there to vent its spleen upon; they were all dead before. Had I been consulted when he planted them, I might at the end have said, "I told you so." I might mention many other similar lessons, where as the air cooled after sundown there was no chance for this cold heavy air to flow off to lower ground. "Why," says my neighbor, "your six young peach trees in your garden are full of blossoms. I thought you claimed that they must have high ground exposed to the

wind, or be in the vicinity of deep water." All correct, but then these four buildings do not cool down in the absence of the sun like the earth, but radiate the heat stored up in them during sunshine, just as deep water does. There is no mystery about it, it all works just as straight and sure as the rule of three. Buildings, just like water, heat up slower than earth in sunshine, but hold their heat longer after sundown.

My neighbor has some 20 acres of Concord grapes. His straight rows of 80 rods' length look beautiful when in leaf and fruit on his level ground. When he bought his 30 acres then covered and surrounded with grubs and debris he did not ask me or I should have told him that in the next 40 acres north or west was ground much safer because less flat. No, he liked this nice level plain where from any point he could overlook the entire patch. He did not belong to any society, either horticultural, agricultural, or pomological; did not attend the meetings or read the reports. He was after grapes anyhow. One year ago came a frost after the leaves were out that injured them badly. Still they bore a considerable crop, but in September he tended fires around them night after night to save them and the papers lauded him for his sagacity. A half-mile from there was an acre containing 10 or 12 varieties of grapes on ground slightly sloping to the north (not the best slope for grapes), that were untouched by frost spring or fall. Of this the papers said nothing. Friend W. has 10 acres of Concord grapes on nearly a dead level *protected* on three sides by trees and bushes. He had a middling crop in spite of some damage by frost. A. had one and a half acres a mile west on land sloping rapidly southeast down to a deep ravine and bayou of Muskegon Lake. They not only escaped frost but the owner sold nearly \$100 worth before W.'s were fit for market. Water is a great element, or rather compound, and needs to be studied. I agree with the Kentuckian when he spoke of its vast importance to the world, especially to the cause of navigation, without agreeing with him when he adds, "but it's poor stuff to drink." These deep bodies of water that never freeze must necessarily modify the winter temperature of all lands within their influence. These shallow, lacustrine bayous that freeze, affect the spring temperature by absorbing heat while thawing, thus keeping back and preventing premature development of fruit buds, while in the late fall while freezing they throw off heat, thus lengthening the time for the ripening of vegetation. But by choosing the location something can be done away from large or small bodies of water to protect against frost. It has been said "the history of a word is often more interesting than the history of an empire," and a popular writer says "the value of a word depends entirely upon the degree of completeness with which it expresses the idea or the object to which it owes its origin." On a former occasion I paid the highest compliment I was capable of to the man (whoever he might be) who first used the expression "atmospheric drainage." This expression is truly a "*multum in parvo*," and the man who understands fully its force is most truly the wiser for it, and if he be a cultivator it will help him on through life.

I hope the friends of Benton Harbor, St. Joseph, South Haven, and neighboring places have not expected much from this short essay for I dislike to cause disappointment. Most surely they are more competent to enlighten me on pomological subjects than I them. I appreciate the compliment to me intended by the Secretary in inviting me to address you on this occasion, and with this kind compliment I am fully rewarded for the effort it has caused me.

Mr. Tate: I have the following memoranda upon grape vines as they came through the winter, taken a few days since:

Cottage, two years out—Not injured in the least and fruiting well.
 Brighton, three years out—About one half killed to the ground.
 Lady, three years out—About same as Brighton.
 Eva, two years out—Killed to the ground.
 Telegraph, two years out—Killed to the ground.
 Maxatauney, two years out—Killed to the ground.
 Northern Muscadine, three years out—Killed to the ground.
 Draco's Amber, two years out—Killed to the ground.
 Cottage, two years out—Not injured and fruiting heavily.
 Champion, three years out—But little injured and fruiting.
 Massasoit, three years out—But little injured; not fruiting much.
 Martha, three years out—But little injured; not fruiting much.
 Lindley, three years out—More than half killed to the ground.
 Worden, three years out—All right and fruiting well.
 Perkins, three years out—All right and fruiting well.
 Ives, three years out—Considerably injured.
 Salem, three years out—Considerably injured.
 Gœthe, three years out—Two-thirds killed to the ground.
 Agawan, three years out—About like Gœthe.
 Concord, three years out—All right and indicates a good crop.
 Concord, four years out—Never looked better.
 Concord, old vineyards—Never looked better.
 Hartford, old vineyards—Slightly injured; doing well.
 Delawares, old and young—All killed to the ground.
 Diana, old and young—All killed to the ground.
 July 2.—Although Hartford and Concord started out well with a good show for fruit, neither have set well, and near the lake particularly I think the crop will be both late and light.

W. A. Brown: My impression is that many sorts mentioned by Mr. Tate as suffering so severely, dropped their leaves prematurely last season, and thus the vines became unfitted to withstand an exceptionally hard winter.

Mr. Lannin: Overloaded vines shed their leaves and were winter killed with me, but I never had so fine a showing of Concord as this summer. Plums were peculiarly affected by the winter. Mr. Nagle near me lost two-thirds of a very fine orchard.

Question—How cold was it at his place?

Mr. Lannin: I think the thermometer registered once as low as -18° . The trees killed were upon heavy soil. Other plum orchards in our region are severely injured. We thought at one time our peaches were gone, and then, again, when the blooming time came we thought we were to have a great crop, but since then a large number of trees have died. They seemed to give away as the dry weather came on.

Mr. Mann: Collar's great plum orchard of 2,000 trees, near Adrian, is dead. It is situated on heavy clay soil; some never leaved out, others have succumbed since. Peach trees were not killed within ten feet of some of the most hardy varieties.

S. G. Antisdale, Benton Harbor: Did the trees prematurely drop their leaves last year?

Mr. Mann: My impression is that a large number of them did.

Mr. Antisdale: My observation during the two seasons has connected the two facts together—the premature falling of the leaf and the severe winter-killing. I note Baldwins on heavy soil killed, and on light soil slightly injured. Now, may it not be true that the wood upon the heavy soil was left immature, in the same way as the wood when the leaves dropped off, and thus the trees were unfitted for the severity of winter?

E. J. Shirts, Shelby: It was true with us that most of the plum trees injured were upon heavy soil. Upon our lighter soils the trees are all right, and we are to have our usual crop.

Mr. Lannin: Has not the plum been acquiring the habit of prematurely dropping its foliage for a few years back? Then why has the winter served such trees disastrously? But, gentlemen, Mr. Nagle's orchard did not drop its leaves; it was on heavy soil. There was no overloading of the trees, because it is a young orchard; but he did give it good, clean culture. Now have you not the key to the mystery? His good culture created a late growth which was immature, and the sap was all in circulation when the trees were caught by the cold snap, and they were not in condition to withstand it. Now we would seem to have an explanation, but here is a difficulty in the way. My trees were on clay, but in grass and killed also without culture, and along side of them were those tender peaches, Early Rivers and Early Louise, uninjured and in bearing this year. I give it up, gentlemen.

Mr. Irwin of Buchanan gave a doleful account of the destruction of Baldwin apple trees upon his place, and others from Berrien county gave utterance to similar statements.

A. R. Nowlend, Benton Harbor: I am satisfied that the winter killing was almost entirely due to immature wood.

W. A. Brown testified to same facts as others, and believed that had the wood matured and sap gone into winter quarters before it was checked by severe weather, the trees would have been safe. One great difficulty here in Berrien county was that the lake was useless when the coldest time came, for the wind was an easterly one. One gentleman testified that his ten-year Baldwins were killed, while Bartlett pears upon the same exposure had not been injured at all.

Mr. Edgell: Most of the peach trees killed with us are what is known as collar-killed. The trees appeared all right in body and limb, but examination developed a perfect girdle of dead bark and cambium at the collar of the tree.

Mr. Woodward: Thorough culture lost me 800 peach trees. The few that I did not care for so well are all right. Mine were all killed in the same way as Mr. Edgell suggests.

Mr. Lannin: One reason for collar killing in our county was that the trees were bared at the roots to kill borers, and the water settled and froze them, destroying the life.

Mr. Woodward: But large numbers of my trees are on a slant of ground at an angle of seventy-five degrees. How could the water stand there? And still the trees are killed all the same.

Mr. Lannin: I was not born a Solomon.

Dr. Winans, Benton Harbor: A great deal of the plum killing can be accounted for in this wise: There was a heavy crop of fruit and premature falling of the leaf. The fruit made a great draft upon the vitality of the tree in trying to perfect itself without leaves. This thoroughly unfitted the tree to withstand any trouble, for the tree was almost dead when winter came on. Grapes suffered in the same way,—leaves dropped early, leaving nothing but fruit on bare canes. In some cases mildew caused the dropping, in other cases something else, but the effect was the same,—a great drain on the vitality of the vine, and consequent weak state to resist excessive cold.

J. G. Ramsdell, Traverse City: At my place the thermometer reached -14° ; on the peninsula only -10° . There was no damage done to my orcharding except plums. Washington and Jefferson suffered most. I lost 50 trees out of 750. They all bore heavily last year and rotted very badly; 700 out of 1,000 bushels were lost by rot. Six years ago my orchard went through a temperature of -26° and came out all right. The whole thing depends upon how the

trees go into the winter. Peaches and apples with us are all promising. The less said about my grape vines the better. I have abandoned grape culture, and ought to have rooted out my vines last year, but was too tender hearted. The truth is the little insects known as thrips have met me and I am theirs. They live on grape vines, pear and maple leaves, American ivy, and will, to my certain knowledge, thrive upon blue grass. Under a scourge like this I gave up and the vineyard that has been my pride will be given up, and I shall abandon the business, hoping that the enemy will go to fresh fields, when perhaps I can take advantage of his lack of attention and plant a few vines for my own use.

Mr. Rowe, Grand Rapids: I have recently paid a visit to western New York and found they have suffered there fully as much as we have here from the severe winter.

President Lyon: When we have summer season in October, as we did last fall, inducing a second spongy growth of wood of several inches, followed closely by a severe freeze, great damage must ensue. Wherever this growth did not take place there was danger that the sap of the plant was in action out of season, and hence there was a general unfitness of plants to endure a severe test. Cholera overtakes the weak. Calamity falls upon the feeble. The same is true of vegetable life. We must look further than the temperature of the winter season to account for the calamities that have come to our orcharding.

The following resolution presented by Mr. Mann, was adopted:

Resolved, That as the result of the discussion, we believe the disasters to our fruit trees during the past winter were due to a combination of circumstances peculiar to the season, in connection with the winter, which may not occur again for years.

HOW SHALL INJURED TREES BE RE-INVIGORATED?

Was the next question upon which there was a rambling discussion, running as follows:

Mr. Ramsdell: Heavy pruning was recommended to me a few years ago, and I killed every tree so operated upon.

Mr. Edgell: My experience is the same. I do not believe you can re-invigorate a tree that is low in vitality by pruning.

President Lyon: The best way to re-invigorate is to dig out, burn up and plant a new tree.

W. A. Brown: This will do for trees injured by winter, but what shall we do with trees injured by premature defoliating?

Query: Is not the early leaf falling due to an overload of fruit?

Mr. Brown: There is little doubt of it.

Mr. Lord, Benton Harbor: My impression is that the fruit should be removed when signs of leaf falling become apparent, and but little allowed to grow thereafter until the tree is strong and vigorous again.

President Lyon: There are two known causes for the falling of the grape leaf—thrips and mildew. A third cause has been suggested by Mr. Brush, of Detroit, to wit: red spiders. This last suggestion is well worth investigation. There is a bare possibility that the difficulty may be a constitutional one with some plants.

Mr. Lannin: Is it not probable that lack of moisture may sometimes be its cause and that cultivation may be the remedy?

Secretary: How will you shoot between the two. Good culture produces

late growth, which is liable to so stimulate the plant as to unfit it for winter. Want of culture leads to paucity of moisture, the leaf falls and the wood goes into winter immaturity.

Mr. Lannin: A serious difficulty, indeed; I would rather err toward the side of culture.

Several gentlemen here testified that sand stood the drouth best, and that the premature leaf falling had been most largely on the clay.

Mr. Satterlee: Is it good policy when a tree is weak in vitality to encourage a sprout from near the root that shall eventually take the place of the tree?

Mr. Thresher, Benton Harbor: The great difficulty with people in trying to do anything of this sort is that they do not pay enough attention to the balance between root and branch. Often I have noted the fact when sprouts have been trained up and the old shoot removed, that the growth was spongy and unhealthy, and soon became a prey to insects.

Mr. Lannin: Generally speaking it will not pay to cultivate a sprout. A new tree had better receive the care and attention.

Mr. Reynolds: After the severe winters early in the past decade I found it necessary to train sprouts into trees in a great many cases. Numbers of my pear trees were killed to snow line and I utilized a sprout in building up a new tree. Some of my trees were even killed back the second time, and by this method I have succeeded in making very nice trees of them.

Several gentlemen agreed with Mr. Reynolds that this could be done with young trees, but doubted if it could be done profitably with large ones.

Mr. Thresher: The most disastrous experience I ever had in fruit culture was the result of planting new trees in places where old ones were killed out; but I have succeeded in growing very creditable trees from sprouts, even although the old tree was a pretty large one. It needs good judgment and the exercise of some skill, I admit, but I should be slow to plant a new tree when I had a good, vigorous sprout to start with.

Mr. Edgell: Above twenty years' experience has brought me to a different conclusion. I have better luck in planting out new trees in place of old ones than in training sprouts, but it requires judgment and the exercise of skill to do this also.

Mr. Lord: Before this discourse closes I wish to say that as an investigator of trees that are low in vitality there is nothing I have found equal to salt as a renovator. I can from my experience recommend it for this purpose.

Dr. Winans: It is about noon, and a little salt would do us all good. I suggest that we all repair to Grange hall and partake of salt and other things there prepared for us.

The society took a recess until two o'clock.

Afternoon Session.

The first paper of the afternoon was given by Mr. H. J. Edgell on

CULTURE AND MANAGEMENT OF GRAPES.

In simple justice to myself, permit me at the outset to explain that what I shall have to offer upon this topic is intended only for those unfortunate ones who are just entering upon the business of grape growing and have everything in relation to this interesting vocation to learn. I disclaim any intention whatever of offering advice to your veteran vine-growers of this section, many of

whom are doubtless my seniors both in age and years of ripe experience, and to whom any suggestions from me would be at best in bad taste.

I shall for the same reasons submit my remarks plainly and without reference to criticisms of a literary character, because I can hardly hope to offer you anything absolutely new pertaining to grape culture, and yet I shall not say that this is impossible. But I may safely assert that grape literature at best is none too interesting, and that the field has already been thoroughly gleaned by enterprising publishers of so-called books of instruction, and by those would-be benevolent dealers who are nothing if they are not wise beyond all others, in reference to this particular branch of horticulture. However, as it is one thing to theorize, and another and generally very different thing to practically demonstrate the truth in any given problem in the field of pomology, I shall refrain from reviewing the various methods advocated by Fuller, Grant, Robinson, and others, to whom long years ago I was respectively indebted for some expensive if not valuable bits of information. Perhaps I shall best serve the interests of those in pursuit of knowledge by contributing such practical hints as have been suggested by observation and actual experimental tests as they have occurred in the course of my own efforts to establish a vineyard.

The infinite variety of plans and specifications made and provided seemingly for the express purpose of bewildering and befogging the unsophisticated beginner by the philanthropists aforesaid, it is, perhaps, superfluous to say, are far from affording any satisfactory solution of the great problems, What to do and how best to do it?

Many have given ear to these seductive blandishments to their most serious cost. And I am personally knowing to not a few instances in which total bankruptcy to the individual thus beguiled has come as a result of following the teachings of so-called standard authorities, or of dealers who palmed upon their unsuspecting victims varieties which they could not but know were in no wise adapted to the climatic extremes to which they would be subjected.

For these and other reasons I have little faith in books purporting to impart reliable information upon the subject of vineyard culture. While for those gentlemen who so disinterestedly cater to our wants in the production of an annual crop of the most wonderful new varieties, and whose finely-spun theories may be likened unto the sands of the sea, I confess myself indebted for a better appreciation of the meaning of that time-honored maxim, "All is not gold that glitters." In my opinion, the only safe guide for a new beginner is the attentive study of the successes and failures of those who have preceded him in the business in the locality in which he may design to make his plantation. Those varieties, sales, and systems of culture, which his own observation and the experience of others have demonstrated to be suited to such locality should be rightfully adjudged as a criterion safest for himself to follow.

Of course this will not always apply; very few rules are applicable in all cases. But this one has, at least, the merit of safety, and its acceptance may therefore prevent the serious and vexatious loss of both time and money.

It would appear to be a settled fact that no section of the north or north-western states is naturally adapted to promiscuous grape culture, as those who have had faith to invest at fancy prices, in one and another of the many new varieties, whose praises have from time to time been sounded abroad in the land, are ready to certify.

The ameliorating influence of the great bodies of water by which we are surrounded upon our climate is a fact well understood by fruit growers throughout

the State, and nowhere else perhaps in the United States is this excellent climatic adaptation to miscellaneous fruit production so apparent as in the narrow strip of territory upon the east shore of Lake Michigan. And yet it must be conceded that withal our superior advantages as a State, and our acknowledged preëminence as a locality, in the certain production of annual crops of such large, luscious and fine-flavored peaches, as cannot be grown elsewhere, not to speak of the great variety of other semi-tropical fruit; we have few results beyond other less favored localities to commend us to the favorable consideration of the outside world in relation to grape growing as a remunerative industry. It is to be hoped, however, that the stimulus which is being held out to propagators in the promise of large gains, will in the near future, determine the vexed question of improvement in varieties and adaptation in other respects to our entire satisfaction. And that the great peninsula of Michigan, especially those portions which by reason of their proximity to the lake and the markets of the great northwest, possess advantages of a peculiar character, are yet destined to be dotted with beautiful vineyards, the delicious and health-inspiring products of which shall create for themselves and us a name and place in the estimation of consumers second only, if not equal, to the vaunted products of the plantations of California.

While climatic influences have undoubtedly much to do with the successes and failures on record, the influence of soil is also very marked in its effect not only upon the health, but the productiveness and quality of the grape, and I have little doubt that to an imperfect conception of this fact, may be fairly attributed very many of the failures to grow the finer and less hardy varieties even in this specially favored section.

It is a common mistake to suppose that those soils abounding in vegetable mold and other rich fertilizing materials, because they produce a rank, luxuriant growth of wood and foliage, are best suited to the wants of the vine, and such selections are usually made because such conditions seem to promise the earliest return in remunerative crops of fruit. But this is not in accordance with the facts. Such soils, as is well known, are found only on the lower levels of the general surface, and which are composed chiefly of peat, and as a rule contain few if any of the elements requisite to the health and hardiness of even the more perfectly hardy varieties, and should therefore be avoided.

But high and dry situations, sunny slopes and hillsides, from which the surface mold has been washed or blown away, those especially which contain lime and other mineral substances, and are exposed to the fullest measure of sunshine and atmospheric circulation at all times, such will produce a less rank and rampant growth of vine, but it will be found that both wood and fruit will there mature when it will not elsewhere, and better still that the quality of the fruit will be vastly superior, will meet with a ready demand and quick sale, when that from the lower lands will, if it matures at all, be inferior and be difficult to dispose of.

But another most serious obstacle to maintaining a healthy and productive vineyard is not unfrequently to be observed when all other conditions are as perfect as could be desired, and that is improper or untimely cultivation. By plowing, severing, or even disturbing the young and tender fibrous rootlets at a time immediately preceding or during the period when the vineyard is fragrant with the odor of its unfolding blossoms, is to insure a large percentage of loss by depriving the vine of needful nourishment, withering and blasting the embryo berries, and thus producing what are usually termed "scraggly" or imperfect bunches. And again, at a later stage of development, by cultivating

at a time when the soil is charged with moisture from previous rains, or during damp, cloudy, or foggy weather, producing the disease commonly known as rot and mildew.

If any one is skeptically inclined respecting the correctness of this proposition let him try it and become convinced. There is plenty of proof that even the hardy Concord and Delaware have again and again verified their susceptibility to this kind of treatment, while those more tender sorts by nature predisposed to these diseases are doubtless from this cause often rendered worthless and are condemned for inherent faults, which were due in fact entirely to the thoughtless mismanagement of their owners.

It can then scarcely be deemed a legitimate matter of wonder that so few make grape growing a financial success, nor that the many so-called experimental tests with new varieties have resulted in bitter disappointment and disgust. And when to this is added the further fact that many vine dressers still permit themselves to be humbugged into the practice of old country methods of pruning and training their vines when the exercise of the commonest reasoning faculties should demonstrate at once that almost every condition of soil and climate are in each case the exact opposite of the other, and therefore that which is congenial in the one cannot be in the other. Besides this, all vineyardists who have been induced to adopt these methods for any considerable period have pronounced them not only highly injurious but most emphatically exhausting to the productive capacity and vitality of their vines, and have thereupon promptly abandoned them.

The recent production of numerous new native seedling, together with several very promising hybrids, seems to be awakening a fresh interest in grape culture. But the great want of the period in my judgment, is a good white market grape. One which shall have the hardiness, the productiveness, and the freedom from disease of the Concord, and which shall possess the requisites of flavor and other points of excellence of a desirable table grape. Among the candidates that are now seeking a recognition at our hands for this place are the Niagara, the Duchess, the Prentiss, the Lady Washington and the Lady. Of these the Niagara is supposed to embody all the qualities necessary to commend it to public favor, but plants cannot be bought, and are obtainable only upon such terms as no sane man can accept. The Duchess is in appearance the equal of the Niagara, but is a hybrid and is suspected of not being strictly hardy. Vines can be purchased at \$1.50 each. The Prentiss is a seedling from the Isabella with small, fine flavored berries, compact bunches, and remarkably productive, but in unfavorable situations is said to mildew; vines \$1.50 each. The Lady Washington has the Concord and Allen's White for its parents, is said to possess every requisite to its recommendation, and thus far is without a dissenting word of fault. Vines can be had at \$2 each. And lastly Campbell's Lady grape claims for itself a place in our good graces with the advantage of being the oldest of the five mentioned and having received the highest testimonials of commendation from almost every State in the Union. It is already on trial in this community but as yet has not been fruited to any extent. Vines of this variety can now be purchased for \$20 per hundred.

To the foregoing list I should also have added the Pocklington, a most promising large white grape originated by John Pocklington, of Washington county, New York State. The owner and originator claims that this grape withstood a temperature of 32 degrees below zero last winter tied up to a vine

trellis, and came out uninjured. Berries large, bunches large, compact, but not always shouldered; good flavor, ripening with Concord. It is on trial in my grounds and is a vigorous grower.

Judge Lawton: How about the time of cultivating vineyards? Have you any rule about this?

Mr. Edgell: I never cultivate until after blossoming, and my culture is as shallow as convenient.

Judge Lawton: What implements do you employ?

Mr. Edgell: First time through, a double shovel cultivator, and the next time a spring tooth harrow.

Mr. Lannin: Has any one experience with the Niagara? I have planted some vines and they have made a most extraordinary growth. If they only continue as well as they promise, I have great hopes of the variety.

Mr. Steele: Black spot and grape rot have played havoc with our vineyard interest in Northern Indiana, and I would like to know if any have had experience here.

Mr. Winchester, St. Joseph: Black spot has ruined my crops of Iona, and has extended somewhat to other varieties.

President Lyon: I would like to inquire if grape rot in any form has appeared at Traverse?

Judge Ramsdell: We have no disease there among grapes except mildew, and this we can perfectly control with sulphur put on by means of the bellows.

Query. When do you apply the sulphur?

Judge Ramsdell: We aim to do it just before the mildew shows itself upon the leaves. After it is well upon them, sulphur can be of little avail, or, in truth, anything else. But I assure you, gentlemen, the thrips is not afraid of brimstone.

Mr. Gulley: The Iona has been entirely cleaned out in our vicinity at South Haven by mildew and black spot.

Mr. S. H. Comings followed this discussion with a paper upon

GRAPE GROWING AND WINE MAKING.

The grape has seemed to be man's favorite fruit from the earliest time. Its use or abuse has ever been a prominent factor in his moral and material progress. It exerted, we are told, a strong influence in man's race history—when reduced to a single family by the deluge—and at that time a key note was struck, whose vibrations are yet to be heard in the affairs of men. Not only do we find frequent reference to the "vine" and its fruit, in sacred history, but also among the buried ruins of cities of the long silent past are found hieroglyphic etchings, which show the deep interest of those ages in this delicious fruit and its juice. The ancient device, so often copied in illustrations of the land of promise, of a single bunch of grapes suspended from a pole borne heavily between two men, give us a hint as to their ideal bunch of grapes. We have nothing to excel this even in our illustrations of "new varieties."

It may seem strange, after being so long cultivated and shielded by mankind, there should still be left anything to learn in regard to its habits or best modes of growth; and at this late day and in our land an insect enemy should be found, which seems to threaten to destroy this valued fruit. But I think there are yet problems in regard to its growth worthy the careful study of most painstaking cultivators; and in its diseases and enemies that which merits the

research of our best scientific students, and a deeper problem in regard to its best use, in an economical and industrial as well as moral sense, worthy the thoughtful study of every patriot and philanthropist.

I will trespass on your time only long enough to suggest a few of the more important questions on which we may hope to gain light by this discussion, which I trust will bring to the surface many items of value to the grape growing interests of our State from the wide experience and study of those who are with us to-day. Among diseases and enemies I notice first the "black spot," which shows as a black spot upon the berry when green, accompanied usually by a rough spotted appearance of the vine and foliage, sometimes blasting the fruit, sometimes only spoiling one side of the berry. I understand it first appeared upon the Iona grape, and which it has nearly destroyed. It seems to be spreading, and some years affects all the varieties I know of, but seems worst upon the Catawba, Diana, and varieties kindred to the Iona. Is it the same disease as the "black spot" or an undertype, which has been so destructive in Ohio? And can any light be thrown on its cause or cure?

I have been unable to learn of any remedy, but the fact that there is one successful vineyard of the Iona in our State, that of Mr. Bradfield, of Ada, should be carefully studied, and may afford a clue to the remedy,—in some quality of soil or water, some lacking element which may be artificially supplied. Have our scholars on cultivation given it the attention it deserves? Mildew is a serious trouble with some of our best varieties, and with all some years, but seems to be controlled by the proper use of the proper kind of sulphur.

The "root louse," *Phylloxera*, has not as I can learn yet appeared in Michigan, but should be carefully studied, and if our climate is not too cold for its habits, we should be preparing to resist its encroachments. The remedy suggested by Hussman is worth considering, viz. : The grafting of desired varieties upon the roots of those varieties which are proof against its ravages. He claims that most of *Labrusca* class are very liable to suffer, the Concord being an exception, while he thinks the *Aestivalis* class are free from any danger from this pest. His writings being based on experience and observations in Missouri, should be carefully tested by experiments in Michigan before being too extensively copied. But if found to be correct and our climate is not a protection, we should at once adopt this mode of propagating stocks for planting. This rapid spread of the insect in Europe, California, and in the south, and the destruction it works, should warn us to be prepared in time for its visits.

The Thrips is an increasing enemy, particularly upon our warm, sandy soils. A simple remedy has been suggested, viz., stretching along one side the rows a long piece of building paper smeared with coal tar upon one side, and then brushing and driving the little pests to alight and stick upon its surface. Two men and a boy can rapidly go over a vineyard, and in a few times nearly exterminate the active little plague.

The past winter has been an extreme test upon the hardiness of varieties, and I hear of injury to all, but least to the Concord and its seedlings. It has demonstrated the importance of a protecting mulch of straw, sawdust, or turf being placed about the roots in the fall to protect the crown or collar from too severe freezing.

A new system of training the grape vine has been quite successfully tested by one of our pains-taking growers, Mr. L. C. Crittenden, and is worthy of attention. It may be termed the flat form system. It is constructed by placing a cross-bar say three to four feet in length of sufficiently strong timber upon the top of the trellis posts horizontally crossways of the rows, with three

or four wires stretched along these cross-bars to hold the permanent arms of the vine, letting the new growth of cane and fruit hang from under and along these wires. The advantages of this system are the saving of the usual summer tying of growing canes; the covering and shading the ground and roots during the hottest, driest part of the season, producing more nearly the conditions of forest growth; and possibly a greater advantage in this pendant manner of growth being better adapted to produce the large buds on which the size of next year's bunches depend. This is an important idea, and if, as seems probable, the usual system of upright training of the growing canes does not best develop the buds for next year's crop, it is unworthy of being so generally used. On this point more careful study and experiment are required, but the indications are strongly in favor of a drooping and pendant growth. It seems to be quite well established that rank growing varieties should either be set farther apart in the rows, or if set eight, ten, or twelve feet apart, should be thinned by removing every other vine after becoming six to eight years old. Our observing grower, Mr. J. Whittlesey, has quite fully demonstrated that one Concord vine will produce more and better fruit when occupying 50 feet of trellis than when left eight feet apart on the same length of trellis.

The enormous annual product and wide-spreading extent of the noted old vine at Los Angeles, California, is a strong proof of this theory. The danger from overbearing on old rank growing vines, I think has been overestimated. Vines growing on soil rich enough to produce an aggregate growth of 100 to 200 feet of canes per year, may bear a proportionately large crop, while on poor soil where a yearly growth of less than 50 feet is produced may very easily be injured by overbearing. Among new varieties which seem worthy more general trial, the "Worden" seems very promising—a worthy successor of its parent Concord, and many claim will soon supersede this general favorite. The Champion, a very early hardy grape of very medium quality, has endured the past winter without injury in most places. The Brighton, very superior in quality, and has proved very hardy and promising; the Owosso, a native of our State; the Lady, Martha, Prentiss, among white grapes, are all worth knowing more about.

WINE MAKING.

From the earliest time a principal use of the grape has been to make from its juice a beverage more or less intoxicating, to which man has given a vast amount of study and pains to perfect, and to so combine and prepare as to produce the various qualities desired by the lovers of this beverage. A vast amount of study has also been given to so imitate this pure wine, so called, and produce a beverage of equal mercantile value without the use of grape juice; and if we may believe market reports and statistics, this has been an eminently successful study. During the past few years the rapid spread of the Phylloxera in France and the wine making regions of Europe has cut off the supply of grape juice for wine making, and its ravages are likely to still farther reduce this supply, and from California the same report comes that the little enemy is making great inroads upon the wine supply.

In this emergency several writers upon the grape,—notably Hussman, in his lately published book, also a writer from Vineland, N. J., in the Philadelphia press, have strongly advocated the favorable opportunity for the grape growers of the United States to establish a new and desirable National industry, the manufacture of wine, and a new National habit, the general use of wine. Not

only do they urge it as an industrial, economical benefit, but strongly recommend it as likely to help on the temperance reform, so much desired and needed at the present day among our people. With these writers I take issue, and am fully persuaded the very worst thing for us as Americans, in an industrial as well as moral view, will be any increase in the wine making interest. If made and used as generally as these writers recommend, it would be one of the worst evils possible to the American people. I have no doubt it might be very profitable to a few individuals,—as whiskey making is to-day.

In support of my position I beg to offer some facts learned by a two years' business residence among the wine and beer drinking people of Europe. I claim that in main effect wine and beer drinking are so similar as to be proper to treat them as one, in an industrial and economic sense. The first impressions of a traveler who goes through any of the large European cities, where wine and beer are commonly used by all classes, are that he has found at last a temperate people, a people who can reasonably enjoy without abuse the tempting beverages containing a little alcohol. He sees none of the horrible faces of the whisky sot; he hears of none of the brutal street fights so common in and about the saloons of our cities. The people seem quiet, orderly, happy, and the almost universal decision of the mere traveler is, that intemperance or any of the usual baneful effects of drinking alcoholic drinks are not found among this people. But let the traveler, as did the writer, locate for a business life of a year or two in one of these quiet cities, and become acquainted with the actual home-life of these people, and see the economic effects of this drink habit on all classes—the laborers and the trades people as well as upper classes, and the facts will be found to be like this: The habitual use of wine or beer does not produce the terrible rapid effects of whisky or stronger alcoholic drinks on its users, but the powerful controlling effect of the poison as an ever growing power over the will of the individual is no less strong, and the drink habit becomes as dominant and imperative, and the earnings are squandered for its gratification instead of being used for better food, better clothes, better homes, and better educational advantages for the children. These are denied and the result of industry goes for the drink which neither gives strength for labor nor clearness of the head for thought, study, or invention. The boy, the apprentice, the journeyman, the tradesman, or the head of a family are kept down by this constantly increasing drain upon their savings to supply the increasing appetite which is the universal effect of alcohol.

I became personally acquainted with a number of cases of tradesmen in Germany where there had been for years a great desire to come to America in the hopes of bettering the prospects for the children of the family, but it had been impossible to save enough for the expenses of the journey. Yet these families were spending enough every year or two for wine and beer to have paid their fare to this country. Among the young business men who had to make their own way, the drain upon their earnings for the half bottle of wine for dinner and the social drinks was a burden which kept thousands from getting on as they should have done, and I know of no classes where the habit was not a growing one and was often in old age a very grievous burden to bear. I saw enough among the laboring classes in the manufacturing cities of England to know that the worst curse which falls to the hard lot of these poorly paid working men of England was the self-imposed burden of drinking beer, which saps their earnings and keeps them in a perpetual life of abject poverty and suffering, deprived on this account of proper food, and in thousands of

cases preventing them from saving enough to come to this country to better their condition.

During the late depression in manufacturing interests in England, when so much terrible suffering for necessary food was felt by the laborers and tradesmen out of employ, one of the most difficult things to contend with by those who had the distribution of public charities, was the almost universal feeling that beer was one of the necessities, and the mad determination to have it at the sacrifice of substantial food for themselves and families. The proportions of this national industry of beer making and beer drinking are colossal enough to startle our New Jersey patriot, who would advance the temperance reform and improve the industrial condition of his countrymen by introducing wine making and drinking in this country as a general business and habit. It is stated that the annual expenditure in England for beer is \$400,000,000, nearly the amount of the whole National banking capital of the United States; the most of this comes from the earnings of the working classes. Does this national industry bring national prosperity to its millions of workers? Do these tradesmen excel as mechanics and inventors? No, it brings poverty, and ignorance, and suffering, and their workers are far behind ours in intellectual progress and ability.

The economic effects of wine and beer drinking are the same in Germany and France. Their working classes are far behind ours in quality and quantity of proper food, and particularly in the amount of fresh fruits consumed; but instead of this important element of food, they use the expensive poisons, alcoholic drinks. With it, whether as cause or effect, I will not say, comes an almost universal use of tobacco, to still further absorb their earnings. If from all these countries this national industry and national habit, this enormous waste, could be removed and the saving turned to produce and procure better food, better homes, better educational advantages, we should see a material mental and moral progress that would be astounding. I am told that a move is on foot in Germany which has the approval of Prince Bismarck, to do away with this enormous drag upon their material prosperity; and while I have no doubt it will be the work of years, perhaps of generations, to entirely do away with the evil, I have no doubt it will ultimately be accomplished, by educating the masses to know what a foolish, useless waste it is.

Do we, then, in face of these facts, wish to encourage these suggestions of a new national industry and a new national habit? Can we expect the American people, with our tendency to extremes and the already widely established taste for stronger alcoholic drinks, will not suffer more from these ill effects of wine drinking, than the less nervous type of men found in these European countries?

Shall we not better heed that emphatic warning of the seer of the olden time, whose wisdom concentrated the summing up of the effect, moral and economic: "At last it stingeth like an adder." Is not this a propitious time for this society to imitate a study and work, which is specially within our province, and when accomplished will add a very important item to one of our large industries, and a very desirable addition to our healthful luxuries—a beverage free from all the dangers of fermented wine. If we can learn by study and experiment to perfectly preserve the fresh juice of the grape, with all its sanitary and food value unimpaired, with all its aroma and freshness of flavor, then we shall have something worthy to rank among our national industries and enjoyments. I believe it may be done; I have tasted at different

times the juice of the Concord grape canned in the usual manner of domestic canned fruit, which was of such excellence as to be nearly equal to eating a fresh bunch of ripe grapes in June. By experiment and study we may learn to improve upon this mode of preservation without any of the changes which heat imparts. Thus may we continue to use and enjoy our grapes as the delicious, healthful fruit of autumn and early winter, and to enjoy the flavor of the juice out of season untainted with the insidious poison which has been the Devil's best ally and man's worst enemy since the days of Noah; and which is to-day the heaviest burden borne by civilized man.

Following Mr. Coming's paper, Mr. Thomas Mason, a Chicago commission merchant and member of the Michigan Horticultural Society, was invited to give his views as to

VARIETIES OF FRUITS ADAPTED TO CHICAGO MARKET,

and responded as follows:

In accepting your invitation, it is with a conviction of my inability to do the subject assigned me justice; but nevertheless I feel it my duty, as a member of this society, to contribute my mite to its general experience fund, as derived from personal observation with the different varieties of fruits in their adaptability to the requirements of our Chicago or more distant markets. Therefore, I trust my pomological friends will not feel dismayed that I do not regard their preference with the same favor—my selection being governed chiefly by their commercial value. I do not propose to go through the list of varieties, giving their distinct qualities or season, but rather name a few varieties as characteristic of the wants of our market, thereby aiding you to decide what we shall "plant for profit." The chief requisites in all fruits for market purposes are firmness, color, quality, and size, in the order named. Let me open with the apple. A bright red is the most popular color; hence, Steel's Red, Wine Sap, Willow Twig, Jonathan, Baldwin, even the Ben Davis, is preferred to a better apple of a poor, dull, or rusty color. Take the Baldwin, when it is of a bright color, it will sell at fifty per cent better price on the same date than when it is shown of a dull color. There are many points to be considered in relation to the profitableness of certain varieties, even when the best quality in their best color are presented on the market, which our Michigan fruit-growers should consider. Take the Red Astrachan, for instance, with its beautiful high color, its superb flavor, that certainly should, according to my showing (as to color at least) prove a profitable marketable variety; but such is seldom the case with us, for the reason that our market, in its season, is so well supplied with other varieties of fruit, also with a full supply of apples from southern Illinois, that are better shippers; consequently the Red Astrachan has to be sold low on its arrival, when received in large quantities, as we dare not hold, its fine texture tending to rapid decay. Michigan may boast of its ability to raise and market apples of the best varieties and in the greatest perfection as to flavor and keeping qualities of any State in the Union. Therefore, our aim should be to plant the best shippers, as the time is not far distant when the exporters of apples will look to northern Michigan as their chief source of supply.

Among the varieties I would name as suitable for profitable planting are the Baldwin, Steele's Red, Willow Twig, Spitzenburgh, Wagener, Newtown Pippin, Jonathan. Next in order would be the Pennock, Greening, Spy, King, Bell

Flower, Maiden's Blush, Red Astrachan; also the Ben Davis, Seek-no-further, Snow, Golden, and Roxbury Russet.

I would not be understood as limiting the list of varieties to these mentioned, but rather as types of the varieties called for most in market. You may wonder why I speak of the Pennock; it is often required for shipment to Southern points, as it will stand the climate better than our finer varieties, hence for that purpose salable. The apple list would not be complete without naming at least two crabs. The Hyslop and Transcendent are at the present time the most desirable of all the crabs, the Hyslop proving the most profitable from the fact that the Transcendent comes on our market too early for the demand.

I shall not attempt to go through the list of pears, but would say at present and probably for the next generation, the Bartlett takes the highest rank as a market pear, and more of that variety can be profitably disposed of than all the other varieties put together. Clapp's Favorite, Flemish Beauty, Seckel, Louise Bonne de Jersey, and Duchesse D'Angouleme are among the most salable on the long list of pears.

The Black Tartarian is the most salable of all sweet cherries, with the Early Purple Guigne, Gov. Wood, and Napoleon Bigarreau following closely, with Early Richmond and May Duke as the leading sour or cooking cherries.

Plums—the Lombard, Washington, and Green Gage for dessert, with Wild Goose for cooking.

In peaches, the yellow flesh varieties have the preference over the white, such as the Crawfords, Jacques Rareripe, and Smock Free, with a notable exception in favor of the Old Mixon, one of our best shippers.

In grapes, the Concord and the Delaware are the market grapes par excellence.

In currants the cherry takes the lead.

In red raspberries, the Brandywine is the best at this date for late, with a new berry, Reader's seedling, for early. Next comes the Kirtland or Highland Hardy, with the Herstine and Turner, though the latter proves not of sufficient firmness for reshipment. In black, Doolittle, Miami, and Mammoth Cluster, the Miami being the best of all black caps.

The strawberry being produced in the largest quantity of all our market berries, I feel it proper to occupy more time on this fruit. Therefore, I propose to give you a list of varieties that have come under my personal observation, and pronounce on their merits solely in their relation as shippers to the Chicago market. I shall name them in their alphabetical order:

Varieties.	Color.	Size.	Flavor.	Shipping Qualities.
Agriculturist.....	Crimson.....	Large.....	Good.....	Near market.
S. Boyden.....	Dark Red.....	Large.....	Sweet.....	Near market, green tips.
B. Scarlet.....	Scarlet.....	Small.....	Good.....	Worthless.
Captain Jack.....	Scarlet.....	Medium.....	Good.....	Good.
Chas. Downing.....	Light.....	Medium.....	Medium.....	Poor, white color.
Champion.....	Dark Crimson.....	Good.....	Good.....	Home market.
Crescent Seedling.....	Bright Scarlet.....	Medium.....	Poor.....	Worthless.
Col. Cheeney.....	Light Scarlet.....	Medium.....	Poor.....	Near market.
Cumberland Triumph.....	Light Scarlet.....	Large.....	Medium.....	Near market.
Duchesse.....	Light Scarlet.....	Medium.....	Medium.....	Near market.
Endicott, No. 2.....	Dark Red.....	Large.....	Medium.....	Near market, necked.
Forest Rose.....	Bright Red.....	Large.....	Good.....	Near market.
Glendale.....	Dull Red.....	Medium.....	Poor.....	Worthless.
Green Prolific.....	Scarlet.....	Medium.....	Poor.....	Near market.
Great American.....	Dark Crimson.....	Large.....	Medium.....	Near market.
Jucunda.....	Glossy.....	Good.....	Good.....	Near market.
Kentucky.....	Scarlet.....	Good.....	Fair.....	Near market.
Lennig's White.....	Light.....	Medium.....	Best.....	Too light in color.
Mon. of the West.....	Light Scarlet.....	Large.....	Good.....	Near market.
Pres. Wilder.....	Light Scarlet.....	Large.....	Best.....	Near market.
Sharpless.....	Glossy Red.....	Large.....	Medium.....	Near market.
Tri. DeGand.....	Glossy Scarlet.....	Large.....	Good.....	Good.
Wilson's Albany.....	Scarlet.....	Medium.....	Good.....	Good.

The last two named on the list should be placed first as to order of merit when viewed in the light of market berries, for the following reasons: First, the Triumph De Gand is the best of all the large varieties in combining all the requisites of a good shipping berry—size, color, and firmness. Last but not least, the Wilson's Albany, our old reliable, well-tried friend, with its color and shape you are all familiar.

In their eagerness to experiment with new varieties, I fear many that are growing the Wilson for market are giving it but shabby treatment, not giving it a fair chance to show its good qualities. They do not give it as good a piece of land as they find for their corn patch, neither do they give it as careful cultivation. Let me ask about the one or two dozen plants that you have received by mail at a cost of \$3 or \$5, or that some kindly disposed neighbor has obliged you with as a great favor. Do you take those plants and place them in the same field with your Wilsons? Oh, no. You place them in your garden in the best prepared soil, and probably apply an extra dose of some fertilizer for your favored plants. So they are planted, hoed, and watered, being tended with care. Is it to be wondered that your pets should reward you with a fine show of berries that throw your neglected Wilsons in the shade? You feel you have "struck oil," so to speak, and plow out the Wilson and plant your field with your new pet and ship to market. With it you write your commission man that you send him a choice berry—a new variety—and that you expect a good price for it. Now, all successful commission men are good judges of human nature, think really more how they can hold your shipments than they do of abstract theories, and endeavor to answer more with the view to please you than to give their honest conviction. The result is that you plant more of what really proves to be, with field culture, an inferior market berry. I say next to the Triumph De Gand the Wilson has no rival worthy the name up to this date, having all the requisites for a good market and shipping berry. It is the most salable strawberry known. Its shipping qualities for

distant markets, its firmness, its color, its agreeable acid making it one of the best for preserving or canning purposes, and by selecting a rich, moist soil, good cultivation, renewing your plantation every one or two years, you have in the Wilson all the requisites of a profitable market strawberry. A word of caution to the planter of new varieties for market purposes: You are apt to be misled many ways, the source of which may not have been intentional, but nevertheless affects your judgment. For instance, you have received 50c or \$1.00 more for your fancy case above the market price of Wilsons; hence you hastily conclude had your crop all been of your present pet variety you would have realized so many dollars extra. Just there is where you err. I doubt if there has been any of the large-sized, old time "new varieties," that did not realize to the shipper a better price for a few trial cases, above that paid for the general market berry of the day. Let me ask what has become of them? Why so many left so far behind in the race that their names even are lost to memory? And those that have appeared of more recent date, why have they lost the exalted position they once held in our estimation? Will these not surely follow in the wake of their predecessors if they do not prove to have the requisite merits already possessed by the Wilson? Allow me here to give an example. Let us take the Sharpless—one of our latest acquisitions—a berry that possesses apparently all the requisites of a successful candidate for popular favor. Its large size, beautiful glossy red color, fair flavor, and moderate firmness gives it promise of success. Presuming some at least of my hearers are growing and will ship of this variety, you will without doubt get a much better price for the few cases you will ship this season, and why will you not continue to do so? Among many I will give this reason: There is a class of people in all our large cities with whom the price of an article is of secondary consideration to the gratification of their tastes or pleasure. That class will take of these first things at an advanced price. You receive the benefit of such from your commission man, you judge from those returns that this is the coming berry, and plant all possible, and so does your neighbor, and by the time the field crop comes in market, having had a touch of the Wilson management, and you realize from their sales, you find you do not get as much net proceeds per acre as does your neighbor that shipped select Wilsons. You ask why? Let me say the Sharpless is not for the million, but for the millionaires. They being few in number comparatively, the berry for the million holds its sway, is sold with the first morning sales, and shipped to distant points at highest market rates, while your pet Sharpless, Monarch, Boyden, Downing, Jucunda, etc., etc., are left to the chance sale, for a few of the best selections at a trifle above the Wilson, while the great bulk of them have to be forced off at lower rates to doubting buyers, and in a short time are neglected so that our poorest class of street peddlers will scarcely take them off the market even at a great reduction in price below the Wilson. You repeat "Why?" I can answer. The chief cause of their disfavor lies either in their poor, light color or their want of firmness; often both combined. You may say it is a matter of prejudice which can be overcome. How has it proved with the long host of pets of the past? Call it prejudice or any other name, they have all lost the proud position their originators fondly hoped for them. Gentlemen, facts are stubborn things. The merchant cannot afford to take home the pale, sickly, half-ripe looking Downing and those of like color, or the Monarch or Boyden with its green tip, to lose 50c or \$1.00 per bushel for the sake of educating the public taste. No, they prefer to take home a well-

ripened Wilson, that everyone likes and appreciates, which they can sell at a profit and not prove a total loss should they have to carry any over to the next day, which they know by experience they cannot do with any other variety. Should the Sharpless, one of the best of the newer claimants for public favor, both in color, size, and flavor, prove capable of superseding either the Triumph DeGand or the Wilson as a successful market berry, I shall be greatly surprised, for I do not at this date know of a berry capable of dethroning either the Wilson's Albany or Triumph De Gaud from the proud position they have maintained so many years.

Mr. Webster, Benton Harbor: There is no question but the Wilson is the berry for us to raise for the Chicago market.

President Lyon: The Sharpless, I apprehend, for many purposes is a superior berry, but I do not suppose anyone would think of growing it for a distant market. The advertisement for the Wilson is that it gets its color early, before getting anywhere near ripe, and thus can be put on the market in a firm state, even although when thus thrown upon the market in its half-ripe condition it is hardly fit to eat.

Mr. Steele: I have a correspondent in Ohio who has put out ten acres of Sharpless for Cincinnati market.

Mr. Nowlend: How long has the Sharpless been tried?

Mr. Lyon: In our own State only two years.

Some one in the audience called for a rising vote upon the question, "Have we anything as yet to supersede the Wilson for market purposes?" The convention voted almost unanimously in the negative.

Mr. W. A. Brown made a very enthusiastic speech in favor of Wilson's Albany, giving a brief history of the discussions upon the variety in the meetings of State society, and closed by saying: "Notwithstanding the attempts to place this splendid old variety in the background, it still retains its place of honor. The State society may mark it as they please, growers of new-fangled varieties may deride it as they will, still the Wilson will retain its position until a berry that can stand a long-continued test shall prove itself to have more excellent qualities."

A. L. Tucker, Chicago: As a commission merchant of considerable experience I will say, that from outside the city, where we send the greater part of our stock, we get no orders save for the Wilson. The Kentucky may do for Cincinnati, but put up in their crates and sent here to Chicago, will not sell well. The finest Jucundas are raised on the hills of this county, but the variety will not grow except on special soils, and hence cannot be recommended. We sometimes get a fancy price for a few crates of a new sort sent to us, but this never lasted long. It takes a long time for any variety of fruit to get a permanent place in market, and it is difficult to displace it when once it takes a first position.

Mr. Steele: I think the vote was taken too quickly. The Wilson may be the berry for Chicago market, but so much the worse for Chicago. In other cities there certainly is more money in other varieties.

Mr. Gulley: We work for the money here in West Michigan. We do not raise strawberries for the fun of it, but to get a living. We are going to raise that variety which will give us the largest net income. We can grow three or four times as many Wilsons with same care and expense as we can of any other sort; this settles the question for us.

On motion, the question of fruit packages was next taken up, and Mr. W. A. Brown, of Stevensville, read an essay on

FRUIT PACKAGES AND LEGISLATION CONCERNING THEM.

The government of the United States formerly adopted the same system of weights and measure which prevailed in England. The several States have, by legislative enactments, designated the number of pounds which shall constitute the bushel of most dry measure products produced in the respective States. But the only recognized standard for the international exchange of the cereal and coarse mineral products of the country is the avoirdupois system of weights.

The French metric system was, however, legalized by act of Congress, in 1866, but has only been adopted by California, and is coming into general use in other localities on the Pacific coast.

The standard dry measure of this country is the old Winchester bushel of England. It is used in measuring dry articles, such as grain, fruit, coal, salt, etc. The bushel contains 2,150 2-15 cubic inches, and the quart contains 67 1-5 inches. Wine measure is used in measuring all varieties of liquids, and contains 57 $\frac{3}{4}$ inches. With the exception of green fruits, all articles which are measured by dry measure are legally subjected to the avoirdupois system of weights, and, in fact, the dry measure system has become legally obsolete, unless retained for the sole purpose of constituting a legal measure for fruits.

The inconvenience, confusion and fraudulent practices arising from the use of the old dry measure, has led to enactments which designate the number of pounds to the bushel of different grains and vegetables. But the incompatibility of laws which constitute twenty-eight pounds of oats one bushel in Connecticut, while Washington Territory gives thirty-six; and Illinois forty pounds of buckwheat when little New Jersey heaps the measure to fifty pounds is an anomaly not easily understood. Fifty-six pounds of corn is given by all the States excepting Illinois and Missouri, which allow but fifty-two. Pennsylvania is liberal with salt, giving eighty pounds per bushel, while Illinois strikes the measure down to fifty pounds. The discrepancies in the laws of the several States are irrelevant, however, as the laws of weight prevail in the sale of these products.

Barrels are not measures of capacity, except when the multiple of a unit is indicated to designate their size, as 196 pounds of flour to the barrel, or 240 pounds to the barrel of lime. A barrel of apples is an indefinite quantity; it may require more or less in the different markets of the several States. New York requires eleven pecks to the barrel; other States demand the same standard, while Illinois recognizes no standard, and a barrel is a barrel in the Chicago market, be it more or less. The Michigan or eastern buyer for the western market, measures apples purchased from the producer in a low, wide bushel basket, which is made to hold, when heaped, five pecks. He orders his cooper to leave out a stave and make a straight, vertical barrel, of just two and one-half bushels capacity, into which he presses with artistic skill the two bushels of apples bought of the farmer.

The city dealer recognizes the work of the professional apple packer at a glance; he knows the exact capacity of every form of barrel, but his experience has taught him that the small barrel which is well filled, and formed in such a manner as to hold every apple immovable in its place, will measure out more sound fruit than the cracker or sugar barrel, of three or three and a half

bushels capacity, which has been filled by the farmer in such a manner as to be subjected to all the abrasions and contusions incident to railway carriage.

The large eastern markets positively require apple barrels to contain a given quantity, and the full-sized barrel, when well filled and handled, commands a premium in most western markets. Our text books and tables inform us in general terms that dry measure is used for measuring fruit; but no special laws exist which specify the varieties of fruits subject to such measurement, and it appears that unless the standard contents of the bushel are designated by the number of pounds contained therein, that we have no exact legal measurement for the perishable variety of fruits. Custom in different localities has subjected the measurement of berries to both dry and wine measure. Small dealers buy by dry measure and sell by wine measure, thus enhancing their profits, thereby incurring the ill-will of both producer and consumer.

During the summer of 1861 D. N. Brown grew and marketed the first strawberries sent from St. Joseph to Chicago. He improvised a package and sent them to a man on State street who sold them for 50 cents per bushel. Within the next two years strawberries began to be appreciated, good prices were obtained, and quart boxes were imported from New Haven, Connecticut, which were placed in crates, and the packages returned or paid for. The first peach baskets used were made at Dowagiac, Michigan. They were intended to hold one-half bushel, and were made by hand. As the fruit trade developed and the demand for fruit packages became largely augmented, large package manufactories were established, which, with the aid of newly discovered mechanical appliances, were enabled to supply the increasing demand. The requirements of the Chicago trade and the system of repacking fruit into small packages in Chicago coming into vogue, a few large fruit growers reduced their packages a little smaller than their neighbors, and as many fruit growers were persuaded that a small package of fruit would sell for as much or a little more than the larger packages, the reduction in size was continued, and fruit packages grew smaller and smaller and "beautifully less." The re-shipment of fruits necessitating the use of a "give away" package, the scroll veneering wood machine was utilized, and the cut box inclosed in a strong case has proved the best package ever invented for economizing space and the shipment of small fruits.

The question of the capacity of fruit packages has led to much bitter controversy between fruit dealers and consumers of fruit. This controversy culminated in the passage of an ordinance during the year 1877 by the common council of the city of Chicago which made it a misdemeanor to offer for sale in the city any green fruits in packages of a capacity which would not correspond with the even or aliquot parts of a bushel. All sorts and sizes of packages continued to be shipped to Chicago, and were sold by commission men in violation of the ordinance. The city authorities attempted to enforce the law, but the commission men combined in self-defense, and the courts decided the ordinance unconstitutional and held that in the use of nondescript packages for the sale of fruit, fraud could not be implied if false representations were not made regarding the capacity of such packages.

The evils entailed upon fruit interests in not being able to establish uniform packages was fully recognized by legitimate commission houses, package manufacturers, and fruit growers. The Michigan Lake Shore Fruit Growers' Association and many fruit growers resolved to use the peck basket and the full quart berry box. Several manufacturers constructed new forms for full-sized

dry measure packages and stamped the capacity thereon. These packages are now used by a few fruit growers who ship under their names and brand each package with the capacity thereof, but the larger part of the small fruits grown in the St. Joseph region are now being shipped in the smaller package. Three sizes of small fruit boxes are now being manufactured in Michigan. The box in general use has a capacity of 60 cubic inches. The box used by the small fruit growers of southern Illinois presents a large surface, is of less depth than the Michigan box, and has a capacity of from 60 to 62½ inches. Knowing that the small box sells best, some of our manufacturers have recently pandered to the "snide" side of human nature by raising the bottom of the form of the full quart box to one inch. A three-fourths inch space below the bottom of the Michigan box is necessary. If heaped on the box the fruit will not be up to level measure when presented on the market, but all boxes having a space of more than three-fourths of an inch should be branded as a fraud wherever found. The use of small and attractive fruit packages for the retail trade is necessary, and the demand for small fruit packages has been largely augmented by re-packers and small dealers in our large cities, who buy fruits which have been transported long distances in large packages and re-pack and manipulate for the retail market. The re-packers and "snide" dealers in Chicago use the Michigan package, and whatever sins of omission and commission are committed by re-packers are charged to Michigan fruit growers who use the same style of package.

During the past winter the Berrien county Horticultural Society has discussed at length the evils of the present fruit package system. The Society concluded that laws by several States, which should require the marking of every package used with the exact capacity thereof, would abolish the "snide" package, and a standard size would necessarily come into use. A committee was appointed by the Society to draft a bill and present the same to the legislature of Michigan and Illinois. President Tate, chairman of the committee, forwarded copy of bill to our representatives at Lansing, when it was referred to the proper committee and was shorn of all provisions to make it effective, and finally tabled. The committee presented a copy of the bill to a Chicago member of the legislature of Illinois, where it was ignored on the ground that the people were asking for too many reformatory measures, and that the bill would obstruct the free and easy motion of the wheels of trade in the city of Chicago. Whenever legislation has been attempted by the several States for the purpose of establishing legal measures for perishable fruits, nothing has been accomplished, for the reason that no legal standard is recognized in any part of the country. Many contend that our soft, perishable berries should not be subjected to dry measure measurement; and as such fruits partake more of the fluid than of the solid ingredients, and as the custom of buying and selling berries by wine measure has prevailed during a long time, they claim that the arbitrary establishment of the practically obsolete dry measure at this time would be inexpedient and unjust. All fruit growers will, however, concede that the establishment of a standard measure will conduce to their interests, and whatever system or capacity of fruit package may be deemed preferable, all associations of fruit growers, all package manufacturers and dealers in fruits, should coöperate for the purpose of establishing one system of fruit measurements, which shall be valid in the State and inter-State exchanges of all varieties of fruits.

Mr. Lannin: The fruit growers down at South Haven patronize your package establishments to some extent, and only recently sent in quite an order for

packages, and I'll be bound there is not one of what you term "snide packages" among them. How is this, any way? We made no particular order as to style. Why did they not send us some of the "shorts?" It seems strange you should have difficulty here; can't you people of St. Joseph and Benton Harbor get full packages if you order them? I can not appreciate your great difficulties. If you order nothing but straight sizes it seems to me there will be no others used.

Mr. Tate: There are Chicago commission men with us to-day, and I would like right well to hear from them on this subject.

Mr. Mason: As I am called upon I will very concisely state my views. I believe in full, standard packages, and wish we had nothing else. Whenever I have several sizes, and it is possible, I discriminate in favor of the straight sizes. But this is not an easy thing to do; when the market is understocked, everything goes off quickly and a little difference in size is not questioned. When the market is full we have an opportunity to grade, and always do so. But, gentlemen, suppose we have a number of consignments from various parties, and they all stand side by side. We have an offer of so much per basket for the lot. The price suits us and we take it. Of course our returns on the short baskets are the same as upon the full-sized ones. We must make them that way; we cannot do otherwise. The moment you ask us to grade, after we have made a sale, you are putting us on dangerous ground. The temptations are too great for chicanery. No, we must stop short of that or we would soon be in endless difficulties. My way would be to compel by law the manufacturers to make certain sizes of definite capacity.

Mr. Tucker: There is money in the pockets of the fruit growers to keep up the standard of sizes. I have known consignments of apples from New York to Chicago to be in an undersized barrel. It reacts on the consignor every time. People like large barrels and will discriminate in their favor, and they are getting to know standard from short packages.

Secretary Garfield: Perhaps it is due the people here as well as myself that I make a statement concerning the progress of legislation in the direction of fruit packages the past winter at Lansing. A committee appointed by the Berrien county society sent up a bill very carefully prepared which I introduced, and it was referred to the committee on horticulture. That committee gave the bill a considerable amount of study, and after mature deliberation reported a substitute in the support of which they were unanimous. The bill was printed and scattered through the State among fruit growers. We received many letters concerning it; most of them were commendatory, but unfortunately the communications from a majority of the committee which sent up the original bill for introduction were of such a nature as to injure the chances of the bill. It passed committee of the whole without opposition, but owing to the lukewarmness of the very locality which had at first taken the aggressive steps on its final passage it was defeated by a very small vote. Even then if the people of this region had been earnestly in its favor we could without doubt have reconsidered and carried the bill, but with no enthusiasm here there was no attempt to resurrect it. I present you here a copy of the bill as reported. It reads as follows:

A BILL to provide for marking the capacity on fruit packages.

SECTION. 1. *The People of the State of Michigan enact*, That hereafter fruit growers or fruit dealers who shall offer for shipment or sale apples, pears, quinces, cranberries, or other fruits in barrels or half barrels, shall use the standard size of Michigan:

Provided, That in case any other size shall be used, the capacity of the barrel shall be plainly marked on the head thereof in bushels or pecks and fractions thereof, dry measure, in letters and figures of not less than three-quarters of an inch in length.

SEC. 2. All boxes, baskets, cases, and crates used by fruit growers and fruit dealers for packing fruit for sale within this State, or for shipment out of the State, shall have the capacity of the same plainly and conspicuously marked or branded on the end or sides (other than the cover) in quarts or fractions thereof, dry measure. The figures and letters shall not be less than three-quarters of an inch in length. *Provided*, That in case of grapes or other fruits usually sold by weight, the packages may be plainly marked or branded with the capacity in pounds avoirdupois and fractions thereof, computing fifty cubic inches, inside measurement, to be equal to one pound.

SEC. 3. All crates and cases when used by fruit growers or fruit dealers to inclose smaller packages of fruit for sale or shipment, such as pint or quart boxes or baskets, shall have plainly and conspicuously marked or branded on the end of each case or crate the number of smaller packages within such case or crate, and the quantity they contain separately or in the aggregate, in pints or quarts and fractions thereof, dry measure, the figures and letters of such marking to be not less than three-quarters of an inch in length.

SEC. 4. Any person violating the provisions of this act shall be deemed guilty of a misdemeanor, and on conviction thereof shall be punished by a fine of not less than five dollars nor more than twenty-five dollars, or imprisonment in the county jail not to exceed thirty days, or both, in the discretion of the court.

Mr. Comings: I am in most hearty sympathy with our Secretary in his attempt to get a law that would be a start for us, and am sorry our discussion of this matter had not begun earlier that we might have been more united in our efforts. But we may by another term of the legislature have something matured that will harmonize all elements. I just wish to call the attention of the convention to the array of baskets here before us. Mr. Morton has samples of the old bushel, three peck, half bushel and peck baskets, and I have secured a line of the present baskets manufactured, which runs from a peck down to a quart and short quart, and no man, except he be an expert, can take one of them and tell its capacity from its appearance. I believe in legislation but think we should act discreetly and in unison with other States.

The paper read by Mr. W. A. Brown was really a majority report of a committee appointed by the Berrien County Horticultural Society. Mr. Robert C. Thayer, of Benton Harbor, presented a minority report, in the form of a paper, entitled

HONESTY IN HORTICULTURE.

The writer of the paper to which your attention is now invited has not waited until to-day to learn that a "minority report" is not usually given that attention and consideration which is accorded to its older and more favored brother, but whatever he may lose in popularity is amply compensated for, in the sweet satisfaction of being on the other side, or, as some would put it, on the contrary side.

At one of the meetings of our county society held in this place some time ago, when the subject of fruit packages was touched upon, our respected friend and neighbor, Thresher, told us he clearly remembered this same subject was discussed here at least sixteen years ago. Sixteen long years! and the great problem still remains unsolved! Men have grown gray-headed, bald-headed, and I don't know but some of us have grown pig-headed, in that time; boys have grown to be men, and girls have grown—why, girls have been born and grown up to womanhood, and some of the smartest of them have "got married," and to this day no living man can tell the head diameter or the bung diameter of an apple barrel until he takes a rule and measures the particular

individual barrel in question. Some questions of some importance have been answered in that time. Reconstruction, remonetization of silver, the resumption of specie payment, and again and again the people, by their suffrages, have decided who should be branded—I use the word understandingly, Mr. President—who should be branded as President of the United States, and still the great question of how many sizes of peck baskets there may be still remains unanswered. Kings and emperors and empires have fallen, and devastating war has wasted vast provinces on either hemisphere, and many a brave man has gone forth to fight for a leader, or an idea, or his right, and returned not to receive the greetings and embraces that awaited him so long, and still the farmer of Michigan gathers his harvest in a quart box that holds about a pint and three-quarters, and then goes to Lansing and prays “that he might be delivered of his adversary.” And now, as though life was too long and breath too plenty, we are invited to discuss this matter again, and I hold that we are fully competent to settle the question.

Mr. President, it is sometimes said there are but two ways to do a thing; one is right, the other is wrong. One way has been suggested, which I think is the wrong way; another way will be pointed out in this paper, which I think is the right way. The remedy already suggested is “the law,” and I think the method is wrong. First, because similar laws, if such exist, are inadequate and inoperative, and second, because it is incapable of completion, and third, because it is not needed. To show that laws made for a similar purpose are inoperative, we have only to glance at some of the most familiar articles of trade. We have law to tell us the dimensions of a cord of wood, but there is scarcely a day in the year except Sundays that loads of wood are not sold in our streets and neither buyer nor seller knows how much wood there is only as he guesses at it. So of the article of hay. It is true that in town, where it is convenient to do so, a large part of the hay is weighed before it is sold, but where there are no scales near, hay is sold by “guessing it off.” Everybody knows this to be true, but possibly it has not occurred to everybody that a remedy for this terrible state of things may be reached by just marking the farmers’ wagons in plain letters, “This is a ton wagon,” and on the sleds, “This is a three-cord sled.” Then nobody would be cheated, and the wood-chopper’s reputation would be saved. I am told we have a law which defines a “bushel,” and tells how much space a bushel occupies, and now if anybody really knows how big a pile of apples it takes to make a bushel, I wish he would rise and explain. I have been told that some men who buy apples largely on speculation have baskets with which they measure the apples out of the wagons that hold four and a half to five pecks. Perhaps some one will say he would have his apples measured in standard baskets. Well, perhaps he wouldn’t sell his apples. I know a man—I can give you his name and show you the house he lives in—who had apples to sell and “he didn’t mean to be scalped in that way,” so he procured some standard baskets, loaded up a load of apples, put on his baskets, and went to market. The consequence was that he concluded to ship his apples to Chicago. They wouldn’t buy his apples. They won’t buy apples without they can measure them to suit themselves. A farmer told me last fall that he put 17 bushels of apples in his wagon and took them to market. They measured but 14. Well, that was not very bad, only a little over 17 per cent, I believe. I don’t know how much they would have taken if we had no law to define what a “bushel” is.

I am told there is a law prescribing the quantity of cement that shall constitute

a barrel, but our brother Comings told us one day that he had found that cement barrels had grown wonderfully less. So in regard to a barrel of land plaster. I remember I had occasion to buy a single barrel of plaster. I drew it home and took it out of my wagon alone and found I could lift it without much trouble, and not being very strong, I thought it must be light weight; so I weighed it and there were just 248 pounds net. I can't tell you how thankful I was for the "law," for if it had not been for the law I don't think that barrel would have held more than a paint keg, just about enough to put on one row of potatoes.

Now there is said to be a law about how much cider a barrel contains. Well, there are large quantities of cider made at Benton Harbor every year, but it is sold in kegs, and if anybody knows just how much cider there is in one of those kegs he knows more than anybody else knows.

But we have been told that the great staples, such as meats and flour and whisky, are put up in packages made to conform strictly to the law. So far as whisky is concerned I cannot speak advisedly, never having lifted a half tumblerful to see whether it was full weight or not, and shall have to defer to the superior judgment of the majority. So far as beef and pork are concerned I have to say that if there are always just 200 pounds in a barrel it is because it is convenient that a barrel should hold that or some other known quantity, and I believe that in these articles as well as in flour and whisky and some other things which perhaps might be mentioned, the general conformity to law is only apparent and not real—that it is done for convenience and not in obedience to law; and again, it should be borne in mind that no fair comparison can be drawn between these staples and fruit, for these among other reasons: First, that single transactions in these commodities are of vastly greater magnitude than in fruit; second, that fruit is extremely perishable, while the other articles undergo very little change during a long time except under remarkable and unlooked-for circumstances, and, third, with fruit the seller and buyer are often brought together, while with the others the seller and buyer are very often hundreds or thousands of miles apart. Another thing is to be said: While I do not know but what every barrel of beef or pork is branded in accordance with law, I do know that thousands of barrels of flour are sold without any brand whatever, either of manufacture or weight. If gentlemen will make inquiry at St. Joe mills they will find this to be true even in law-abiding Michigan. I, myself, have bought flour by the barrel at retail without any brand whatever. So, Mr. President, I have attempted to show that these laws, if any such exist, are inoperative and inadequate. I told you that my second reason for believing the same as a remedy to be wrong, was that it is incapable of completion, for if it was to be completed it would embrace in its provisions every article, or thing, or substance, or privilege, or right, which it is or can be possible for one person to convey by sale to another person, and I hold that that is practically impossible. We shall not have proceeded many steps on this endless road before we begin to meet with difficulties. A very few every day illustrations will show it. Some of my neighbors are engaged to some extent in raising asparagus to sell. You know how it is prepared for market. The stalks are tied in bunches, what a man can grasp in his hand being a "bunch," and the bunches are sold by the dozen, and sometimes bring a very good price, as high as \$2.50 to \$3.00 per dozen. Well, moved by the generous impulses of their big hearts they sometimes make the bunches pretty large, and I have heard that the commission men write them that they

make them too large, so large that the retailers found it profitable to repack them by taking two bunches and packing them into three bunches. Now isn't this a case that demands the attention of the legislature? If you make a law to fix and establish the dimensions of a basket of peaches or grapes that sells for twenty-five cents, ought it not to fix and establish the dimensions of a bunch of asparagus that sells for twenty-five cents? or a string of onions? or a head of lettuce? If that is not logic won't you tell me why it isn't logic? And if your law fixes and establishes the size and dimensions of a basket of peaches and a basket of grapes, and a bunch of asparagus, and a string of onions, and a head of lettuce, why must it not fix and establish the size and dimensions of a twenty-five cent cigar? If that is not logic won't you please tell me why it isn't logic? And if you are going to fix the size of a box of strawberries that sells for a nickel, won't you tell me why you should not fix the size of a drink of whisky which sells for a dime? And so much the more as there are ten drinks of whisky sold for one box of strawberries. And so on, as I said before, to every namable thing or substance or privilege which it is possible for one party to convey by sale to another party. You can't do it, gentlemen; your law is incapable of completion. Law! Why, Mr. President, law is not for us; it is not for independent farmers. Law is for renters and horse jockeys and for men that want to get divorced from their wives. Examine our court records and see if this is not true that I tell you! No, no, it is not for us!

But I think I had a third reason for believing the proposed remedy to be the wrong way. Yes, it was this, that the law is not needed; and I am quite sure, Mr. President, that you will agree with me that the law is not needed when the method I propose is adopted. What method do I propose? It is honesty!

"Ah!" you say, "is that all?" "That is the saint's ideal as he muses upon prophecy and peers through the darkness to catch the first gleam of the millennial dawn. It is not adapted to the latitude of Michigan and Chicago, nor to this striving, struggling last quarter of the nineteenth century." Is it a vision? I hold it to be eminently practical. It is a well-founded axiom that "what one man has done another may do." A member of this society last year put twenty pounds of Concord grapes, sixteen ounces to the pound, guaranteed weight, into an attractive package, forty or fifty a day, six days in the week, week in and week out, and shipped them to the Chicago market. They sold for a dollar and forty cents; while the rest of us put thirteen or fourteen scant pounds in a fifteen pound box and they sold for thirty-five to eighty cents, just as the buyer was "posted" or was not posted. Do you suppose, sir, that that man cares what kind of a package you, or Mr. Tate, or Mr. Comings, or anybody else ship your fruit in? No, sir, he does not give a—Mr. President, I was going to say he does not give a "continental," but I stopped just in time. And you never hear him whining about commission men or "scalpers," or "repackers." Repackers! You don't suppose any of that fruit was repacked on South Water street! I suppose only a small portion of it ever went there—sold before they could haul it there, and I would almost venture the assertion that his this year's crop is sold while the little starry blossoms are opening on the vines.

And there is no royalty on honesty; no patent; there is no exclusiveness about it. The way is open to all of us, but you cannot legislate a man honest; you cannot legislate grace into a man's heart; men are not saved that way. I said the law was not needed, but, Mr. President, there is sore need of honesty, and on the east shore, too. Of whom did the secretary of our local society,

Mr. David, purchase some peaches last fall to send to a friend in Chicago, and in some way circumstances got the better of his friend's courtesy, and he was obliged to reveal the fact that the peaches were almost worthless, except a few good ones on top? It was a Michigan farmer. Who was it that told me his peaches were mostly small, that he hardly got large ones enough to top out his baskets? It was another Michigan farmer. Who ships berries packed in the bottoms of the boxes instead of the tops? Michigan farmers have done it. Who stood on this floor at one of our local meetings not three months ago and declared that in opening a barrel of apples only a few days before, in his own cellar, for his own use, packed in his own orchard by his own hired help, he found the two heads to be fine stock and all the rest worthless culls? Had one of those naughty scalpers from South Water street raided our beautiful peninsula State and got away with our reputation? No; it was a Michigan farmer that time! Where did my neighbor buy apples to ship to a southern city two or three years ago, and lost heavily on them because they were "snide-packed?" and who shipped two cars of apples to a northern city only last fall, and on their arrival his consignee wrote him that it would not be easy to dispose of such stock, and that he had better come up and see about it? Were they packed in Chicago? Mr. President, you can stand at one of the windows of this hall and almost pitch a New Testament into the very sheds where the jobs were done. Those apples grew in orchards whose treetops have been more than once lighted up by the flames of blazing churches in Benton Harbor. Churches! Warehouses! Manufactories! Dwellings! Ships sunk in the lake, and dead men, stark and stiff, on the wet sand! Logical sequences? Gentlemen will arrange that matter just exactly to suit themselves.

I have sometimes questioned whether, after all, there may not be such a thing as eternal justice, and if there is, the wonder is to me that one stone is left upon another that is not thrown down.

Evening Session.

Meeting was called to order by the President soon after eight o'clock, who explained that a meeting of the Executive Committee rendered it necessary that the President and Secretary be absent. Vice President Lannin was called to the chair and H. G. Reynolds officiated as Secretary *pro tem*. The question of

FRUIT PACKAGES AND THEIR SIZES

was discussed and Mr. Comings addressed the meeting at some length, giving an epitome of the history of the gradual change in packages in Berrien county. He closed by offering the following preamble and resolutions, which were adopted one by one and then as a whole:

WHEREAS, The common use of a great variety of sizes of barrels, boxes, and baskets for shipping and selling fruits and vegetables, has become a great evil, not only to consumers, but to all dealers and growers;

AND WHEREAS, We believe the branding or marking of all fruit or vegetable barrels or packages with their actual capacity will tend to do away with a great portion of the fractional sizes now in use, and will tend to the adoption of a few standard sizes, which if so branded with actual capacity, will remain in general and common use in all the States, to the great benefit of the business;

AND WHEREAS, We believe this may be accomplished by a united effort of all the principal dealers and growers, as well as manufacturers of barrels and packages;

AND WHEREAS, The original and common idea of a barrel as a package of measure for fruits or vegetables was to contain three bushels; and as this size is the most desirable for export trade and is preferred in our principal markets, and this capacity is almost unanimously adopted by the cranberry growers, east and west; and as the "flour barrel" size is by law made the standard size in Michigan, and the flour barrel is a staple article of manufacture and sale, and after being used for flour is still of use and value for fruit and vegetables, and as the "flour barrel" size holds about three bushels of coarse fruits and vegetables when properly pressed for shipment;

AND WHEREAS, Such an effort at reform should be carefully discussed at meetings of all horticultural or pomological societies, therefore be it

Resolved by this Society, That we recommend a united effort among fruit and vegetable dealers and growers in all the States, to adopt a uniform system of branding all fruit and vegetable barrels with their actual capacity in bushels, pecks, or quarts, or fractions thereof, dry measure.

Resolved, That we recommend that steps be taken in the legislatures of the several States to pass laws regulating this system of branding such packages to make it uniform in all the States.

Resolved, That we recommend the size of barrel to be used for shipping or selling apples, pears, quinces, oranges, potatoes, onions, sweet potatoes, and such large fruits or vegetables as are usually shipped or sold in barrels, to be the "flour barrel" size, viz: 17½ inch head, and 28½ inch stave, 20¼ inch bilge outside, and that this size of barrel be branded or marked upon the head "standard" or "flour barrel," and that we recommend all other sizes to be branded as fractional sizes, or with actual capacity in bushels or pecks and fractional parts thereof—dry measure.

Resolved, That we recommend the following sizes as being of sufficient variety to meet all the requirements of trade for shipping and selling peaches, pears, crab-apples, grapes, tomatoes, and such fruits and vegetables as are usually shipped and sold in boxes, or baskets, viz: 1 bushel box or basket, ½ bushel, 1 peck, 6 quarts, 4 quarts; and these sizes be plainly marked or branded with actual capacity.

Resolved, That we recommend for special boxes or baskets for shipping or selling grapes, the following sizes, viz: 5 lbs., 10 lbs., 15 lbs., and 20 lbs.; and that these sizes be generally adopted and plainly branded with capacity; and that in branding such with capacity in lbs., 50 cubic inches be estimated as equal to 1 lb. of capacity.

Resolved, That we recommend cases containing 12, 16, and 24 "full quart" boxes, or equivalent in "full pint" boxes for shipping and selling small berries, such as strawberries, raspberries, blackberries, etc., and that such cases be plainly marked or branded upon the end with number of such boxes contained therein, and "full quarts" or "full pints" also plainly marked or branded upon the end of such cases.

Resolved, That we invite the coöperation in this reform of all fruit and vegetable growers and dealers in the several States, and the manufacturers of barrels and fruit packages; and the discussion of this reform in all Horticultural or Pomological Societies in the several States.

Resolved, That the names of such manufacturers as will furnish packages marked in accordance with these resolutions and will help to carry out this reform be published with these resolutions and in the reports of this society for the next two years.

In the discussion of the resolutions there was a good deal of earnest argument, and sometimes the convention was not in the best of temper. After the adoption of the resolutions a member jocosely moved that the members of the Berrien County Horticultural Society before shipping any more short packages solemnly consider the action of this evening.

Mr. Tate suggested that members of the State society might well be included.

Adjourned to 9 o'clock Thursday morning.

Thursday Morning Session.

The morning session was opened by the reading of letters received by the Secretary from absent members.

A resolution was adopted instructing the Secretary to correspond with the new Commissioner of Agriculture and express to him the desire of the Michigan

Horticultural Society that Prof. Comstock be retained as government entomologist, inasmuch as he accomplished such excellent work for horticulture in his department.

The following resolution was unanimously adopted :

Resolved, That this society endorse the main features of the bill presented in our legislature by Representative Garfield, entitled "A bill to provide for marking the capacity on fruit packages," and that the President do now appoint a committee of three whose duty it shall be to do all in their power toward securing the passage of this bill or its equivalent by ordinance in the city of Chicago and by enactment in the State legislatures of Illinois and Michigan.

The President announced as such committee S. H. Comings, chairman ; A. R. Nowlend and Joseph Lannin.

The next topic taken up for discussion was

YELLOW S LEGISLATION.

Secretary Garfield was called upon to explain the work done by the present legislature. He spoke substantially as follows :

In dealing with a contagious disease, whether among men, animals, or plants, arbitrary measures must necessarily be taken. Men skilled in the law are very careful about making police regulations to enforce a law, and hence, heretofore, all legislation in regard to the disease known as the yellows has been so hedged about by provisions invented by men who knew nothing about the ravages of the disease, that the intent of the law has been well nigh neutralized. The South Haven people who have been most persistent in the enforcement of what has been termed the yellows law felt that unless some method could be taken to make more summary proceedings, the law would be of little avail, and still they feared any material innovation would be unavailing. They sent up a few slight amendments to the law which were introduced in form of a bill by Senator Ford of VanBuren. After consulting with Mr. Ford and the representatives from Berrien county, I concluded it would be best to build up an entirely new law that would meet the wants of the peach growers. I sat down to the work, and through the aid of kind friends who were more skilled in wording enactments than I, a short, direct law was drawn up. Those having charge of the senate bill kindly held it in abeyance until our bill should be discussed in the house. The committee on horticulture reported unanimously in its favor and it met with only good words on the part of the house. It was reported to the senate and was quickly passed by that body, and is now a law. As far as I have corresponded with peach growers concerning it I am satisfied it meets their approbation.

The following is the text of the law as it now stands :

SECTION 1. *The People of the State of Michigan enact*, That it shall be unlawful for any person to keep any peach, almond, apricot or nectarine tree infected with the contagious disease known as the yellows, or to offer for sale or shipment, or to sell or ship to others any of the fruit thereof; that both tree and fruit so infected shall be subject to destruction as public nuisances, as hereinafter provided, and no damages shall be awarded in any court in this State for entering upon premises and destroying such diseased trees and fruit, if done in accordance with the provisions of this act; and it shall be the duty of every citizen, as soon as he shall become aware of the existence of such disease in any tree or fruit owned by him, to forthwith destroy or cause the same to be destroyed.

SEC. 2. In any township in this State in which such contagious disease exists, or in which there is good reason to believe it exists, or danger may be justly apprehended of its introduction, as soon as such information becomes known to the town-

ship board or any member thereof, it shall be the duty of said board to appoint forthwith three competent freeholders of said township as commissioners, who shall hold office during the pleasure of said board, and such order of appointment and revocation shall be entered at large upon the township records.

SEC. 3. It shall be the duty of said commissioners, within ten days after appointment as aforesaid, to file their acceptance of the same with the clerk of said township and said clerk shall be *ex officio* clerk of said board of commissioners, and he shall keep a correct record of the proceedings of said board in a book to be provided for the purpose, and shall file and preserve all papers pertaining to the duties and actions of said commissioners, or either of them, which shall be a part of the records of said township.

SEC. 4. It shall be the duty of the commissioners, or any one of them, upon or without complaint, whenever it comes to their notice that the disease known as yellows exists or is supposed to exist within the limits of their township, to proceed without delay to examine the trees or fruit supposed to be infected, and if the disease is found to exist a distinguishing mark shall be placed upon the diseased trees and the owner notified personally, or by a written notice left at his usual place of residence, or, if the owner be a non-resident, by leaving the notice with the person in charge of the trees or fruit, or the person in whose possession said trees or fruit may be. The notice shall contain a simple statement of the facts as found to exist, with an order to effectually remove and destroy, by fire or otherwise, the trees so marked and designated within ten days, Sundays excepted, from the date of the service of the notice, and shall be signed by all the commissioners; and in case of fruit so infected, such notice shall require the person in whose possession or control it is found to immediately destroy the same or cause it to be done.

SEC. 5. Whenever any person shall refuse or neglect to comply with the order to remove and destroy the trees marked by the commissioners, as aforesaid, it becomes the duty of the commissioners to cause said trees to be removed and destroyed forthwith, employing all necessary aid for that purpose, the expense for such removal and destruction of trees to be a charge against the township; and for the purpose of said removal and destruction the said commissioners, their agents or workmen, shall have the right and power to enter upon any and all premises within their township.

SEC. 6. If any owner neglects to remove and destroy, or cause to be removed and destroyed, as aforesaid, such diseased trees or fruit after such examination and notification, and within the time hereinbefore specified, such person shall be deemed guilty of a misdemeanor, and punished by fine not exceeding one hundred dollars, or by imprisonment in the county jail not exceeding three months, or both, in the discretion of the court; and any justice of the peace of the township where such fruit is sold, shipped or disposed of, as aforesaid, shall have jurisdiction thereof.

SEC. 7. The commissioners shall be allowed for the services, under this act, two dollars for each full day and one dollar for each half day, and their other charges and disbursements, hereunder to be audited, as well as any other charges and disbursements under this act, by the township board, all of which costs, charges, expenses, and disbursements may be recovered by the township from the owner of said diseased fruit, or from the owner of the premises on which said diseased trees stood, in an action of assumpsit.

SEC. 8. Act number thirty-two of the session laws of Michigan for eighteen hundred and seventy-nine is hereby repealed.

Over an hour was taken up in the discussion of the yellows as a contagious disease, but no facts were elicited that cannot be found in the transactions of this society.

Mr. Morton gave a short history of fruit growing at Benton Harbor, and by vote of the society was requested to write out the same, which may appear upon a subsequent page of this volume.

The discussions of the morning were closed by a short account of some of the newer strawberries by President Lyon.

The society again repaired to Grange hall, where a bountiful repast had been provided by the ladies of the grange and others who assisted them in the enterprise. After dinner Mr. H. G. Reynolds, chairman of the committee on resolutions, made a very neat little speech recounting what had been done for

the comfort of visiting members, and thanking all who had so generously aided in making our visit a most agreeable and profitable one.

Before repairing to convention hall the following poem entitled

THE APPLE

was read by Mr. U. B. Webster, and very pleasantly closed the dinner hour.

A tribute to this fruit I bring,
 And tune my lyre its praise to sing.
 O'er all the earth, in cold or heat,
 There's nothing with it can compete;
 For every day throughout the year
 It greets the eye, and gives us cheer.
 From east to west, the world around,
 In every mart this fruit is found,
 And all the nations of the earth
 Appreciate its priceless worth.
 All undisputed and alone
 It sits a monarch on the throne,
 And all the other fruits give way
 And yield to its triumphal sway.
 To man it comes with blessings rife,
 And peerless as the "staff of life."

The peach may boast its luscious taste;
 The pear may sound her clarion notes;
 The plum may chant her worth in haste,
 And grapes in purple, ruby coats,
 And cherries sweet, and sour, too,
 And berries brought with studious care,
 Their virtues loud may sing to you,—
 But where are they? Oh, tell me! where?
 Oranges, from the tropics, call,
 And all the foreign fruits by sea;
 Go search the world—this fruitful ball,—
 And bring its choicest stores to me:
 My apple will the chieftain stand,
 A very king o'er all the band.

Then let us sing the apple's praise,
 And loud the song of triumph raise.
 Fall keepers from the cellar, we
 May place beside those from the tree.
 The Russet, picked by careful man,
 Extends its hand to Astrachan;
 Or noted Baldwin, kept by you,
 Says to the Primate, "How d'ye do?"
 The early Harvest, sour and sweet,
 Old Cooper's Market come to greet;
 While Rawles' Janet, though worthless here,
 In lower climes will keep a year.
 In "Old Kentucky," Missouri, too,
 Ben Davis heads the list for you.
 While down in Arkansas, 'tis said,
 They swear by that *Kentucky Red.
 Old Empire in her hand will bring
 That famous Tompkins County King,
 Or say to us, "'twill keep you nippin'"
 To beat our noted Newtown Pippin;
 And then for cooking, or an eater,
 Rhode Island brings in her "world beater;"
 This apple you will surely find
 Is known to all the woman kind,

* Kentucky Red is a local name for Ben Davis.

While Ortly, from New Jersey's limbs,
 Has twenty-seven synonyms.
 The "Blue Hen" also makes us hush,
 And holds aloft her "Maiden's Blush,"
 Whose name is most appropriate,
 And worth—we cannot overrate—
 Which in its season "leads the van;"
 Go try and beat it, if you can.

Our apple is a staple now.
 Like meat and grain, for foreign trade,
 And should you ask, I'll tell you how
 Its value thus to us was made.

And how, you ask, has this been done,—
 Such benefits to all who live—
 Such glorious results—how won?
 The answer, here, to-day we give:
 Progression is the word which tells,—
 The secret of the good we know:
 For earnest thought and action swells
 The list of blessings here below.

Afternoon Session.

President Lyon in opening the afternoon session called attention to the meeting of the American Pomological Society early in September and read the following enactment of the legislature providing an appropriation for the expense of an exhibit of Michigan horticultural products at that meeting:

Joint resolution to provide for the exhibition of the horticultural and pomological productions of this State at the exhibition of the American Pomological Society, to be held in Boston in 1881.

Resolved by the Senate and House of Representatives of the State of Michigan, That the Governor be and he is hereby empowered to provide for the collection and display of specimens of the horticultural and pomological productions of this State at the exhibition of the American Pomological Society to be held in the city of Boston during the autumn of the year eighteen hundred and eighty-one: and that the sum of one thousand dollars be and is hereby appropriated from the general fund for such purpose, to be expended under the direction of the Governor.

Mr. Lyon said a commission* would soon be appointed to take in charge the exhibit, and he hoped all interested in Michigan horticulture would lend a helping hand.

The Secretary announced that the annual fair would be held with the State Agricultural Society in Jackson, September 19, 20, 21, 22, and 23, and asked that there be a great exhibit of our fruits there.

The first topic for discussion in the afternoon was

STEPS TOWARD THE ORNAMENTATION OF SCHOOL GROUNDS.

Mr. W. W. Tracy was called out, and in a brief, pithy address spoke of the attention that people gave unwittingly to beautiful things. He said one-half the labor in the world is expended to please the eye. Wherever we go, in whatever place we may be we see the results of attempts to render something more comely and beautiful. But a very large measure of this labor and an immense amount of money are squandered in fruitless attempts at embellish-

*The commission named by the Governor were T. T. Lyon, South Haven; J. G. Ramsdell, Traverse City; W. J. Beal, Lansing; W. K. Gibson, Jackson; E. H. Scott, Ann Arbor.

ment. This is because people have no ideals of beauty. They never have been taught the principles upon which beauty rests. A person who is skilled in this direction always finds employment. There is a demand for his labor at a good remuneration. A single instance was given in illustration. A large dry goods firm in Detroit pays the man who arranges its show windows the highest salary paid in the whole establishment. People only get to be expert in this direction by long study and contact with beautiful things and tasteful combinations. In childhood is the time to develop appreciation of beauty through constant study of types of beauty.

Mr. Tracy called attention to the methods in which this kind of education was made to pay in the arts and mechanics, and said Americans were in advance of many other nations in the utilization of the beautiful. Children have an intuitive love of the beautiful and it requires but little exertion to train them in this direction. They delight in flowers, and we unconsciously associate sunshine, children, and flowers together. Here he gave some delightful illustrations from child life that had come under his observation showing how intensely interested children may become in the study of beautiful things and their combinations. He lastly called attention to the efforts of the society in awakening people to the importance of making school grounds attractive and getting the children interested in the development of the decorations in and about the school-house. He spoke at length of the offer made by D. M. Ferry & Co., in this direction, a full account of which will be found on a future page of this report.

Following Mr. Tracy's address Mrs. R. C. Tate read the following paper prepared by her husband, entitled

EXTERNAL EMBELLISHMENT OF RURAL HOMES, AND ITS REFINING INFLUENCES.

No home, no matter how poor and lowly, should be devoid of natural and artistic ornaments. Nor can a mansion be so grand in its internal embellishments as to make external ornamentation undesirable. The dwelling may be never so small and unpretentious,—if the surroundings are tastefully arranged and well taken care of, so that all interested will enjoy its beauty, then each will exclaim with the poet, "There's no place like home."

The great piles of stone, brick, lumber and mortar, when combined to form the edifice, do not make the home, no more than the flesh, the blood, and the bones when arranged as nature intended, make the man. In the latter case as in the former the soul is wanting. We must add to the structure the embodiments designed by our personal tastes, and these impart to it the spirit of life which emanates from the soul, and through our attachments and natural affections it becomes our home both in fact and in name.

Let us for a moment imagine that we are dealing with a structure yet without life, and see if we can devise a little simple embellishment that will make it attractive and home-like. If there are already any ornaments in the form of trees, shrubs, or flowers, let us first decide if they are such as will harmonize with the additional embellishments we are about to introduce; if not then remove them at once. If the ground around the dwelling has a rough and uneven surface let it be graded so as to make the descent from the front and either side as near equal as possible, at the same time removing all half-dead trees and unsightly objects that may be in the way. This done, the next thing is to lay out the walks, which should be of sufficient width to allow of two per-

sons walking abreast, without coming in contact with the borders on either side. And if, as is common, the gateway has been established directly in front of the main entrance to the dwelling, then draw a straight line from the center of the doorway to the corresponding center of the gate, and arrange your borders on either side of the line, so as to give a walk five or six feet wide. When the walk is completed to the front door, then let it gradually curve around the house to the rear entrance, to the well, the barn-yard, and the out-buildings. Lay the margins of the walks with good, solid turf, forming a green border at least three feet wide and about three inches above the level of the walks, and never plant shrub or flower within the limits of this margin. However, if the gateway can be arranged so as to enter a few rods to the right or left of the center, or both, the walks can then be arranged in a winding or serpentine form, which is in better taste, and admits of more artistic ornamentation.

Now that our walks have been provided for, let us see how we shall arrange our natural ornaments, which are trees, shrubs, and flowers. We will first plant the trees. These should be thrown to the two extreme boundaries of the right and left, but none directly in front of the dwelling, and should be allowed to extend around on either side past the dwelling to the vicinity of the barn-yard, which should invariably be in the rear of the house, and a reasonable distance therefrom. Never plant a tree so near the dwelling as to in after years prevent the free access of the sun's rays to every apartment occupied by the family.

The taller growing trees should be planted further from the center, and the smaller and slower growing varieties a little nearer. A few evergreens might be interspersed with good effect, but profuseness should be carefully avoided. To the right and left of the center, and near the tree line, neat little rustic bowers or arbors might be erected, and when thoroughly covered with Virginia creeper, wistaria, or clematis, become a desirable retreat from the scorching rays of the summer sun.

The more central portion of these grounds should be dotted over here and there with roses and such of the finer flowering shrubs as will bear careful and artistic pruning, and will not become unsightly by a superfluous growth of suckers. And at convenient distances from the walks a few neat and well arranged flower beds should be made a leading feature. It is from these that your daughters will take their early lessons in the refining study of natural beauties. In addition to these the porches might be adorned with climbing roses, ivy, and wistaria, and out-buildings and other unsightly objects transformed into things of beauty. This will impart to your dwelling both the spirit and the soul of refinement, and will not only be a source of pleasure to the family, but will attract the attention of the cultivated and refined as they pass. And when the spring comes the forest songsters will be attracted there, and gladden your homes with their sweet melodies.

Having taken you thus far in my course of embellishment, I will now introduce to you the home of Thomas Orderly, and see if we can there be instructed in the manner of taking care of our external surroundings. But here comes the farmer and his good wife on their way to the village. "Good afternoon, Mr. and Mrs. Orderly," say we. "A very good afternoon to you, young gentlemen," replies Mr. O., and a cordial shaking of hands follow, with "We are very glad to see you," and many more kind words from the great-hearted farmer and his wife, and an invitation to walk in and visit with the chickens who, he says, are just about to begin their Saturday afternoon scratching in the door-yard (the farmer frequently calls his boys and girls chickens, from their

custom of scraping around and picking up things, and of which he is justly proud). He says we may play overseers for an hour or two, while he drives Mrs. O. down to town to dispose of her butter and eggs, and make a few purchases for household requirements; with this the farmer drove away at a spanking rate, assuring us that he would be back soon.

But before entering, let us take a peep over the fence and see what the farmer's chickens are doing.

Yes, there is Harry, a fine, manly young fellow of eighteen; he has just set his line and now commences with a sharp spade to pare the edges of the border, while the two younger, Frank and Charlie, boys of fourteen and twelve, are taking turns about with a light-running lawn mower. How smooth and close they clip the grass. Why, it looks for all the world like a bed of green velvet. Note how carefully they run around the rose bushes and shrubs, and never even injure a leaf.

But look yonder, there indeed is a sight for a picture. The farmer's two blooming daughters; what a glorious picture, indeed. Rose, a prepossessing brunette just out of her teens, and Lillie, a piquant blonde, with bright golden hair and soft blue eyes, and a complexion partaking of the rose and the lily; she is sweet sixteen to-day, and the younger brothers, to mark the occasion, have bedecked her head, neck, and shoulders with the brightest flowers of the garden.

Rose has just mounted the step ladder and is in the act of tying up some climbing roses on the front of the veranda, while Lillie, with hand trowel and fork, is engaged in cultivating and weeding a bed of many colored tulips. And all appear happy and joyous, each having both a pride and a pleasure in the work they are performing.

But it is not good taste to be thus hiding ourselves when in such close proximity to others. Let us go in and enjoy all those beauties together. Every thing here seems to charm the senses—the trees are greener, the flowers smell sweeter, the birds sing more joyous, and everything seems to partake of the innocence of Eden.

We enter and are cordially received by the young ladies and the young gentlemen also, for be it known to you that the farmer's children are both ladies and gentlemen in the fullest sense of the term. With the farmer and his excellent wife no opportunity is lost to improve the mind as well as the farm. His whole labor is governed by system, and order drops into every department of his affairs.

His custom is to devote five days of the week to his regular farm labor, and when Saturday comes he and the boys take hoe, rake and wheelbarrow and repair to the vegetable garden, where the forenoon is spent in giving everything a thorough cultivation; weeds are then raked up and removed to the compost heap or manure pile. While this is being done Mrs. O. and the girls are attending to the duties of a weekly cleaning up; that is the whole house must be thoroughly swept and dusted, and dinner must be on the table at high twelve, and all are looking forward with pleasure to an afternoon out.

In the afternoon Mr. and Mrs. O. go to town, as we have seen, while the young folks attend to the cleaning up out of doors, that everything, themselves included, shall look their best on the Sabbath.

But as Harry has finished his borders we find him engaged with the hoe scraping off such weeds as may have presumed to show their heads in the walks, and the younger boys follow with rake and barrow to complete the work.

Rose and Lillie having tied up the climbers and with trowel and fork stirred

up the earth of the flower beds and around the rose bushes and shrubs, and clipped off here and there the straggling branches, now retire to the kitchen to prepare the evening meal, that supper may be ready when father and mother return. A few moments later and the farmer with his fine team of grays turns into the lane that leads to the barn-yard and stops near the house, where the boys are waiting to take charge of the horses. After they have alighted and the packages have been transferred from the wagon to the store-room, the farmer leads the way to the stables, where he exhibits with pride his fine horses, sleek and fat cattle, sheep and swine in perfection; then his chickens and turkeys, and last, but not least, his pigeons. In the latter he takes great delight, and says it takes a few of them to give life to a barn-yard.

After a delicious supper has been served, and an hour of social chat with the family, we take our leave with the promise to come again ere long.

And as we journey homeward we find ourselves propounding the following questions: Have we not seen to-day the real foundation from which springs the most ennobling characters of men and women? Is it not from this source that springs the greatest intellects of our age? Homes like the one we have just seen are the primary school rooms for presidents, judges, and men of the highest rank and attainments in our nation, and of women whose cultivation is both refined and practical, ever a center of social attraction, always trying to be useful and kind, ever pure and true.

Is it not true that such homes as we have described become so attractive to the young that the parental roof and the happy home of our early years have an influence for good on our whole life? Do not the lessons taught us then rise often to our aid at the most trying periods of our after years, often turning us from ways that are degrading, establishing us on the paths of uprightness and virtue, and becoming a bar to us from all evil? Does this not bring us in a closer sympathy with nature and a more thorough reliance on nature's God? It is through our knowledge of trees, shrubs and flowers that our minds are expanded to a wider range of thought, and a better understanding of nature and her laws. It develops the intellect, refines the character, and creates a higher standard of moral being.

But farmers often say such things are out of place in the country, and take up too much of the time that is required for work on the farm. But why out of place in the country? There is no place in the wide world where nature and art can be so effectively combined as in the country, or be made as attractive, and the occasional hours spent in this character of ornamentation may be well taken from those devoted to more unprofitable pursuits.

In conclusion let me suggest to those who have not begun this good work of adornment to try it for one season, devoting what would otherwise be hours of leisure to this especial purpose, and I will venture to say that nine out of every ten will long for the return of spring, that they may again enjoy an occasional hour in home embellishment.

Mr. Tate: We naturally associate children and flowers, and I believe we have a duty to perform in bringing more flowers about our school-houses where the children spend so much of their time. It gives pleasant employment out of school hours in the caring for them.

Mr. Comings: We have plenty of go-ahead spirit among our boys in America, but I note a lack of polish that only comes from connection with and appreciation of beautiful and tasteful things. Flowers and their culture add to the refinements of home everywhere, and I verily believe if more attention were given to these matters at the school-house its influence would extend

to the homes, and people who travel would not note that our young people are lacking in that courtesy which is concomitant with an intimate relationship with beautiful things.

Mr. Knisely described the appearance of the average country school yard bereft of everything attractive, and asked if it would not be a great leap to do very much with flowers. Had we not better get people interested to enclose the ground and plant a few trees, then gradually work toward a higher refinement which comes with the shrubs and flowers?

Mr. Lyon: It has long been a favorite idea with me that in every step of embellishment in and about the school-house the children should be partners in the work and be made to feel that the results belong to them.

Mrs. Shepard, Battle Creek: From a considerable experience as a teacher I can say that these things have a direct influence upon the conduct of the scholars. It is a work well worth doing for its immediate effects upon the discipline of the school.

Mrs. Winans, Benton Harbor: It pays to keep little people busy at something that interests them whether at home or at school, and my experience has been that ownership in the flowers, plants, or garden, whether at home or at school, stimulates to the best exertion.

Mr. Tate here gave an entertaining account of a visit to the children's department at Mrs. Winans' home.

Prof. Niz said that the embellishment of grounds was one of the important considerations in arranging for school buildings in Germany, France and Belgium, quite in contrast to our own country.

Mr. Nowlend: The log house may have about it the attributes that indicate the refinement within. We very properly guess the kind of people within a house by the appearance of the outside.

Mr. Lyon: Usually too little ground is laid apart for school purposes or for front yards.

Mr. Tate: There should be not less than an acre in a school lot, and even larger than this would be better. Do not try to hedge about the little ones too closely.

Prof. Merry spoke of the pleasant memories associated with beautiful school surroundings and fully endorsed the plan of having the children take a part in contributing to the embellishment of the school premises. He did not believe it was practicable to care for flowers with our present very proper arrangement of school terms.

Prof. Fassett spoke favorably of fine trees and a beautiful lawn, but thought we were treading upon dangerous ground when we attempted to bring about the school-house anything that required so much care as annual flowers.

Mrs. Shepard: I have seen beautiful results from the gathering of plants in pots for in-door and out-of-door decoration at the school-house.

Mr. Lyon: It is very difficult to work up an interest in these matters when there is so much apathy among the people.

Mrs. Winans: It seems to me that early spring flowering shrubs might be brought about the school-house which would require but little care and add a great deal to the attractiveness of the premises.

Mr. McClave: I believe we can have flowers about a school-house as well as about a home. It may not be best to try annuals at first but there are very many perennial, herbaceous plants that could be started and cared for that would bring great joy with each opening blossom.

Mr. Knisely gave a very beautiful chapter from his boyhood life in which he

spoke of the flowers and trees about the school-house that were cared for during vacation as at any other time in the year. A committee was selected by vote of the school who should have the honor of caring for the school grounds and a position upon that committee was a place sought after and lobbied for. There was no sense, he said, to the objections made to bringing flowers upon the school ground if only the proper method of caring for them was adopted.

The next topic was

VEGETABLES FOR CANNING PURPOSES.

Mr. Nowlend gave a little account of the growth of the canning business at Benton Harbor, and said now about 200 acres of tomatoes were grown for factory use which perhaps yielded 5,000 pounds per acre.

Mr. Thresher described some of the difficulties that beset the tomato grower. The cut-worm they circumvented by getting the waste from the basket factories and putting a circle about each plant. It was necessary to get up early in the morning to catch the natural enemy of the plant—the tomato worm—and when the larvæ get of some size a basketful may be gathered quickly. At \$8 per ton tomatoes pay a very fair profit. He further called attention to the growing of small cucumbers for pickles, and said it was a new and developing business with them. He took \$408 worth from about two and one-half acres in one season. Nowhere outside of Maine can sweet corn be grown of so good quality as on our shore. An establishment for canning it was once started here but failed from lack of experience. At Elgin, Illinois, there is a factory and they announce that our corn is the sweetest they get. He expressed surprise that canning corn was not taken up at St. Joseph, Benton Harbor, South Haven, and other points on our shore.

Mr. Tracy inquired how the growers obtained tomato plants.

Mr. Nowlend: Usually the plants used are greenhouse plants about six inches high. Some growers raise them, others get them by purchase. Sometimes 10 per cent are lost in transplanting, but not often more than five per cent.

Mr. Nickerson on being asked as to price of plants said hot-bed plants could be bought at \$1.25 per thousand and if transplanted into cold frames about \$4 per thousand. In planting out he said the plants should not be more than four inches above the ground. A quick way of planting is to furrow the land both ways and plant at the crossings. He said further, that a careful grower of his acquaintance took pains to water his plants as they were put out and made it pay.

Mr. Nowlend: What variety do you like best?

Mr. Nickerson: Canada Victor is the best variety we grow, but we have some seedlings that we like better than that.

Mr. Tracy: How about soil and fertility?

Mr. Nickerson: We do not manure much for tomatoes. New land is best. Soil that will pack in the road is desirable for tomato growing. This vegetable can be grown year after year upon the same land successfully. Ten dollars a ton is a good fair price for the fruit.

Mr. Tracy: Have you lost any from rot?

Mr. Nickerson: Yes, some years the rot troubles us badly.

Mr. Nowlend: As to the quality of our canned goods; is it enough to say that the government buys about all we have to sell?

Mr. Tracy: I have never raised tomatoes for canning, but as an amateur

have grown them as a sort of specialty. The secret in the growth of all plants that we have imported from a more tropical climate is to maintain a continuous growth with no check from the start. This is true of all cucurbitaceous plants like cucumbers, melons, squashes, etc., and the same is true with the tomato. My plan has always been to get small, stocky plants for transplanting. Experiments at the Agricultural College taught me that everything depends upon having no shock at the time of transplanting. The crop is doubled on plants that have no check in their growth. This is often illustrated by the enormous crop on self sown tomatoes. I start plants later than most market gardeners, and when they have first true leaves I plant out in shallow boxes about three inches apart and set in cold frames, exposing them to a good deal of air, thus getting stocky plants. Then at transplanting time the boxes are taken to the field, the earth cut into little squares so that each plant has a little ball to go with it. I have grown at the rate of 1,200 bushels to the acre and marketed them.

Mr. Knisely: What variety do you now prefer?

Mr. Tracy: Hundred-day and Essex Hybrid for general use and Trophy for great yield.

Mr. S. H. Comings made an appeal for the benefit of the Berrien County Horticultural Society, after which the Society listened to

REPORTS OF COMMITTEES.

Mr. Gulley, from Committee on Fruits, reported as follows:

The committee have examined the fruit on the table and find six plates of apples of the following varieties: A very fine plate of Jonathan, all perfect specimens; also King, Newtown Pippin, Dominic, Baldwin and Esopus Spitzburgh. All are fair specimens for the season. These are all from the orchard of W. K. Emmons, of Byron Center, Kent county.

R. C. Tate, of St. Joseph, the President of Berrien County Horticultural Society, presents three varieties of strawberries—Wilson's Albany, Monarch of the West and Cumberland Triumph. They are fine specimens, and clearly show the difference in quality of strawberries, but just as clearly show the reason for the Wilson standing so high as a shipping fruit from its color and firmness.

G. R. Odin, of Benton Harbor, exhibits a fine dish of Wilson's, also limbs of peaches of two varieties which show a good prospect for a crop of fruit. There are also on the table two dishes of strawberries that have no name from C. K. Bishop, and the committee are unable to identify them.

On the whole the display, although not large, is very creditable to the growers. Mr. Emmons is especially fortunate in being able to show such a display of apples in such perfect order at this season of the year.

All of which is submitted.

A. G. GULLEY, *Chairman.*

The following is the report of the committee on plants and flowers:

Your committee would report that they find a collection of plants which is of practical interest from the fact that they evidently came from the homes of their owners, and gave evidence of loving and skillful care. Among them we would especially notice a fine plant of *Agapanthus umbellatus* with two beautiful heads of bloom. We would strongly recommend this plant. In general culture it is of the easiest management, and its delicately beautiful flowers are

produced so early, and abundantly, and continue so long in condition, that it makes a most satisfactory return for all the care bestowed upon it.

We also noticed good specimens of *Farfugium grande* and *Ficus elastica* the latter with especially large and healthy leaves. There were also some fine plants of geranium, coleus, etc. There was also a profusion of cut flowers both from the garden and the field. A bunch of very perfect flowers of the water lily, which attracted much attention. All the flowers were most skillfully and artistically arranged, and made the stage strikingly beautiful. We hope the beautiful display here made by our friends from Benton Harbor and vicinity, without the aid of the professional florist, will tempt others to do more in ornamenting their homes.

WILL. W. TRACY,
MR. AND MRS. A. J. GOULD,
Committee.

The committee on resolutions reported as follows:

Mr. President and Members of the Michigan Horticultural Society:

Your committee on resolutions would respectfully recommend the adoption of the following:

Resolved, That it is with a great deal of pleasure that we express our obligations to our many good friends of Benton Harbor and St. Joseph, for the cordial reception they have extended to us as a society and as individuals, and for the numberless acts of kindness that have been extended to us on every hand, from the time of our arrival. It is an old saying, that the way to a man's heart is through his stomach, and when sitting at the tables loaded for our delectation, we have felt that our entertainers fully believed the old "saw." But as we return to this hall prepared for our assembly, we find that they know yet other approaches to the masculine heart, and that our ears were to be pleased with music delightfully rendered by skilled artists, and poetry suited to our aim and work; and our eyes were to be filled with views of flowers and evergreens in elegant profusion. It is hard to say who has done this, or to whom we are specially indebted, for it has seemed that every one we met was engaged in something to add to the pleasure of the meeting. Most especially do we owe our acknowledgments also for the very hearty manner in which we have been made welcome to the homes of our entertainers. We believe that these acknowledgments are more particularly due to the Berrien County Horticultural Society, the Benton Harbor Grange, the Glee club, and the friends that have cooperated with them, especially the ladies who have been so active in our behalf.

(Signed by the committee.)

H. G. REYNOLDS, Old Mission.
GEO. W. LAWTON, Lawton.
G. L. SEAVER, South Haven.

The report was adopted by a rising vote.

The various reports were accepted, adopted, and ordered printed in the minutes of this meeting.

The following resolution offered by Prof. Tracy was unanimously adopted:

Resolved, That a committee be appointed, of which the Secretary shall be chairman, to draft some suggestions of the best means to secure the ornamentation of school yards and to prepare a list of shrubs, herbaceous plants and annuals for this purpose and direction for their management, and in some way to get such report before the people.

The President announced that the annual meeting would be held at South Haven, and with the utmost good feeling the Society adjourned.

THE ANNUAL FAIR OF 1881.

GENERAL ARRANGEMENTS.

It was predicted by everybody who had any accurate knowledge of the fruit crop of Michigan for 1881, that the annual fruit show must be very meagre indeed. It is often remarked that during a year of scarcity one can count on finer specimens because the whole strength of the trees is used in perfecting a fraction of a crop. This remark never comes from one who has made exhibits of fruits at fairs for a series of years. He knows that although he may occasionally find monstrous specimens, still to get perfect samples he wants a year of plenty with a large crop from which to make selections.

Collectors for our autumn fairs of 1881 found it particularly difficult to secure good plates of fruit, but extra time was put into the work of collecting, and as a result the State Fair had a very creditable exhibit. It was remarked by a number of gentlemen upon the Executive Committee of the State Agricultural Society who have for years watched our exhibits, that we had every reason to be well satisfied with our part of the fair.

The fair was held in the city of Jackson, September 19th to 23d inclusive. Our society occupied the same hall that was given us several years ago when we last exhibited in Jackson. It is in a beautiful grove which gives it a cosy appearance from the outside but makes it very gloomy inside. However the Agricultural Society placed skylights in such positions as to give all the sunlight possible, and whitewashed the inside walls so as to diffuse all the light that entered the hall. The arrangement was understood to have been made in advance of the fair by which the plant exhibit was to be in main hall where there was good light and better space, but on account of the pressure for space by other departments it was found impossible to accommodate the plants there and the few that were shown were crowded into our hall with no preparation for them. Through the courtesy of Mr. D. W. Howard, Superintendent of Agricultural Product Department, space was made from his allotment for the amateur display of plants in pots, and by encroaching on the space given to special exhibits of fruits a space was given to the only professional exhibitor of greenhouse plants.

A large table in the center of the hall was given up to single plates of fruit, which, when arranged in place on Wednesday morning, made really the most tasteful show that we ever had in so limited a space. The table held above 350 eight-inch plates and was completely filled.

OFFICERS AND COMMITTEES.

Mr. N. Chilson, of Battle Creek, supervised the arrangements of the hall and acted as General Superintendent throughout the fair. In divisions A, B, C, and D, which included general collections of fruits and special exhibits of apples, Mr. C. R. Coryell, of Jonesville, officiated as department superintendent; E. F. Guild, of East Saginaw, took charge of the remainder of the special exhibits, comprising divisions E, F, G, and H; James Satterlee, of Greenville, was superintendent of single plate divisions J, K, L, M, and N; S. B. Mann, of Adrian, looked after the preserved, canned, pickled, and dried fruits and jellies; Mr. A. J. Gould, of Jackson, had oversight among the plants and flowers.

THE ENTRIES, AND EXHIBITORS.

There were above twelve hundred entries altogether,—two hundred more than in 1880. The following list comprises the exhibitors, and the postoffice address of each:

No.	Name.	Postoffice.	County.
1	Alford, Charles	Lamont	Ottawa.
2	Bankson, W. H.	Jackson	Jackson.
3	Brown, Alex.	Jackson	Jackson.
4	Blowers, J. M.	Lawrence	VanBuren.
5	Blair, Mrs. D. C.	Napoleon	Jackson.
6	Bidwell, H. E.	Plymouth	Wayne.
7	Benham, F. M.	Olivet	Eaton.
8	Bartlett, Mort. E.	Tompkins Center	Jackson.
9	Clark, Mrs. M. W.	Parma	Jackson.
10	Collar, Peter	Adrian	Lenawee.
11	Chapman, H. B.	Reading	Hillsdale.
12	Cooley, F. M.	Jackson	Jackson.
13	Clark, H. C.	Ann Arbor	Washtenaw.
14	Dilger, F. P.	Chicago	Illinois.
15	DePuy, Miss Minnie	Jackson	Jackson.
16	Dyckeman, Mabel	Jackson	Jackson.
17	Drew, Mrs. Jno. F.	Jackson	Jackson.
18	Doney, H. W.	Jackson	Jackson.
19	Emmons, Miss Hattie	Byron Center	Kent.
20	Engle, C.	Paw Paw	VanBuren.
21	Gibson, Mrs. W. K.	Jackson	Jackson.
22	Gulley, A. G.	South Haven	VanBuren.
23	Garver, D. L.	Hart	Oceana.
24	Helme, J. W.	Adrian	Lenawee.
25	Jewell, Thomas	Chelsea	Washtenaw.
26	Leonard, Miss Anna L.	Jackson	Jackson.
27	McClary, Mrs. A.	Galesburg	Kalamazoo.
28	Martin, James H.	Grand Rapids	Kent.
29	Murray, Mrs. John	Jackson	Jackson.
30	Nabors, L. E.	Flint	Genesee.
31	Osgood, J. L.	Erie	Monroe.
32	Overholt, Mrs. W. H.	Mason	Ingham.
33	Olds, A. A.	Decatur	VanBuren.
34	Prescott, Mrs. Geo. W.	Grand Rapids	Kent.
35	Perry, J. D.	Redford	Oakland.
36	Peck, J. N.	Jackson	Jackson.
37	Pierce, Mrs. P. E.	Jackson	Jackson.
38	Parsons, Philo	Detroit	Wayne.
39	Reynolds, E. H.	Monroe	Monroe.

No.	Name.	Postoffice.	County.
40	Ranney, Mrs. D. H.,	Jackson	Jackson.
41	Sigler, A.,	Adrian	Lenawee.
42	Sterling, Joseph M.,	Monroe	Monroe.
43	Smith, Henry,	Grand Rapids	Kent.
44	Shirts, E. J.,	Shelby	Oceana.
45	True, A. G.,	Jackson	Jackson.
46	True, Martin V.,	Jackson	Jackson.
47	Thomas, H. F.,	Jackson	Jackson.
48	Terpning, John	Addison	Lenawee.
49	Tanner, Mrs. Horace	Jackson	Jackson.
50	VanBrunt, Robert	St. Joseph	Berrien.
51	Ward, F. B.,	Sandstone	Jackson.
52	Wing, B. O.,	Leslie	Ingham.
53	Worden, Warren	Yorkshire Center	<i>New York.</i>
54	Woodward, J. S.,	Lockport	<i>New York.</i>
55	Webster, R. M.,	Armada	Macomb.
56	Young, Mrs. D. P.,	Liberty	Jackson.

It will be seen by the above table that two other States than our own were represented, and fruit shown from sixteen counties in our own State.

VIEWING COMMITTEES.

The Superintendent in each department was chairman of the viewing committee which made the awards in each division of his department. In first section, comprising divisions A, B, C and D, the committee were C. R. Coryell, Jonesville, chairman, assisted in division A by J. M. Blowers, Lawrence, A. A. Olds, Decatur, and Eli Bidelman, Lansing; in division B by A. G. Gulley, South Haven, and Will. W. Tracy, Detroit; in division C by C. Engle and R. W. Judd, Jackson; in division D by C. Engle, Paw Paw, S. W. Dorr, Manchester, and R. W. Judd, Parma.

In the second section, of divisions E, F, G and H, Mr. E. F. Guild was assisted by H. B. Chapman, of Reading, throughout, and by A. G. Gulley, of South Haven, except in division E.

Mr. James Satterlee was assisted in his divisions of J, K, L, M and N by S. S. Rockwell and R. T. McNaughton, of Jackson, and Henry G. Reynolds, of Grand Traverse.

In canned, preserved, pickled and dried fruits and jellies, Mr. S. B. Mann, of Adrian, was assisted by Mr. and Mrs. Robert Miller, of Battle Creek; Mrs. H. B. Chapman, Reading; Misses Chilson and Dickinson, of Battle Creek.

In division R, nursery stock, Mr. A. G. Gulley, of South Haven, and Chas. W. Garfield, of Grand Rapids, were the viewing committee.

Mr. and Mrs. A. J. Gould, of Jackson, and Will. W. Tracy, of Detroit, passed upon the plants and flowers.

LIST OF AWARDS MADE BY THE MICHIGAN STATE HORTICULTURAL SOCIETY AT THE FAIR OF 1881.

DIVISION A—GENERAL COLLECTION OF FAMILY FRUITS.

Class 1. Collection of fruits for family purposes, exhibited by society, grange or municipality. First premium, South Haven Pomological Society, by A. G. Gulley. Third premium, Eaton county, by F. M. Benham. The

rules require that each plate shall contain five specimens and that duplicate plates shall add no value to the exhibit, and because these regulations were not complied with Mr. Benham's collection could not take second premium.

Class 2. Collection of family fruits exhibited by grower. First premium, J. M. Blowers, Lawrence, Van Buren county. Second premium, A. G. Gulley, South Haven, Van Buren county. Third premium, E. H. Reynolds, Monroe.

Nomenclature. In this division the committee on nomenclature awarded one premium of \$10 to the collection by the South Haven Pomological Society.

DIVISION B—GENERAL COLLECTION MARKET FRUITS.

Class 1. Collection of market fruits for general purposes by society, grange or municipality. First premium, South Haven Pomological Society, by A. G. Gulley. Second premium, Oceana county, by E. J. Shirts, of Shelby. Third premium, Eaton county, F. M. Benham, Olivet.

Class 2. Collection of market fruits exhibited by grower. First premium, A. A. Olds, of Decatur; second premium, E. H. Reynolds, Monroe.

DIVISION C—SPECIAL EXHIBITS OF APPLES FOR GENERAL PURPOSES.

Class 1. Collection of apples for general purposes by society, grange or municipality. First premium, Jackson county, by H. F. Thomas, of Jackson. Second premium, Eaton county, by F. M. Benham, of Olivet.

Class 2. Collection of 25 varieties of apples for family purposes, exhibited by grower. First premium, J. M. Blowers, Lawrence, Van Buren county. Second premium, E. H. Reynolds, Monroe. Third premium, Charles Alford, Lamont, Ottawa county.

DIVISION D—SPECIAL EXHIBITS OF MARKET APPLES.

Class 1. Exhibit of 12 varieties of market apple by the grower. First premium, A. A. Olds, Decatur, Van Buren county. Second premium, J. M. Blowers, Lawrence, Van Buren county. Third premium, E. H. Reynolds, Monroe.

Class 2. Exhibit of six market apples by grower. First premium, Peter Collar, Adrian, Lenawee county. Second premium, A. A. Olds, Decatur. Third premium, J. M. Blowers, Lawrence.

Class 3. Single variety of market apple shown by grower, only one award. First premium given to the Baldwin exhibited by J. M. Blowers, of Lawrence.

Special premium. A discretionary premium of five dollars was awarded in this division to H. E. Bidwell, of Plymouth, for an exhibit of several varieties of apples grown in 1880. The specimens were in fine condition, and the premium was awarded with the express understanding that Mr. Bidwell furnish the society a written statement of his process of preserving the fruit.

DIVISION E—SPECIAL EXHIBITS OF PEACHES.

Class 1. Exhibit of not less than 12 varieties of peaches by grange, society or municipality. First premium, South Haven Pomological Society, by A. G. Gulley, of South Haven.

Class 2. Exhibit of 10 varieties of peaches by grower. First premium, A. G. Gulley, South Haven; second premium, E. J. Shirts, Shelby.

Class 3. Exhibit of 8 varieties of peaches for market by grower. First premium, A. G. Gulley, South Haven; second premium, E. J. Shirts, Shelby.

Class 4. Exhibit of 4 varieties of peaches for market by grower. First

premium, J. E. Sumner, Ann Arbor, Washtenaw county; second premium, A. G. Gulley, South Haven; third premium, Henry Smith, Grand Rapids.

Class 5. Exhibit of single variety of market peach by grower. First premium, A. G. Gulley, South Haven; second premium, Henry Smith, Grand Rapids.

DIVISION F—SPECIAL EXHIBITS OF PEARS.

Class 1. Exhibit of 12 varieties of pears for general purposes by society, grange or municipality. Second premium, Eaton county, by F. M. Benham, of Olivet. There was no first premium awarded in this class.

Class 2. Exhibit of 10 varieties of pears for general purposes by grower. First premium, E. H. Reynolds, Monroe; second premium, Peter Collar, Adrian; third premium, C. Engle, Paw Paw, Van Buren county.

Class 3. Exhibit of 6 varieties of pears for market by grower. First premium E. H. Reynolds, Monroe.

Class 4. Exhibit of 3 market pears by grower. First premium, Peter Collar, Adrian; second premium, H. W. Doney, Jackson; third premium, E. H. Reynolds, Monroe.

Class 5. Exhibit of single variety of pear for market by grower. First premium, Robert Van Brunt, St. Joseph, Berrien county; second premium, E. H. Reynolds, Monroe; third premium, Henry Smith, Grand Rapids.

DIVISION G—SPECIAL EXHIBITS OF PLUMS.

In this division there was no competition. Mr. E. J. Shirts, of Shelby, Oceana county, had an excellent show in every class of the division and was awarded first premium in each of the five classes.

DIVISION H—SPECIAL EXHIBITS OF GRAPES.

Class 2. Exhibit of 10 varieties of grapes for general purposes by grower. First premium, Joseph M. Sterling, Monroe; second premium, C. Engle, Paw Paw.

Class 3. Exhibit of 6 varieties of grapes for market purposes by grower. First premium, J. M. Sterling, Monroe.

Class 4. Exhibit of 3 varieties of grapes for market by grower. First premium, C. Engle, Paw Paw; second premium, J. M. Sterling, Monroe; third premium, Robert Van Brunt, St. Joseph.

Class 5. Exhibit of single variety of grape for market. First premium, Robert Van Brunt, St. Joseph; second premium, J. M. Sterling, Monroe.

Class 6. Exhibit of 5 varieties of foreign grapes by grower. First premium, A. Sigler, Adrian, Lenawee county. The second premium was also awarded to Mr. Sigler for another collection of different varieties.

Class 7. Single variety of foreign grapes grown under glass. First premium, A. Sigler, Adrian.

DIVISION J—APPLES—SINGLE PLATES.

This division was well filled with very fine fruit, and was the most attractive exhibit in the hall. The fact that the varieties were all arranged on a flat table in the center of the hall gave effect to the display.

Large Early Bough—First premium, James H. Martin, Grand Rapids; second premium, J. M. Blowers, Lawrence.

Early Joe—First premium, F. M. Benham, Olivet.

Maiden's Blush—First premium, Mrs. D. H. Ranney, Jackson; second premium, F. M. Benham, Olivet; third premium, Charles Alford, Lamont.

Porter—First premium, H. C. Clark, Ann Arbor; second premium, E. H. Reynolds, Monroe; third premium, Charles Alford, Lamont.

Keswick Codlin—Second premium, J. M. Blowers, Lawrence.

Twenty Ounce—First premium, J. M. Blowers, Lawrence; second premium, A. A. Olds, Decatur; third premium, Charles Alford, Lamont.

Chenango Strawberry—First premium, Charles Alford, Lamont; second premium, Robert Van Brunt, St. Joseph.

Hawley—First premium, H. F. Thomas, Jackson; second premium was awarded to the same exhibitor for a second plate.

Dyer—First premium, F. M. Benham, Olivet; second premium, Charles Alford, Lamont; third premium, F. M. Benham, Olivet.

Jersey Sweet—Second premium, J. M. Blowers, Lawrence.

Fall Pippin—First premium, A. A. Olds, Decatur; there were two second premiums awarded in this class, one to James H. Martin of Grand Rapids, and one to Peter Collar, Adrian.

Ohio Nonpareil—First premium, F. M. Benham, Olivet. The second premium was also given Mr. Benham.

Summer Pearmain—First premium, F. M. Benham, Olivet.

Autumn Swaar—First premium, H. F. Thomas, Jackson.

Duchess of Oldenburg—Second premium, E. J. Shirts, Shelby.

Peck's Pleasant—First premium, B. O. Wing, Leslie; second premium, F. M. Benham, Olivet; third premium, Charles Alford, Lamont.

Rhode Island Greening—First premium, Robert Van Brunt, St. Joseph; second premium, B. O. Wing, Leslie; third premium, James H. Martin, Grand Rapids.

Baldwin—First premium, J. M. Blowers, Lawrence; second premium, H. C. Clark, Ann Arbor; third premium, B. O. Wing, Leslie.

Red Canada—First premium, J. D. Perry, Redford; second premium, H. C. Clark, Ann Arbor; third premium, A. A. Olds, Decatur.

Golden Russet—First premium, Peter Collar, Adrian; second premium, Charles Alford, Lamont; third premium, Robert Van Brunt, St. Joseph.

Roxbury Russet—First premium, Charles Alford, Lamont; third premium, Robert Van Brunt, St. Joseph.

Wagener—First premium, J. M. Blowers, Lawrence; second premium, A. A. Olds, Decatur; third premium, E. J. Shirts, Shelby.

Northern Spy—First premium, B. O. Wing, Leslie; second premium, H. C. Clark, Ann Arbor; third premium, J. M. Blowers, Lawrence.

Belmont—First premium, John Terpning, Addison, Lenawee county; second premium, F. M. Benham, Olivet; third premium, A. A. Olds, Decatur.

Fameuse—First premium, F. M. Benham, Olivet; second premium, A. A. Olds, Decatur; third premium, J. M. Blowers, Lawrence.

Bailey's Sweet—First premium, A. A. Olds, Decatur.

Westfield Seek-no-Further—First premium, E. H. Reynolds, Monroe; second premium, J. D. Perry, Redford.

Hubbardston Nonsuch—First premium, H. F. Thomas, Jackson; second premium, A. A. Olds, Decatur; third premium, F. M. Benham, Olivet.

King of Tompkins County—First premium, E. J. Shirts, Shelby; second premium, J. M. Blowers, Lawrence; third premium, Robert Van Brunt, St. Joseph.

Yellow Bellflower—First premium, H. C. Clark, Ann Arbor; second premium, J. M. Blowers, Lawrence; third premium, James H. Martin, Grand Rapids.

Talman Sweet—First premium, F. M. Benham, Olivet; second premium, J. M. Blowers, Lawrence; third premium, E. H. Reynolds, Monroe.

Ladies' Sweet—First premium, F. M. Benham, Olivet.

Grimes' Golden—First premium, F. M. Benham, Olivet; second premium, H. F. Thomas, Jackson.

Swaar—First premium, F. M. Benham, Olivet; second premium, Charles Alford, Lamont; third premium, A. G. True, Jackson.

Esopus Spitzenburgh—First premium, Charles Alford, Lamont.

Melon—First premium, Charles Alford, Lamont; a first premium was also awarded to F. M. Benham in this class.

Jonathan—First premium, A. A. Olds, Decatur; second premium, J. M. Blowers, Lawrence; third premium, Charles Alford, Lamont.

Mother—First premium, Hattie Emmons, Byron Center, Kent county.

Mann—First premium, H. F. Thomas, Jackson.

Oakland County Seek-no-Further—First premium, H. F. Thomas, Jackson.

In class 54, which includes varieties not enumerated elsewhere, there were thirty-two entries. There were eight premiums awarded as follows: First to Dominic, shown by Miss Hattie Emmons, Byron Center, and to Blenheim Pippin, shown by J. D. Perry, of Bedford; second to Ben Davis, shown by F. M. Benham, Olivet, and Fallawater, shown by A. G. True, Jackson; also to Gillflower, shown by B. O. Wing, of Leslie; third to St. Lawrence, shown by E. J. Shirts, of Shelby, and to an apple not named in committee report shown by H. F. Thomas, Jackson; also to Cabashea, shown by John Terping, of Addison.

Transcendent Crab—Second premium, F. M. Benham, Olivet.

Hyslop Crab—First premium, A. A. Olds, Decatur.

DIVISION K—PEARS—SINGLE PLATES.

Bartlett—First premium, Philo Parsons, Detroit; second premium, Robert Van Brunt, St. Joseph; third premium, H. W. Doney, Jackson.

Buffum—First premium, Peter Collar, Adrian; second premium, J. W. Helme, Adrian; third premium, Charles Alford, Lamont.

Flemish Beauty—First premium, J. M. Sterling, Monroe; second premium, A. A. Olds, Decatur; third premium, Robert Van Brunt, St. Joseph.

Seckel—First premium, Philo Parsons, Detroit; second premium, Peter Collar, Adrian; third premium, A. A. Olds, Decatur.

Onondaga—First premium, J. M. Sterling, Monroe; second premium, E. H. Reynolds, Monroe; third premium, Mrs. D. H. Ranney, Jackson.

White Doyenné—First premium, Philo Parsons, Detroit; second premium, E. H. Reynolds, Monroe; third premium, Henry Smith, Grand Rapids.

Beurré d' Anjou—First premium, Philo Parsons, Detroit; second premium, Robert Van Brunt, St. Joseph; third premium, Peter Collar, Adrian.

Sheldon—First premium, Charles Alford, Lamont; second premium, J. W. Helme, Adrian; third premium, Philo Parsons, Detroit.

Fondante d' Automne—First premium, J. W. Helme, Adrian; second premium, F. M. Benham, Olivet.

Beurré Bosc—Second premium, F. M. Benham, Olivet.

Lawrence—First premium, C. Engle, Paw Paw; second premium, Peter Collar, Adrian.

Louise Bonne de Jersey—First premium, H. B. Chapman, Reading, Hillsdale county; second premium, E. H. Reynolds, Monroe; third premium, A. A. Olds, Decatur.

Duchesse d' Angouleme—First premium, Robert Van Brunt, St. Joseph; second premium, E. H. Reynolds, Monroe; third premium, Mrs. D. H. Ranney, Jackson.

Winter Nelis—First premium, J. W. Helme, Adrian.

Beurré Clairgeau—First premium, F. M. Benham, Olivet; second premium, E. H. Reynolds, Monroe.

Doyenné Boussock—First premium, C. Engle, Paw Paw.

Vicar—First premium, E. H. Reynolds, Monroe; second premium, H. F. Thomas, Jackson; third premium, Charles Alford, Lamont.

In class 30—any other variety not enumerated in the list—there were 12 entries. Howell, shown by H. B. Chapman, Reading, took first premium; variety not named in committee report, shown by J. W. Helme, of Adrian, received second premium, and a plate of Howell, shown by A. A. Olds, of Decatur, took third premium.

DIVISION L—PEACHES—SINGLE PLATES.

Snow's Orange—First premium, E. J. Shirts, Shelby.

Early Crawford—First premium, A. G. Gulley, South Haven.

Barnard—Second premium, E. J. Shirts, Shelby.

Old Mixon—First premium, A. G. Gulley, South Haven; second premium, Henry Smith, Grand Rapids; third premium, E. J. Shirts, Shelby.

Jacques Rareripe—First premium—A. G. Gulley, South Haven; second premium, Henry Smith Grand Rapids.

Late Crawford—First premium, Mrs. G. W. Prescott, Grand Rapids; second premium, J. E. Sumner, Ann Arbor; third premium, Henry Smith, Grand Rapids.

Hill's Chili—First premium, A. G. Gulley, South Haven; second premium, C. Engle, Paw Paw; third premium, Henry Smith, Grand Rapids.

Stump The World—First premium, Henry Smith, Grand Rapids; second premium, A. G. Gulley, South Haven; third premium, J. N. Peck, Jackson.

Susquehanna—First premium, E. J. Shirts, Shelby; second premium, A. G. Gulley, South Haven; third premium, J. E. Sumner Ann Arbor.

Smock—Second premium, A. G. Gulley, South Haven.

DIVISION M—GRAPES—SINGLE PLATES.

Concord—First premium, J. N. Peck, Jackson; second premiums were awarded to Robert Van Brunt, St. Joseph, and Mrs. D. H. Ranney, Jackson.

Delaware—First premium, J. N. Peck, Jackson; second premium, J. M. Sterling, Monroe; third premium, Robert Van Brunt, St. Joseph.

Ives'—First premium, C. Engle, Paw Paw.

Iona—First premium, Robert Van Brunt, St. Joseph.

Diana—First premium, Robert Van Brunt, St. Joseph.

Hartford Prolific—First premium, F. M. Benham, Olivet.

Martha—First premium, J. N. Peck, Jackson; second premium, Robert Van Brunt, St. Joseph; third premium, J. M. Sterling, Monroe.

Lady—First premium, Robert Van Brunt, St. Joseph.

Brighton—First premium, Robert Van Brunt, St. Joseph.

Worden—First premium, Robert Van Brunt, St. Joseph.

Agawam—First premium, Robert Van Brunt, St. Joseph; second premium, J. M. Sterling, Monroe.

Salem—First premium, Robert Van Brunt, St. Joseph.

Wilder—First premium, Robert Van Brunt, St. Joseph.

In class 19, which included varieties not elsewhere named, there was a large number of entries. Robert Van Brunt took first premium on Catawba; C. Engle took second premium on Catawba, and J. M. Sterling took third premium on Cooley Seedling.

F. M. Benham took a second premium in this division on cultivated cranberries.

DIVISION N—PLUMS—SINGLE PLATES.

Lombard—First premium, E. J. Shirts, Shelby.

Duane's Purple—First premium, E. J. Shirts, Shelby.

Yellow Egg—First premium, E. J. Shirts, Shelby.

Smith's Orleans—First premium, E. J. Shirts, Shelby.

Prince's Yellow Egg—Second premium, E. J. Shirts, Shelby.

Damson—First premium, E. J. Shirts, Shelby.

Bleeker's Gage—First premium, E. J. Shirts, Shelby.

General Hand—First premium, E. J. Shirts, Shelby.

Pond's Seedling (English)—Third premium, E. J. Shirts, Shelby.

Pond's Seedling (American)—Second premium, E. J. Shirts, Shelby.

Quinces—First premium, James H. Martin, Grand Rapids.

DIVISION O—DRIED FRUITS.

In this division there was the largest number of entries ever made at any previous exhibition.

Collection of domestic dried fruits—First premium, Miss Hattie Emmons, Byron Center; second premium, Mrs. A. McClary, Galesburg.

Dried Apples—First premium, Mrs. A. McClary, Galesburg; second premium, Mrs. A. McClary, Galesburg.

Dried Pears—First premium, Mrs. D. H. Ranney, Jackson; second premium, Mrs. G. W. Prescott, Grand Rapids.

Dried Peaches—First premium, Miss Hattie Emmons, Byron Center; second premium, Mrs. W. H. Overholt, Mason.

Dried Plums—First premium, Mrs. G. W. Prescott, Grand Rapids; second premium, Miss Hattie Emmons, Byron Center.

Dried Cherries—First premium, Mrs. W. H. Overholt, Mason; second premium, L. E. Nabors, Flint.

Dried Strawberries—First premium, Mrs. W. H. Overholt, Mason; second premium, Mrs. A. McClary, Galesburg.

Dried Raspberries—First premium, Mrs. A. McClary, Galesburg; second premium, L. E. Nabors, Flint.

Dried Blackberries—First premium, Mrs. G. W. Prescott, Grand Rapids; second premium, Mrs. A. McClary, Galesburg.

Dried Huckleberries—First premium, Miss Hattie Emmons, Byron Center; second premium, R. M. Webster, Armada.

Dried Quinces—First premium, L. E. Nabors, Flint; second premium, M. E. Bartlett, Tompkins Center.

Dried Currants—First premium, L. E. Nabors, Flint; second premium, Mrs. G. W. Prescott, Grand Rapids.

Dried Gooseberries—First premium, Mrs. G. W. Prescott, Grand Rapids; second premium, L. E. Nabors, Flint.

Dried Elderberries—First premium, Mrs. W. H. Overholt, Mason; second premium, M. E. Bartlett, Tompkins Center.

Dried Grapes—First premium, Mrs. W. H. Overholt, Mason; second premium, L. E. Nabors, Flint.

Dried Pumpkin—First premium, M. E. Bartlett, Tompkins Center.

Dried Pumpkin (stewed)—Second premium, Mrs. D. H. Ranney, Jackson.

Dried Pieplant—First premium, Mrs. A. McClary, Galesburg.

Dried Siberian Crabs—First premium, Mrs. A. McClary, Galesburg.

Dried Tomatoes—Second premium, Mrs. D. H. Ranney, Jackson.

Dried Corn—First premium, Mrs. D. H. Ranney, Jackson; second premium, M. E. Bartlett, Tompkins Center.

DIVISION P—CANNED AND PICKLED FRUIT.

In this division there were one hundred and seventy-five entries, one hundred and five more than last year.

Collection of canned and pickled fruits—First premium, Mrs. G. W. Prescott, Grand Rapids; second premium, J. W. Helme, Adrian.

Canned Apples—First premium, F. M. Cooley, Jackson; second premium, R. M. Webster, Armada.

Canned Pears—First premium, J. W. Helme, Adrian; second premium, Mrs. G. W. Prescott, Grand Rapids.

Canned Peaches—First premium, J. W. Helme, Adrian; second premium, Mrs. W. H. Overholt, Mason.

Canned Plums—First premium, L. E. Nabors, Flint; second premium, Mrs. W. H. Overholt, Mason.

Canned Cherries—First premium, Mrs. W. H. Overholt, Mason; second premium, Mrs. G. W. Prescott, Grand Rapids.

Canned Crab Apples—First premium, Mrs. G. W. Prescott, Grand Rapids; second premium, L. E. Nabors, Flint.

Canned Strawberries—First premium, Mrs. A. McClary, Galesburg; second premium, Mrs. W. H. Overholt, Mason.

Canned Raspberries—First premium, Mrs. W. H. Overholt, Mason; second premium, Mrs. M. W. Clark, Parma.

Canned Blackberries—First premium, Robert VanBrunt, St. Joseph; second premium, Mrs. G. W. Prescott, Grand Rapids.

Canned Huckleberries—First premium, Mrs. G. W. Prescott, Grand Rapids; second premium, Mrs. A. McClary, Galesburg.

Canned Quinces—First premium, J. W. Helme, Adrian; second premium, Mrs. G. W. Prescott, Grand Rapids.

Canned Gooseberries—First premium, Mrs. G. W. Prescott, Grand Rapids; second premium, Mrs. M. W. Clark, Parma.

Canned Currants—First premium, Mrs. G. W. Prescott, Grand Rapids; second premium, J. W. Helme, Adrian.

Canned Grapes—First premium, Mrs. G. W. Prescott, Grand Rapids; second premium, R. M. Webster, Armada.

Pickled Pears—First premium, Mrs. G. W. Prescott, Grand Rapids; second premium, J. W. Helme, Adrian.

Pickled Peaches—First premium, Mrs. G. W. Prescott, Grand Rapids; second premium, J. W. Helme, Adrian.

Pickled Apples—First premium, R. M. Webster, Armada; second premium, Miss Hattie Emmons, Byron Center.

Pickled Cherries—First premium, Mrs. G. W. Prescott, Grand Rapids; second premium, J. W. Helme, Adrian.

Pickled Cucumbers—First premium, Mrs. G. W. Prescott, Grand Rapids; second premium, Mrs. M. W. Clark, Parma.

Canned Corn—First premium, L. E. Nabors, Flint.

Canned Beans—Second premium, L. E. Nabors, Flint.

Canned Tomatoes—First premium, Mrs. M. W. Clark, Parma; second premium, L. E. Nabors, Flint; second premium, Miss Minnie De Puy, Jackson.

Canned Tomato Pickles—Second premium, Mrs. M. W. Clark, Parma.

Canned Pieplant—First premium, Mrs. M. W. Clark, Parma.

DIVISION Q—PRESERVED FRUITS AND JELLIES.

Collection Preserved Fruits and Jellies—First premium, Mrs. G. W. Prescott, Grand Rapids.

Cider Apple Sauce—First premium, J. W. Helme, Adrian; second premium, Mrs. W. H. Overholt, Mason.

Preserved Pears—First premium, Mrs. G. W. Prescott, Grand Rapids; second premium, J. W. Helme, Adrian.

Preserved Peaches—First premium, R. M. Webster, Armada; second premium, Mrs. D. C. Blair, Napoleon.

Preserved Plums—First premium, J. W. Helme, Adrian; second premium, R. M. Webster, Armada.

Preserved Cherries—First premium, Mrs. J. F. Drew, Jackson; second premium, R. M. Webster, Armada.

Preserved Strawberries—First premium, Mrs. M. W. Clark, Parma; first premium, Mrs. D. C. Blair, Napoleon.

Preserved Raspberries—First premium, R. M. Webster, Armada; second premium, Mrs. M. W. Clark, Parma.

Preserved Blackberries—First premium, J. W. Helme, Adrian; second premium, Mrs. G. W. Prescott, Grand Rapids.

Preserved Huckleberries—First premium, R. M. Webster, Armada; second premium, Mrs. G. W. Prescott, Grand Rapids.

Preserved Quinces—First premium, J. W. Helme, Adrian; second premium, R. M. Webster, Armada.

Preserved Currants—First premium, R. M. Webster, Armada; second premium, Mrs. M. W. Clark, Parma.

Collection of Jellies—First premium, R. M. Webster, Armada; second premium, J. W. Helme, Adrian.

Currant Jelly—First premium, M. V. True, Jackson; second premium, L. E. Nabors, Flint.

Apple Jelly—First premium, J. W. Helme, Adrian; second premium, L. E. Nabors, Flint.

Siberian Crab Jelly—First premium, J. W. Helme, Adrian; second premium, L. E. Nabors, Flint.

Grape Jelly—First premium, Mrs. G. W. Prescott, Grand Rapids; second premium, L. E. Nabors, Flint.

Raspberry Jelly—First premium, R. M. Webster, Armada; second premium, M. V. True, Jackson.

Blackberry Jelly—First premium, Mrs. G. W. Prescott, Grand Rapids; second premium, L. E. Nabors, Flint.

Quince Jelly—First premium, R. M. Webster, Armada; second premium, J. W. Helme, Adrian.

Gooseberry Jelly—First premium, L. E. Nabors, Flint; second premium, Mrs. G. W. Prescott, Grand Rapids.

Cherry Jelly—First premium, Mrs. W. H. Overholt, Mason.

Lemon Jelly—First premium, Mrs. G. W. Prescott, Grand Rapids.

Strawberry Jelly—Second premium, Mrs. A. McClary, Galesburg.

Apple Butter—First premium, Mrs. W. H. Overholt, Mason; second premium, R. M. Webster, Armada.

DIVISION R—NURSERY STOCK.

The only nursery stock on exhibition was shown by Mr. H. F. Thomas, of Jackson, who was awarded a life membership on his general collection; also a life membership on his ornamental stock.

DIVISION T—PLANTS IN POTS—PROFESSIONAL LIST.

Six Ferns—Second premium, Alex. Brown, Jackson.

Twenty Greenhouse and Stove Plants—Second premium, Alex. Brown, Jackson.

Six Begonias—Second premium, Alex. Brown, Jackson.

Six Double Flowering Geraniums—Second premium, Alex. Brown, Jackson.

Six Coleus—First premium, Alex. Brown, Jackson.

Specimen Foliage Begonia—First premium, Alex. Brown, Jackson.

Coleus—First premium, Alex. Brown, Jackson.

Fern—Second premium, Alex. Brown, Jackson.

DIVISION U—PLANTS IN POTS—AMATEUR LIST.

Twenty House Plants—Second premium, Mrs. W. K. Gibson, Jackson.

Six Ornamental Geraniums—Second premium, Mrs. W. K. Gibson, Jackson.

Six Single Flowering Geraniums—Second premium, Mrs. W. K. Gibson, Jackson.

Six Coleus—First premium, Mrs. W. K. Gibson, Jackson.

Six Carnations—First premium, Mrs. W. K. Gibson, Jackson.

Specimen Scented Leaved Geranium—First premium, Mrs. W. K. Gibson, Jackson.

Specimen Salvia—First premium, Mrs. John Murray, Jackson; second premium, Mrs. W. K. Gibson, Jackson.

Specimen Coleus—Second premium, Mrs. W. K. Gibson, Jackson.

Flowering Begonia—First premium, Mrs. W. K. Gibson, Jackson.

Carnation—First premium, Mrs. W. K. Gibson, Jackson.

Tuberose—First premium, Mrs. W. K. Gibson, Jackson.

Agapanthus—First premium, Mrs. John Murray, Jackson.

Plant not named—First premium, Mrs. W. K. Gibson, Jackson.

Cactus—First premium, Wm. H. Bankson, Jackson.

Climbing Plant on trellis—First premium, Nellie C. Jenkins, Jackson; second premium, Mrs. W. K. Gibson, Jackson.

DIVISION V—BEDDING PLANTS AND CUT FLOWERS.

Twelve Asters—First premium, Miss Nellie C. Jenkins, Jackson.

Twelve Pansies—First premium, Miss Nellie C. Jenkins, Jackson.

Twelve Zinnias—First premium, Henry Smith, Grand Rapids.

- Twelve Zinnias—Second premium, Mrs. W. K. Gibson, Jackson.
 Twelve Zinnias—Second premium, Mrs. Anna L. Leonard, Jackson.
 Twelve Balsams—First premium, Henry Smith, Grand Rapids.
 Twelve Petunias—First premium, Henry Smith, Grand Rapids.
 Twelve Coxcombs—First premium, Henry Smith, Grand Rapids.
 Twelve Roses—First premium, Henry Smith, Grand Rapids.
 Display Phlox Drummondii—First premium, Henry Smith, Grand Rapids.
 Antirrhinum—Second premium, Henry Smith, Grand Rapids.
 Pinks—First premium, Henry Smith, Grand Rapids.
 Portulaca—First premium, Henry Smith, Grand Rapids.
 Stocks—First premium, Henry Smith, Grand Rapids.
 Verbenas—First premium, Henry Smith, Grand Rapids.
 Chrysanthemums—Second premium, Henry Smith, Grand Rapids.

DIVISION W—BOUQUETS AND FLORAL DESIGNS.

- Pair Bouquets—Second premium, Mrs. John Murray, Jackson.
 Bouquet Grasses—First premium, F. P. Dilger, Chicago, Ill.
 Bouquets Everlastings—First premium, Mrs. Wm. Prentiss, Windsor, Canada; second premium, F. P. Dilger, Chicago, Ill.
 Collection Cut Flowers—First premium, Henry Smith, Grand Rapids.
 Bouquets, Flowers and Grasses—First premium, Mrs. Wm. Prentiss, Windsor, Canada; second premium, F. P. Dilger, Chicago, Ill.
 Fancy Basket Flowers—First premium, Mrs. W. K. Gibson, Jackson.
 Design for Center Table—First premium, Nellie C. Jenkins, Jackson.
 Display Everlastings—First premium, F. P. Dilger, Chicago, Ill.
 Display Ornamental Grasses—First premium, F. P. Dilger, Chicago, Ill.

MICHIGAN AND THE AMERICAN POMOLOGICAL SOCIETY.*

During the last session of the Michigan Legislature a joint resolution was passed making an appropriation of \$1,000 to be used in properly representing the State at the meeting of the American Pomological Society to be held in Boston, Massachusetts, the second week in September, 1881. In June Governor D. H. Jerome appointed a commission composed of five gentlemen, to gather such an exhibit of Michigan horticultural products as seemed best, and to be present as delegates at the meeting in Boston. The commission consisted of the following gentlemen: T. T. Lyon, South Haven; J. G. Ramsdell, Traverse City; Evert H. Scott, Ann Arbor; W. K. Gibson, Jackson; W. J. Beal, Lansing. Soon after their appointment the commission met in Kalamazoo and organized, electing T. T. Lyon President, W. J. Beal Secretary, and W. K. Gibson General Manager. President Lyon read the following in reference to the business of the meeting:

Particulars to be suggested to meeting of commissioners at session to occur at Kalamazoo, July 6, 1881, at 1 o'clock, P. M.:

1. A chairman with general oversight and power to direct.
2. A secretary with the usual powers.
3. Divide the State into districts for collection purposes.
4. Designate a collector for each with power to choose assistants, but with the suggestion to work preferably through local societies.
5. Collections to comprise as many varieties of creditable, well-grown, perfect, even-sized, well-colored fruits as practicable; late sorts may be taken even though lacking maturity and color.
6. Native wild fruits and nuts are specially desirable so far as they are susceptible of being attractively exhibited.
7. Collectors may properly be required to be guided in their collections by the instructions of the State Horticultural Society to its awarding committees "to consider 1st, the value of the varieties; 2d, the color, size and evenness of the specimens; 3d, their freedom from insect marks or other blemishes."
8. The American Pomological Society is understood not to encourage large collections, therefore if duplicates be sent it should only be for the purpose of exhibiting the results from variations of climate or soil or other special influences.
9. The utmost care should be had that everything be true to name, and that few if any large and showy, but worthless or indifferent varieties be sent.

* In the preparation of this article the Secretary is very largely indebted to papers written to the Michigan Farmer by President T. T. Lyon and a manuscript account furnished by Prof. Beal, Secretary of the commission.

10. To bring all the collections together, either in this State or at Boston, and "weed out" all unnecessary duplicates and all unworthy varieties or specimens before the final exhibit.

11. Learn from Secretary Manning how much space will be assigned to us, with its position and surroundings, and devise some adequate plan to arrange and ornament it as effectively as possible.

12. As far as can conveniently be done, allow localities, societies, and even individuals to associate their names with their exhibits.

13. As far as practicable at so remote a point employ any or all the horticultural products of the State (other than pomological), as means of increasing the attractiveness of the exhibit.

14. Since the State Horticultural Society, through its members, friends, and sympathizers, will doubtless be expected to do a large share of the volunteer labor of collecting, as well as to furnish the fruits and other contributions, it may very properly be accredited as the exhibitor for the State. If so, it should be invited to do what it reasonably can to aid the undertaking, and to contribute the use of its plates, clasps, and other fixtures for the exhibition.

15. Choose a finance committee of one or more persons, whose duty it shall be (under such instructions and limitations as the Governor shall deem it needful to impose), to advise, and where needful, limit expenditures; also to approve the vouchers therefor preparatory to their payment by the Secretary or on his warrant.

16. Take measures to learn whether part or the whole of the appropriation will be placed at the control of the commission, or the expenses paid by the State as they accrue and are audited, or whether the whole will be required to accrue and be audited and paid by the State as a single item.

17. Railroad passes to commissioners, reduced freight and express charges, as well as the privilege of paying such charges at the end of the route and as a whole, would immensely diminish the difficulty and expense of making the collections. Will the Governor take measures to secure to the commission if practicable, any or all these advantages?

Mr. Lyon also furnished some estimates of the way in which the appropriation made by the legislature should be used.

The following is an epitome of the proceedings at this meeting:

H. Dale Adams, Chairman of the General Fruit Committee of the American Pomological Society for Michigan, was invited to act with the commission as far as it seemed practicable. The State was districted and assigned to the commissioners as follows:

Prof. W. J. Beal, Northeastern Michigan; Evart H. Scott, Southeastern Michigan; T. T. Lyon, Southwestern Michigan; J. G. Ramsdell, Northwestern Michigan; W. K. Gibson, assisted by H. Dale Adams, Central Michigan.

Fruit and other material collected, except that of the most perishable nature, was directed to be sent to Lansing, to be assorted and re-packed under the direction of Mr. Lyon.

The President was authorized to issue circulars giving directions for collecting and forwarding fruit.

Mr. Gibson was given the duty of looking after reduced rates of transportation.

Secretary Garfield was requested to compile and publish a pamphlet on Michigan horticulture, for distribution at Boston.

The State Horticultural Society was asked for the loan of plates and clasps,

and Secretary Garfield was asked to secure appropriate cards for labeling the fruit.

Secretary Beal was instructed to immediately apply for space to exhibit at least 300 plates.

Soon after this meeting President Lyon suggested quite definitely what should be the limits of the territory assigned to each for collecting specimens for the exhibition.

The northeastern part of the State was to include the counties of Sanilac, Tuscola, Saginaw, and all north of them and east of the meridian of Mackinaw.

Professor Beal collected the following specimens, mostly in the district assigned him:

Sixteen species of wild fruits, nuts, etc., a bundle of wild rice, three fruits of *Monstera Deliciosa* from the greenhouse of the Agricultural college; fruit of paw paw, furnished by W. W. Reynolds, of Cassopolis; fruit of hickory, furnished by C. Sumner, of Lambertville. John Creyts of North Lansing, furnished him two sorts of crab apples; C. Goodwin of North Lansing, one sort of pear, and one of apples; Jason Nichols, of North Lansing, two sorts of pears and one of apples; George W. Phelps, of Okemos, three sorts of apples; Mr. Bray of Okemos, two sorts of apples; Professor A. J. Cook one sort of apple.

Professor A. J. Cook, aided by students of the Agricultural college, furnished eight cases of injurious and beneficial insects.

This northeastern district was not expected to furnish many specimens of choice fruit. Notwithstanding the season was unfavorable, many specimens were promised, and undoubtedly a fair proportion would have been furnished, but the great fire in this portion of the State turned the attention of people from the subject, and in some cases destroyed fruit which would have been sent.

The southeast division included the counties of St. Clair, Lapeer, Oakland, Washtenaw, Lenawee, Hillsdale, and all south and east of them, and was assigned to Mr. E. H. Scott. Mr. Scott selected from his own place twenty-one varieties of apples, thirteen of pears, four of peaches, and four of grapes. He picked up and purchased others; from J. D. Baldwin, Ann Arbor, he obtained one variety of apple; W. P. Grover, Northfield, seven varieties of apples; Judge Edwin Lawrence, Ann Arbor, one variety of pear; Prof. E. Baur, Ann Arbor, one variety of peach, four varieties of grapes, one variety of plum; A. D. McDonald, of Ann Arbor, seven varieties of grapes; Hugh O'Kane, Ann Arbor, two varieties of apples, two varieties of peaches; Dr. E. Wells, Ann Arbor, one variety of pear; J. A. Scott, Ann Arbor, seventeen varieties of apples, seven varieties of pears, one variety of peach; J. J. Parshall, Ann Arbor, four varieties of apples; C. H. Woodruff, Ann Arbor, two varieties of grapes; E. H. Reynolds, of Monroe, fourteen varieties of pears, five varieties of apples, two varieties of grapes; B. W. Steere, of Adrian, twenty-nine varieties of apples, eighteen varieties of pears—the largest and finest contribution from any single locality, with the possible exception of Judge Ramsdell's Traverse collection. A special beauty of this collection was the fact that the varieties were carefully and correctly named; and, with rare exceptions, all were free from blemish or imperfection.

The southwest section included the counties of Muskegon, Ottawa, Allegan, Van Buren, Berrien, Cass, St. Joseph, and Branch, and was the field assigned to T. T. Lyon. There were received from W. A. Brown, and through him from J. K. Bishop, of Millburg, Berrien county, thirty varieties of apples.

Mr. Geo. F. Comings, of St. Joseph, also sent apples and Howell pears. Mr. S. H. Comings also sent Seckel pears. Several parties are said to have sent specimens of grapes direct in care of the commission, at Boston. If so, no notice of them was received through the mail, and in the hurry of unpacking their identity was lost. Should such prove the fact, they can be hereafter acknowledged. It is the purpose of the commission to accord a credit to all contributors, whether their contributions became part of the actual exhibit or not.

A committee selected by the South Haven Pomological Society, for the purpose of making a collection for this object, from that vicinity, seem to have chosen to forego this purpose, and to devote their energies to the effort to win cash premiums at Chicago and Jackson instead. No collection whatever was received from there, save a peck basket of peaches, very nicely put up, by M. H. Bixby, to show his mode of packing this fruit for distant transportation; together with nine varieties of apples from L. H. Bailey, one variety from J. G. Ramsdell, and two varieties of pears from Hon. Geo. Hannahs.

The committee to collect for the Saugatuck and Douglas Pomological Society failed to send anything. The Allegan Pomological Society furnished a fine collection of peaches, together with thirteen varieties of apples, the contribution of J. H. Wetmore, of that place; also three varieties of peaches, from S. Rumery, of the neighboring town of Monterey.

C. A. Dutton, the president of the society at Holland, Ottawa county, sent a fine collection of fruits, including apples, peaches and grapes, mostly of his own growth, but partially contributed by others. A separate package, containing grapes contributed by Mr. DeVries, which came in later, was sent in a separate package.

Although the Muskegon Society had a committee charged with the duty of collecting fruits for this purpose, the only collection received from that place was a set of eight varieties of Rogers' Hybrid grapes, grown by S. B. Peck, and by him packed and expressed direct to Boston, where they arrived in good condition on the second day of the exhibition.

The northwest division included the counties of Oceana, Newaygo, Montcalm, and all north of them and west of the meridian of Mackinaw. This was assigned to J. G. Ramsdell. He collected from his own orchards 26 varieties of apples, 6 varieties of pears, 7 varieties of plums, 1 variety of nectarine, 3 varieties of peaches, and 3 varieties of cherries. His collection included a fine plate each of Golden Russet and Roxbury Russet, grown in 1880.

The central division included the region tributary to the Detroit, Grand Haven and Milwaukee railway and that tributary to the Michigan Central railway, with the intervening territory, omitting that included in other districts. This territory was assigned to W. K. Gibson, who was to be assisted by H. Dale Adams. No specimens were collected by either of these gentlemen.

Secretary C. W. Garfield, of the State Pomological Society, prepared a pamphlet called, "A Glimpse of Michigan Horticulture."

According to the plan previously adopted, the commissioners met at the room of the State Horticultural Society in the State capitol on Friday, September 9, and devoted two days to assorting and repacking fruits.

All of the commissioners left Jackson on Monday morning, the 12th of September, and attended the meeting in Boston.

The exhibition was held in the upper hall of the Massachusetts Horticultural Society, whose fruit and vegetable exhibit completely filled the spacious

lower hall, together with two of the five tables in the upper one, while their extensive display of plants and flowers occupied the spacious audience room of Music Hall—a block away, completely filling the main floor and the broad platform in front of the immense organ, which contributed its grand music to increase the interest of the occasion. A portion of the cut flowers, apparently lacking room below, was arranged in the front of the gallery.

The large size, careful training and perfect and varied foliage of these plants, together with their abundance and the beautiful arrangement of the whole, afforded a scene of beauty only possible with the aid of such wealthy and tasteful amateurs as few cities, aside from Boston, are able to supply, and which can rarely be excelled, except by the realization of the scenes of fairy-land, as depicted by the poets.

Michigan was assigned a prominent position, at the extremity of one of the central tables, at the end of which was displayed a large map of this State, prepared by Mr. Sherman, of the State Land Office, under the direction of Secretary Garfield, showing the various fruit-growing regions of the State, together with the locations and territory covered by our various Pomological and Horticultural Societies. This map at once became a prominent center of attraction, and proved the cause of innumerable questions, the answering of which drew largely upon the time of one or another of the commissioners.

At the request of the Commission, Secretary Garfield had also prepared a pamphlet of fourteen pages, entitled "A Glimpse of Michigan Horticulture," which was freely distributed to such as desired it. The entire edition of two thousand copies was exhausted long before the close of the exhibition.

The fruits from Southern and Central Michigan, embracing apples, pears, peaches, and a collection of wild, indigenous fruits and nuts were arranged together as a whole; those from Grand Traverse containing, in addition to the above, plums, nectarines, and cherries, were arranged separately, for the purpose of more distinctly showing the differences occasioned by climate, and at the same time illustrating the modifying and equalizing influence of our lacustrine surroundings, and demonstrating by the product shown, the northward trend in our State of the isothermal lines.

At Boston the Commission found Secretary Geo. W. Seaver, of the South Haven Pomological Society, and wife, also B. Hathaway and wife, of Cass county, who were accredited to the society as delegates from Michigan, and as such received its courtesies, which consisted in the freedom of its exhibitions and discussions, together with those of the Massachusetts Horticultural Society.

On Wednesday at 10 o'clock A. M. the society assembled at the Hawthorne Rooms, on Park street, and was called together by Marshal P. Wilder, who has been for 30 years its president. The attendance was large, including delegates from 30 States and territories.

The Michigan collection attracted a great deal of attention during the exhibition, and was in every way a credit to the State, although the commission felt that the collection was by no means what it might have been. The highest award provided by the Society—the Wilder silver medal—was given to Michigan for "the best miscellaneous collection of fruits composed of apples, pears, peaches, plums, grapes, wild fruits and nuts."

The exhibit from Michigan, as reported by the proper committee, consisted of 69 varieties of apples, 19 pears, 23 grapes, 6 peaches, and 21 of other fruits and nuts, including wild fruits, berries, etc. To these are to be added the exhibit from Grand Traverse, 44° 40' north latitude, comprising 26 varieties of

apples, 6 pears, 7 plums, 1 nectarine, 3 peaches, also two or three varieties of cherries, nearly all from the orchard of Judge Ramsdell. This exhibit also included a fine plate each of Golden Russet and Roxbury Russet, the growth of 1880. These, with the addition of the eight nicely put up and classified cases of insects from the State Agricultural College, and the "Glimpse of Michigan Horticulture," with the large illustrated map prepared by Secretary Garfield, conspired to constitute the Michigan exhibit, as characterized in the remarks of President Wilder "the glory of the show,"—a characterization largely due to the resolute exclusion of all blemished, wormy, defective, undersized, and excessively large but worthless specimens and varieties.

Probably one of the features of this exhibit which attracted more attention than almost any other was the collection by Prof. Beal, of the wild fruits and nuts already spoken of, and one of the still more singular and to us unaccountable circumstances connected with it was the fact that the curious exotic known as *Monstera diliciosa*, was almost always the first to attract the attention of visitors and arouse their curiosity to a pitch of persistent questioning such that one at least of the commissioners found the mass of queries more than a match for his patience and seriously tempted him to direct its removal from the table. And yet this infliction seems to have had in it a measure of fascination, since the notorious curiosity respecting it had the effect to induce Hovey & Co., of Boston, to introduce another exhibit of the same from their greenhouse at Cambridge.

The election of officers of the American Pomological Society resulted as follows: Marshall P. Wilder, of Boston, Mass., President, Patrick Barry, of Rochester, N. Y., First Vice President, with a vice president for each State, province, territory and district; Prof. W. J. Beal, of Lansing, Mich., Secretary; J. E. Mitchell, Philadelphia, Pa.; Geo. Thurber, N. Y.; J. F. C. Hyde, Mass.; P. J. Berckmans, Ga., and J. H. Masters, Nebraska, Executive Committee; Benjamin G. Smith, Boston, Mass., Treasurer. The committee on Revision of Catalogue, the general Fruit Committee, of one from each State, the Committee on Foreign Fruits, that on New Native Fruits, on Synonyms, and on Rejected Fruits were also announced. T. T. Lyon was continued as Vice President for Michigan and Chas. W. Garfield was named as member of general fruit committee from our State.

At one of the sessions Mr. Lyon, chairman of the Michigan commission, offered the following resolutions, which were adopted:

WHEREAS, The American Pomological Society recognizes the establishment of a correct and appropriate nomenclature as one of the first and most essential steps toward the general dissemination of correct pomological knowledge; and

WHEREAS, Our State and local agricultural, horticultural and pomological societies now are and seem likely ever to be, the chief means through which desirable improvements of this character are to be brought home to the great mass of our people; and,

WHEREAS, There is, at present, little apparent harmony of action on this subject on the part of such societies generally, so far as the naming, displaying and examination of the fruits, as well as the principles upon which awards should be made are concerned; and,

WHEREAS, Such lack of harmonious action may reasonably be, in a great measure, attributed to the want of a well digested and generally recognized set of ideas, principles, or rules of universal application, therefore,

Resolved, That a committee be appointed, charged with the duty of framing a set of such principles or rules, to be put forth and recommended by this society, for the adoption and use of all, whether individuals or societies, who may have to do with the naming, classifying, arranging, exhibiting or judging of fruits, including also the naming of new or newly-introduced varieties.

Resolved, That when such schedule of principles or rules shall have been framed and

adopted by this society, its committees shall be required to govern their action thereby; and that it be the special duty of the committee on native fruits to report any departure from such rules, in the nomenclature of native fruits, that shall come to their knowledge, in order that the society may be enabled to conform its own practice to the same.

Resolved, That measures be taken to give to the rules so adopted a wide publicity, accompanying the same with the suggestion to all societies and individuals, in charge of exhibitions of fruits, that they be embodied in the premium lists, and in the rules governing their exhibitions and awards.

Resolved, That in pursuance of such purpose, it be made the duty of the President of this society, at the opening of each biennial session, to appoint a committee on nomenclature, whose duty it shall be to supervise the nomenclature of fruits placed upon its tables for exhibition, and to correct the same whenever needful.

The committee appointed to fulfill the requirements of the resolutions consisted of T. T. Lyon, of Michigan, J. A. Warder, of Ohio, J. J. Thomas, of New York, C. M. Hovey, of Massachusetts, P. J. Berckmans, of Georgia.

The meeting closed with a grand banquet, given by the Massachusetts Horticultural Society in Music Hall. Inasmuch as this account is confined to what Michigan did for this great meeting of the pomologists of America, it may not be out of place to insert here at the close of it an abstract of the pleasant speech made by Hon. W. K. Gibson in responding for Michigan at the banquet. In substance it was as follows:

MR. PRESIDENT—I appreciate the honor of being called on to respond to a sentiment so complimentary to the State to which I belong.

At its last session the legislature of the State of Michigan, recognizing the importance of this meeting, directed the Governor to appoint commissioners to represent here the horticultural and fruit-growing interests of the State, and make an exhibition of its fruit. The display which you have deemed worthy of special notice, is inferior in appearance and quality to that we are usually able to make in more favorable seasons.

Mr. President, we do not feel as though we were strangers here. Among its early pioneers Michigan numbered many from New England, and there has entered into our growth as a State much of the sturdiness and integrity of character, and somewhat of the culture, characteristic of New England life.

The motto of our State is *Si Quæris Peninsulam Amœnam Circumspice*, and, sir, if you seek for a beautiful peninsula, look upon her as she lies almost surrounded by the waters of the northern lakes. Every variety of soil, every diversity of climate are hers. In the southern portion are patches of prairie, with hills and valleys, and rivers and lakes, while at the north the waters of Lake Superior break against a coast as rocky and wild as that of New England. Of the fertility of her soil and its adaptation to the raising of all kinds of fruit, you have evidence before you to-day. Within her borders are also vast forests of pine and also of hard woods, hardly equalled in variety by any State in the union.

From these forests, sir, within the past few days has gone up, as from a fiery furnace, a cry of suffering from destitute, homeless thousands, which touched the hearts of the east as well as the west, and which has met with such a generous response in this city.

Mr. President, it seems to me that the heart of this whole nation has grown very tender within the past few months. That bed of pain and suffering upon which the President has lain for so many weary days, watched over by a loving and heroic wife, has done more to awaken generous sympathy and bind together the different sections of the country than all the reconstruction acts

ever passed by Congress. There can be no enmity in our hearts towards those whose fervent prayers have mingled with our own for the President's recovery. And to Boston, whose heart is ever tender and responsive to suffering, let me express the thanks and gratitude of our whole State for the generous donations you are sending to relieve those made destitute by the recent forest fires.

Mr. President of the Massachusetts State Horticultural Society, allow me to say that this banquet is something more than a mere feast of good things. In this you have crowned and dignified what has preceded it. It comes naturally as a part of what we call the eternal fitness of things. For three days, sir, you have shown us the noblest fruits and the fairest flowers of your soil, and to-night, here in this room, we have had the pleasure of meeting the noblest fruits and flowers of your moral and intellectual culture. Our speaker has said this evening, quoting from Emerson, that much of truth goes floating about the world in popular proverbs. Doubtless this is true, and there is an old saying that every New Englander when he dies expects to go to Boston. Now if this be true, and it probably is, let me express the wish that each soul may go by the way of Michigan, and thus escaping purgatory, reach here through paradise.

The Secretary in compiling this record cannot but feel that altogether Michigan did herself credit at this meeting; and the State cannot spend money to better advantage than in showing to the people that gather at these great conventions what she can grow upon her fertile soil in her salubrious climate.

A GLIMPSE AT MICHIGAN HORTICULTURE.

A PAPER PREPARED AT THE REQUEST OF THE COMMISSION APPOINTED BY GOVERNOR JEROME TO REPRESENT MICHIGAN AT THE MEETING OF THE AMERICAN POMOLOGICAL SOCIETY, IN SEPTEMBER, 1881.

BY SECRETARY CHARLES W. GARFIELD.

When Father Marquette and his Jesuit brothers paddled around our beautiful peninsula over two hundred years ago dropping here and there a few apple and pear seeds along with the "seed of the word," they little dreamed of the great future that was indicated for Michigan in the thrifty growth of seedling fruit trees that were to spring up along their pathway. A few of these old trees, and some that were planted a few years later, are still found in various places on the shores of Erie, Huron and Lake Michigan; they are healthy and strong, bearing regular crops of fruit, monuments of the adaptability of our State to the cultivation of the apple and pear.

It was not until the discovery that peaches could be grown successfully, of the best quality, upon our western Michigan shore, that fruit-growing for market was given an impetus in the State. This was about 1840, and from that date until 1881 the development of fruit culture in our State is without a parallel. Facts have gradually been brought to light in the experience of orchardists that prove Michigan to be peculiarly adapted, on account of her climatic conditions, to a wide range of fruits, from the semi-tropical fig to the iron-clad Siberian crab.

This rapid development has been due to two causes: First, the influence of the great lake curves the isothermal lines well to the northward, so that a large area is rendered serviceable in the growth of the less hardy fruits; and second, in the rapid development of the Great West to which we are readily accessible, and in which these fruits can not be grown, we have a never failing market for all the surplus.

Lake Michigan is truly a "cherishing mother" to the orchardist. A body of water 360 miles in length and over 100 miles in breadth. It would float the three States of New Jersey, Delaware, and Maryland; and it is deep enough

almost any where to bury Mount Holyoke beneath its surface. With its 3,400 cubic miles of water in one basin, it maintains a very even temperature throughout the year; and this with the fact that about sixty-five per cent of our winter winds are westerly, gives the key to our peculiar success in horticulture. We grow peaches successfully along the 45th parallel which bounds Vermont on the north, and raise figs in the open air in latitude $42\frac{1}{2}^{\circ}$, about on a line with Boston, Massachusetts. It is true that this lake influence is not felt so largely in the interior as along the shore, still, in a large measure, the whole southern peninsula is modified in extremes of weather by this great equalizer. The fact that the western shore from St. Joseph northward to Grand Traverse is especially favored with immunity from frost has given rise to the term

MICHIGAN FRUIT BELT.

This is a strip of territory with a shadowy interior boundary in which peaches are grown with a smaller percentage of failures than elsewhere in the State. Within this belt there is great choice of location for purposes of peach culture, still the purchaser is not compelled to give the same relative importance to altitude that he would farther in the interior.

A very large percentage of the peaches grown in Michigan for shipment abroad, have been, until very recently, raised within the fruit belt; but from the high grounds in Kent, Kalamazoo, Hillsdale, Washtenaw, Lenawee, and other interior counties, large quantities have been shipped late years.

RAILROADS, WATER LINES, MARKETS.

Michigan is now threaded with lines of railroads; several trunk lines extend across the State from east to west, while others reach into the undeveloped but rapidly growing regions of the north. Thus the fruit-grower who wishes to reach the great markets, can readily do so; or if he desires to supply the pioneers and the lumbermen who are, as yet, without the luxury of good fruit, ample facilities are at hand. Not only this, but a great lake on either side gives abundant means, with easy carriage, of reaching great markets independent of the railroad systems. Immense quantities of fruit are shipped daily from the ports along Lake Michigan from St. Joseph to Traverse City, furnishing the great distributing market of Chicago with fresh fruit only twelve hours picked, each morning during the entire fruit season. It must be remembered also that as one traverses this shore for the 200 miles of the belt, he will find, in all the perishable fruits, there is no danger of disastrous competition in the markets, because of the variation in date of ripening; while the purchaser of these fruits in the markets reaps the benefit of an extended season for each variety.

SOILS.

In the whole of Michigan one can certainly find the exact character of soil he seeks, for every shade of variation seems to be represented. Mistaken notions have obtained, at different times, concerning the soil upon which Michigan peaches are grown; in truth the remark has often been made that "up in Michigan you grow peaches on your sandy land that will grow nothing else." We can assure people at the outset that good peaches are only grown upon good land. The fruit belt is not uniformly sandy, and is by no means poor land. Upon the blowing sands where dunes are formed, it is common to find the most

thrifty trees bearing luscious fruit in large quantity. Such land can not be poor. It is also true that in many localities heavy soil can be found immediately upon the shore. In the interior the best fruit lands are clay and sandy loams, and if the location pleases the purchaser, there is little doubt but he can obtain the quality of soil that will satisfy his taste.

The low lands, in many places in which vegetable matter predominates, are being utilized by the horticulturist and often are very valuable when fitted for market gardening or cranberry culture.

CHEAP LANDS.

The almost fabulous prices at which well developed fruit farms have exchanged hands in western Michigan have led many to believe that it requires a large investment to enter the realm of successful fruit culture. It is only in cases where orchards have come into successful bearing and are returning a large income that the lands command extravagant prices. The fruit region of Michigan is extensive, and only a small part of the land available for the production of even the more tender fruits has been improved. As good locations can be secured to-day at rates varying from ten to twenty-five dollars per acre, as those which have exchanged hands at from \$200 to \$1,000 dollars per acre after the plantations were in full bearing.

The three railroad corporations that have land-grants offer special inducements to settlers upon their lands, and there are cheap farms to be bought in every county in the State. Upon the "thumb" of Michigan, that peninsula made by the indenture of Saginaw Bay, there is every reason to believe peach-culture will become a specialty. The location is a very favorable one, the lands are accessible, and as yet not high priced.

Those who contemplate building homes in our State should give time to their selection. A few weeks spent in examination of locations and prices will, in the end, be money in the pocket.

It is impossible, in a short paper, to give much light concerning special localities, but by means of recent correspondence we have gathered some locality statements which will answer the questions that are most commonly asked.

MONROE COUNTY.

Monroe county is at the head of Lake Erie, and along its shores are the most extensive and successful vineyards in the State. In this county more grape wine is produced than in all the rest of the State. A large nursery interest centers at Monroe City, and excellent pears are grown which find a ready market, at high prices, in the large markets of Detroit and Toledo. Railroad and water communication makes this an exceptionally good point for the market horticulturist. The calcareous soil gives a higher quality to the grape than in most other places in the State. Wine makers give two or three cents more per pound for grapes grown on this lime soil than for the average grapes in the market.

BRANCH, HILLSDALE AND LENAWEE.

The above named counties raise excellent apples and pears, and upon the high lands peaches are grown nearly every year. These counties are upon a high level, and the streams flow rapidly, giving good land and atmospheric

drainage. This section is an old settled farming country in which all ordinary fruits do well. The inhabitants are cultured, and farmers' clubs, horticultural and agricultural societies flourish there; it is a region of pleasant homes.

ST. JOSEPH AND CASS.

This is the region of large farms, and horticulture is only an accompaniment of farm life, although in Cass county are several extensive orchards which are made very profitable. Notably one farm, that of B. G. Buell, of Little Prairie Ronde, produces the finest Northern Spy and Red Canada apples that go into the Chicago market.

BERRIEN.

A correspondent who is thoroughly acquainted with Berrien county remarks that "Nature evidently intended this region for a great fruit garden to supply the luxuries of the palate to the denizens of the western prairies." In this county dwell the pioneers of our commercial fruit growing, and here have been grown, within the last quarter century, peaches, pears, and small fruits that would rival any that have been placed in the world's markets. All that is needed is a proper label and the famous fruits of California can be obtained in Berrien county. Apricots, nectarines and figs are grown here, as well as the soft shelled almond. The growing of the tender raspberries and blackberries has long been a specialty here. Three thousand acres of strawberries are now in bearing. Chicago is the great market, but the surplus in times of a flush is readily worked up by canning and drying establishments which are at hand. An extensive cranberry interest is now building up upon the low lands about Stevensville which promises, on account of the safety from frosts, to rival any plantation in the west.

Berrien county is the southwest county in the State, has over 40 miles of lake coast, and aside from its admirable location has a variety of good land that can be purchased at fair prices.

A few statistics from past and recent shipments may indicate, better than anything else, the magnitude of the fruit interest in this county. The following tables were compiled by Mr. Merchant, of the St. Joseph Herald:

YEAR.	SHIPMENTS FROM.	Berries, bushels.	Peaches, baskets.	Grapes, baskets.	Packages fruit.
1862.....	Port of St. Joseph.....		30,000		
1863.....	" " ".....		110,000		
1864.....	No crop.				
1865.....	Port of St. Joseph.....		60,000		
1866.....	" " ".....		5,000		
1867.....	" " ".....	10,603	325,211	8,333	6,397
1868.....	" " ".....	13,551	481,134		

TOTAL SHIPMENTS FOR 1871-2.

YEAR.	SHIPMENTS FROM.	Straw-berries.	Rasp-berries.	Black-berries.	Peaches.	Pears.	Grapes.	Packa-ges fruit	Apples.
		Bushels.	Bushels.	Bushels.	Packages.	Baskets.	Baskets.		Barrels.
1869	Port of St. Joseph	19,851	10,521	23,272	700,812	-----	-----	8,807	28,846
1870	“ “	13,503	2,500	8,979	153,058	-----	-----	263	7,220
1871	Port of St. Joseph	8,724	11,536	24,092	141,224	5,000	-----	40,154	-----
	Benton Harbor	10,376			256,524	943	651	2,007	15,000
	Stevensville, Lin- coln, etc., (Fruit Train) -----	1,500	-----	-----	-----	-----	-----	-----	-----
	Total for 1871.	20,600	11,536	24,092	397,748	5,943	651	42,161	15,000
1872	St. Joseph, by boats, (Freight)	18,257	2,175	5,173	303,384	-----	-----	14,763	7,002
	St. Joseph, by boats, (Express)	-----	-----	-----	11,803	-----	-----	93	-----
	St. Joseph Fruit Train -----	-----	-----	-----	384	-----	-----	-----	-----
	St. Joseph Express Benton Harbor, boats, (Freight)	7,500	2,040	5,044	349,369	-----	-----	14,893	8,949
	Benton Harbor, Express -----	-----	-----	-----	22,000	-----	-----	-----	-----
	Benton Harbor, Fruit Train -----	-----	-----	-----	14,584	25	220	12	575
	Stevensville, Fruit Train -----	2,198	468	274½	8,567	977	1,090	1,361	-----
	Stevensville, Ex- press -----	-----	-----	-----	No report.	-----	-----	-----	-----
	Lincoln, Fruit Train -----	751½	352	293½	8,781	240	3,484	544½	65
	Lincoln, Express. Hagar, Fruit Train	464½	31	-----	20,056	39	335	87	-----
	“ Express -----	-----	-----	-----	2,625	-----	-----	-----	-----
	Riverside, Fruit Train -----	156½	1	2¾	13,834	2	48	133½	2
	Riverside Express	-----	-----	-----	293	-----	-----	-----	-----
	Coloma Fruit Train	-----	-----	-----	25,219	74	242	67	28
	“ Express -----	-----	-----	-----	2,500	200	200	-----	-----
Watervliet, Fruit Train -----	-----	-----	-----	9,518	151	62	34	12	
Watervliet Express	-----	-----	-----	1,649	4	17	-----	-----	
	Total for 1872.	29,327½	5,067	10,787¾	806,443	1,712	5,698	32,217	16,633

The statistics of fruit shipments from Berrien county from 1872 to 1878, have not been preserved. The area of production was gradually extended; the facilities for transportation afforded by fruit trains inducing more attention to fruit-growing along the line of the C. & W. M. R. R. north and south of St. Joseph. Through the courtesy of A. M. Nichols, general freight and passenger agent of this road, we have the following complete shipments to Chicago by fruit train during the past three years. This table gives the shipments from

sixteen stations in Berrien county, the large amount of fruit sent to Chicago from counties north of Berrien not being included:

YEAR.	Berries, ½ bushel packages.	Peaches, Grapes, etc., in baskets and boxes.	Apples in barrels.
1878.....	60,220	39,960	28,311
1879.....	74,707	27,595	9,186
1880.....	118,735	68,132	29,628

Hiram Brown, U. S. custom house officer for the port of St. Joseph, has furnished the following clearances of fruit, by lake, during the past three years:

YEAR.	Berries, crates.	Peaches and Grapes, baskets.	Apples, barrels.
1878.....	57,534	27,807	13,884
1879.....	57,949	78,299	10,535
1880.....	46,429	62,524	13,905

Benton Harbor shipped more fruit in 1880 than any other point in Michigan.

WAYNE AND WASHTENAW.

In Wayne county, about our metropolis, Detroit, the specialties are small fruits and market garden products. The soil is a rich dark loam, admirably suited to this work, and Detroit furnishes a good home market. Washtenaw has a "peach belt" of its own. Upon the high ground in this region peaches are almost as sure a crop as upon the western shore. Fruits of all kinds are grown for market here and at a good profit. The people are foremost in testing new varieties and take a great delight in the pleasures as well as profits of horticulture. There is scarcely anything but rich land in this county, and the situation of our great University and Normal School within its borders makes it an attractive place for people of education and good taste.

JACKSON, CALHOUN, KALAMAZOO.

These three counties in the same tier along the Michigan Central railroad are settled by people who pursue horticulture as an ornamental part of farming. As amateurs, they test new things and desire that their ventures may add to their information while furnishing pleasant surprises for the table. In the towns a good deal of attention is given to ornamental gardening. This is notably true of Kalamazoo, where good taste, added to a delightful location, renders this "largest village in the world" a delightful place in which to live. Kalamazoo is something of a nursery center, and small fruits, including grapes, are specialties with the horticulturists.

VAN BUREN.

This county borders on the lake; South Haven is its port. A large fruit-growing interest centers at South Haven where are located some of the finest

commercial growers in the State. At Lawton and Paw Paw, upon high lands, peaches and grapes are grown of especially fine quality. The growers here seek out markets a long way off and frequently ship the tender fruits to points in northern Minnesota and Dakota. The fruit-growers here were among the first in the State to note the special adaptability of elevated lands to fruit culture. They acted upon this knowledge and have reaped a rich reward. Cheap lands in good locations are still attainable at these points, but are being rapidly picked up.

The harbor at South Haven is an excellent one and daily boats run to Chicago during the fruit-shipping season.

ALLEGAN.

Allegan is the western county in the third tier. In the shore townships peaches are grown extensively, although it is a recent occupation with the inhabitants. They found their location to be a peculiarly good one and have been developing it rapidly. There are above 4,000 acres closely planted to fruit along the shore in this county, and although most of the orchards are young, still last year (1886) 800,000 baskets of peaches were exported and above 13,000 barrels of apples. Ten thousand packages of small fruits were sold the same season. People who have confidence in the locality and who are thrifty and observing, have settled here and are making this region one vast orchard.

In eastern Allegan two railroads cross from north to south giving excellent shipping facilities. Peaches are grown upon the heights successfully, and at Plainwell is centered a large strawberry interest. From this point immense quantities are shipped to the great markets.

INGHAM.

In this county are situated the State Capitol and the Agricultural College, and around these gather a class of inhabitants that take delight in the pleasures of horticulture. Lansing is destined to be a beautiful city. Tree planting and the embellishment of homes as evidences of the employment of horticultural knowledge interest the dwellers here. At the Agricultural College extensive experiments are performed which are calculated to interest the people of the entire State in a knowledge of methods in horticulture and the scientific information upon which they are based.

OAKLAND AND MACOMB.

In these counties are situated some of the oldest apple orchards in the State. The people of these counties can get up a creditable apple exhibit at almost any season of any year. A large apple orchard is the accompaniment of every farm, and it is usually made a very profitable accessory.

OTTAWA AND MUSKEGON.

These counties border Lake Michigan in its widest part, and each has an excellent port. From Grand Haven, in Ottawa county, there is a daily line of beautiful steamers to both Chicago and Milwaukee, the best fruit markets in the west, and the distributing markets for a vast interior. Opening into Grand River, and forming an unrivable harbor, is Spring Lake, a sheet of water of rare beauty, and along the banks of which are located scores of fruit farms, each one having its dock from which the shipments for each day can be picked up. The soil about western Ottawa is sandy, but is not devoid of fertility, and

muck and marl beds are common, which are vast savings banks to the fruit-grower upon which he can draw at will. This is certainly one of the most delightful places in the State for people to locate who have an appreciation of natural beauty and desire to combine the "art which mends nature" with nature herself. Peaches and grapes are the specialties on these fruit farms.

Muskegon lies just to the northward and is rapidly developing many large fruit farms. Small fruits are grown with great success, and for a market locality the growers seem to exhibit more than common interest in new sorts. A special inducement to settle about Muskegon is the pure water everywhere near the surface and the available cheap lands that can be secured.

HURON.

The county of Huron is peculiarly situated. A glance at the map will exhibit the fact that it has the longest shore line of any county in the State. Bounded on three sides by deep water, it is admirably situated as far as lake protection is concerned. The average winter temperature is that of Bloomington, Ill. From records furnished by Wm. L. Armstrong of Sand Beach, during the winter of 1880-1, when in southern Michigan we had some exceptionally severe weather, -10° was the lowest point the thermometer indicated in Huron county. Frost is unknown there in autumn until a month after it has visited the interior of southern Michigan.

This is a new county, but is destined to be one of the finest horticultural sections in the State. Its marketing facilities are such as to attract the commercial grower, and the salubrious climate adapted to so wide a range of varieties, will soon be found by the amateur growers.

THE SAGINAW VALLEY.

The country tributary to Saginaw and Bay City is not peculiarly adapted to any horticultural specialty, but is an admirable region for mixed husbandry in which the growth of all the hardy fruits, and all sorts of market garden products, should take a prominent place. With a rich soil, thrifty people, and a grand market which extends to the northern peninsula, there is no doubt but this is destined to be a wonderful country.

KENT.

It has been said by people accustomed to judge of such matters that Grand Rapids, the capital of Kent county, is better supplied with a variety of fresh vegetables and fruits than any city east or west. The display of horticultural products all along through the season is certainly a credit to the skill of the people engaged in horticulture in that region. Large peach orchards within twelve miles of the city are in full bearing this year (1881), even although the entire crop of the country is very meager. The State Horticultural Society had its beginning here, and its successful record is largely due to the people of this locality, who have contributed freely of their time and means to its up-building.

IONIA AND MONTCALM.

Lying east of Kent are the counties of Ionia and Montcalm. In the former are scattered some of the most enthusiastic fruit growers in this State. Situated too far from the lake to be immediately influenced by it, still upon the heights of ground even peach culture is successfully prosecuted. It is true of

the latter county that its northern limit is about the boundary of the successful culture of the less hardy varieties in the interior of the State; but a large population settling to the north furnishes an admirable market near at hand for all the surplus fruit of Montcalm.

OCEANA, MASON, MANISTEE, BENZIE.

These four counties lie along the Michigan shore next north of Muskegon. Each has its lake harbor, and, although less developed than any of the counties before named, still the growing of fruit has become a leading industry in many locations. The finest plums in the world are grown here. Intelligent growers are awakening to the possibilities of this region, and great fruit farms are being planted. A glance at the map will suffice to show that portions of Oceana and Mason counties extend well out into the lake, giving a water protection even when the wind is directly north or south.

In all this region frozen ground is unknown. A mantle of snow drops down upon the land before severe winter weather, and remains until the danger from frosts is over in the spring.

In Manistee and Benzie the fact is especially to be noted that the soil is calcareous in its nature, and the country abounds in pure springs from which the celebrated grayling are taken in abundance. Pure water, clear air, and rich soil, with a delightful climate, make this a famous region. The Pere Marquette Railroad taps Lake Michigan at Ludington in Mason county; the Chicago & West Michigan line reaches to Pentwater in Oceana, and will soon be extended farther north, while the completion of a road to Manistee is certain to be accomplished this season.

GRAND TRAVERSE.

The "Grand Traverse region" includes more than a county; by the term we mean the country about the large bay of that name. The waters of the great lake, the depth of the bay, and the large area of inland water tributary to the bay, render the climate of this country peculiarly mild. Favorable locations are absolutely protected from extremes of temperature. The minimum temperature in severe winters is 20° warmer than the most of the south half of the State. The bay is from 600 to 1,200 feet in depth, and acts as an immense refrigerator in spring, keeping back vegetation and fruit buds until all danger of frosts is over; and after becoming warmed up through the summer, acts as a huge warming-pan in preventing early fall frosts. The surface about northern Lake Michigan, Grand Traverse Bay, and the deep inland lakes, descends rapidly toward the water, affording ready and rapid atmospheric drainage. The soil is composed of glacial drift, abounding in all the elements of plant growth, and has perfect natural underdrainage. A layer of clay is usually within reach of tree roots, giving a good "bottom" for pear culture. By water this country has cheap freights to all lake ports and to Europe.

Apples, pears, plums, and cherries are the fruits for this region. The large fruits are noted for their exceptionally fine flavor and keeping qualities. Grand Traverse pears and cherries are famous in the great markets of the West, and the plums, which are superb, rarely can reach the large markets, for they have become so popular on the route.

The climate of this region is very healthful, and malarial diseases are scarcely known except as they are imported. The landscapes are of unsurpassed beauty, and although now through the direct communication of the Grand Rapids

& Indiana railroad it is a very popular summer resort, it is destined to become much more than this—a region of lovely, permanent homes.

THE EASTERN SHORE.

The eastern shore northward from Bay county to Cheboygan is a country in which all the superior varieties of apples, pears, plums, and cherries succeed. The fact that so large a territory toward the interior receives its supplies from these shore counties gives a valuable market near at hand for all the products of the farm, the garden, and the orchard. Thrifty, cultured people are settling in this region, and are developing its natural resources very rapidly.

ADDITIONAL STATISTICS.

Perhaps no clearer method can be taken to exhibit the general extent of the fruit business in western Michigan than the reproduction here of a table, furnished by the Chicago and West Michigan railroad, showing the shipments from points upon their line for 1880 south of Holland. This road runs a fruit train to Chicago throughout the season of shipments, and arranges conveniences for fruit growers at every point from which shipments are made.

Shipments of Fruit to Chicago via C. & W. M. R. R., May 31st, 1880, to Jan. 1st, 1881.

FROM.	Berries, ½ bushel packages.	Peaches, Grapes, etc., ½ bushel packages.	Apples in barrels.
Smith's Crossing.....	816	1,991	9
Town Line.....	1,781	5,137	1,446
Wilkinsons.....	3,053	3,438	997
Troy.....	3,581	1,016	1,796
Bridgeman.....	3,067½	247	287
Morris.....	78	-----	-----
Stevensville.....	50,265½	9,800	4,123
Lincoln.....	6,057	5,408	192
South Lincoln.....	17,875	7,476	361
Summit.....	6,999	4,533	929
St. Joseph.....	564	2,289	443
Benton Harbor.....	1,860	772	2,174
Hagar.....	4,465	5,132	669
Riverside.....	9,239	3,502	902
Coloma.....	6,704	10,319	8,875
Watervliet.....	2,330	6,072	6,625
Hartford.....	998	4,412	5,781
McDonald.....	46	2	1,159
Bangor.....	334	73,254	10,586
Breedsville.....	28	8,751	3,196
Grand Junction.....	445	597	120
Sherman.....	1,521	12,652	557
Fennville.....	2,120	198,947	5,510
Richmond.....	275	20,001	545
Holland.....	-----	15,735	323
Total.....	124,502	401,483	57,405

HORTICULTURAL ORGANIZATIONS.

The State Horticultural Society was organized in 1870, and is in a flourishing condition. Ten volumes of the transactions of this society have been published by the State, and it is largely due to the work of this society, and the liberality of the State in support of this work, that horticultural pursuits have been given such an impetus in the State. The State society is composed largely of auxiliary associations, which have sprung up in various places and do special locality work, an epitome of which is published in the annual volume of the State society. The following tabulated statement will give an idea of the horticultural societies of the State that unite together in a common endeavor to keep Michigan in the van of horticultural progress in America:

State Horticultural Societies and Branches.

NAME OF SOCIETY.	Date of organization	No. of members.	PRESIDENT.	P. O. ADDRESS.	SECRETARY.	P. O. ADDRESS.
Michigan State Horticultural Society	1870	*	T. T. Lyon..	So. Haven...	C. W. Garfield	G'd Rapids.
Berrien Co. Horticultural Society....	1880	60	R. C. Tate...	St. Joseph..	C. E. Reeves	Benton Harbor
Lawton Pomological Society.....	1875	25	N. H. Bitely	Lawton.....	C. D. Lawton	Lawton.
Allegan Co. Pomological Society.....	1879	40	Geo. T. Lay.	Allegan.....	E. C. Reid...	Allegan.
Saugatuck and Ganges Pom. Society..	1871	50	J. F. Taylor.	Douglas....	B. Markham	Saugatuck.
Holland Horticultural Society.....	1880	35	C. A. Dutton	Holland.....	I. Marsilje..	Holland.
Grand River Valley Hort. Society	1872	40	Wm. Rowe..	G'd Rapids..	W. N. Cook..	G'd Rapids.
Muskegon Co. Horticultural Society..	1880	40	S. B. Peck...	Muskegon ..	H. H. Holt..	Muskegon.
Oceana Co. Horticultural Society.....	1880	30	C. A. Sessions.	Sammons } Landing. }	— Canfield.	Pentwater.
Mason Co. Pomological Society.....	1880	40	F. J. Dowland	Ludington..	C. T. Sawyer	Ludington.
Benzie Co. Horticultural Society.....	1881	60	J. J. Hubbell	Benzonia....	J. W. Van } Dieman. }	Benzonia.
Colon and Mattison Pom. Society.....	1880	15	O. Tomlinson	Colon.....	J. H. Clements	Colon.
Bay Co. Horticultural Society	1881	40	B. F. Partridge	Bay City....	A. R. Wedthoff	Bay City.
Ingham Co. Horticultural Society....	1880	25	W. J. Beal..	Lansing	C. B. Stebbins.	Lansing.
South Boston Horticultural Society..	1880	25	D. H. English.	Lowell.....	J. D. Stannard	Lowell.
Woodland Horticultural Society.....	1880	20	Ira Stowell..	Woodland ..	E. Davenport.	Woodland.
Greenville Horticultural Society.....	1880	30	John Avery	Greenville..	J. E. Taylor	Otisco.
Washtenaw Co. Horticultural Society	1878	50	S. W. Dorr..	Manchester.	J. Ganzhorn.	Ann Arbor.
Adrian Horticultural Society.....	1851	25	J. W. Davis	Adrian.....	W. Owen....	Adrian.
Coldwater Horticultural Club.....	1877	20	G. W. Fisk..	Coldwater ..	J. D. W. Fisk	Coldwater.
Jackson Co. Horticultural Society....	1880	20	W. K. Gibson.	Jackson....	R. T. Mc. } Naughton. }	Jackson....

* Members of branch societies are all members of State Society. Aside from this the Society has 165 life members, and an annual list of 150 usually.

MICHIGAN FOR HOMES.

Any country that is especially adapted to horticultural pursuits is a good region in which to build a home; for the advantages which together render a region fit for successful fruit growing are those which one asks for when he

seeks a place in which to settle for life. The products of horticulture are the most delightful accompaniment of a home, and in the development of some branch of horticulture, no matter what the principal occupation may be, one gets a wholesome satisfaction that softens the years and renders life more enjoyable. Michigan presents to the home-seeker a great many advantages that appeal at once to the practical good sense of those who are seeking a place in which to build up a home. A recapitulation of these advantages may be given very briefly as follows:

Michigan is practically free from debt; her public institutions are her pride, and her educational system is commended by the best educators in the country.

The agricultural advantages for mixed husbandry are of the very best; the climate is not equaled by any northern State; the air is clear, the water pure, and the variations in temperature comparatively slight.

The landscapes are beautiful, and a wide range of fruits, plants, flowers and trees, that form the accompaniments of a well embellished home, can be grown successfully.

Delightful resorts are near at hand everywhere; and a refined and intelligent people make up her present population.

Michigan has a motto upon her coat of arms, *Si quæris peninsulam amœnam circumspice*: If you wish to see a beautiful peninsula, look about you. That is no flaming advertisement of exaggerated proportions, but is a simple introduction to those who enter our borders, the apparently complimentary language of which is found by every visitor to be a truthful statement.

The old derisive songs that told of ague, marshes, rattlesnakes, and wolverines as the natural products of Michigan are not sung any more; and none visit the peninsular State who do not go away with pleasant accounts of her climate, soil, productions, and people.

ORNAMENTING MICHIGAN SCHOOL GROUNDS.

AN EXPERIMENT.

For two years the State Horticultural Society has at its meetings discussed at some length the desirability of ornamenting school grounds. Excellent articles have appeared upon the pages of its publications upon the subject, and occasionally resolutions have been adopted looking toward some practical effort to do something. A committee was appointed to confer with the Department of Public Instruction, and a conference was held; the committee reported that the Superintendent of Public Instruction would enter the work and try to awaken some interest in the embellishment of rural school premises, but beyond verbal iterations there was actually nothing done until February, 1881, when Mr. Will W. Tracy, of Detroit, suggested that we confer with a firm of seedsmen and ascertain if a donation of seeds could not be secured under some arrangement by which, while doing a good work for our schools, the donors would lose nothing in the enterprise.

The executive committee at once adopted the idea and appointed two committees with authority to act promptly; one to seek the firm that would furnish the seeds and also to plan for their distribution; and a second to confer with Department of Instruction, asking that a circular be issued paving the way for the experiment. The second committee reported first, in substance that the Superintendent of Instruction would issue the circular and send it out directly. Up to the date of this writing no copies of the circular have been seen, however, by the State Horticultural Society. Mr. Tracy, of the above committee, after consulting with the Secretary of the society, at once went to work and soon completed a contract with D. M. Ferry & Co., the enterprising seedsmen, of Detroit, by which seeds should be furnished schools that might apply, under certain restrictions.

The following notice was sent to each newspaper in the State, with the circular which follows it:

LANSING, MICH., *March 15, 1881.*

Editor of ———

DEAR SIR—We send you the enclosed circular, and hope you will aid us in this work as you have always so willingly done in the past, by giving it a place or notice in your columns. We think there is no practical way by which the society can so readily awaken interest in the subject as in this, and Mr. H. K. White, of D. M. Ferry & Co., who is heartily interested in the work, will do all in his power to make the experiment a success, not only by seeing that the seeds are good and well selected, but that the accompanying directions are clear and ample. If the people can only

be interested in it, we are confident that the results will justify any attention you may give it.

Yours truly,
C. W. GARFIELD,
Secretary State Horticultural Society.

[Copy of circular.]

A WORD TO TEACHERS FROM THE STATE HORTICULTURAL SOCIETY.

The efforts of the State Horticultural Society to call attention to the importance of making our country school-houses and school yards more attractive, have led to the following generous proposition from the extensive and reliable seed house of D. M. Ferry & Co., who offer, as an aid in this work, to send free of all expense to the children of the first five school districts in each county of the State, whose teacher shall fill out and send them the accompanying application and certificate, a collection of 25 varieties of flower seeds, selected with reference to their adaptability and value for culture in school yards, and accompanied by especially prepared directions for their culture and management. The officers of the society are aware that they are met at the outset with the difficulty that many of our school-houses have no school yards, and are unenclosed; but is there not some one in such districts who will provide a temporary enclosure that their children may enjoy the benefits of this offer? We urge upon every lover of the beautiful, every parent, every well wisher of our State, to do all in their power to secure such result, believing, as we do, that it will tend to develop an appreciation and love of the beautiful, which will have a lasting influence for good on our children, and through them on the future of our State.

Blank applications containing the conditions on which the seeds are sent, may be had at the office of this paper.

T. T. LYON, Pres.

C. W. GARFIELD, Sec.

The following is the blank used for application referred to in above circular:

D. M. Ferry & Co.:

Please send us one of your school collections of flower seeds, which we agree shall be publicly presented to the scholars of school district No. township of in your name, and we will see that they are planted within the school yard of said district, in accordance with the directions accompanying them, and as far as possible by the children themselves. And we further agree that on or before November 1st, 1881, we will report to the Secretary of the State Horticultural Society at Grand Rapids, the result of the experiment, together with any suggestions we may be able to offer as to how to make our school yards more beautiful.

Teacher.

P. O. Address,

----- County.

I certify that ----- has been employed as teacher for the spring or summer term of 1881, in school district No. township of -----, and that we believe that ----- will endeavor to carry out the above agreement.

Director.

The following list comprises the teachers that availed themselves of the offer:

- Charles S. Hampton, Little Traverse, Emmet county.
- S. F. Kennedy, Lakeview, Montcalm county.
- Eva D. Coryell, Grand Rapids, box 407.
- Lydia S. Davis, Flint, Genesee county.
- W. A. Fallas, Cedar Springs, Kent county.
- B. G. Shoemaker, Reed City, Osceola county.
- Oscar H. Carus, Evart, Osceola county.
- Miss J. Baker, Pontiac, Oakland county.

S. G. Milner, Grand Rapids, 44 Ledyard block.
N. L. Narejan, Edmore, Montcalm county.
R. A. Culver, Burlington, Calhoun county.
Wm. H. Ernest, Crosswell, Sanilac county.
James F. Stout, Riverdale, Gratiot county.
H. P. Mowerson, Belle River, St. Clair county.
Miss C. Bloomberg, Grand Ledge, Eaton county.
C. E. Tuck, Coral, Montcalm county.
Edward Collins, Port Crescent, Huron county.
May L. Evarts, Big Rapids, Mecosta county.
Z. Garwood, Wapelee, Cass county.
C. H. Barbour, Cooper, Kalamazoo county.
D. P. Simmons, Mason, Ingham county.
Mrs. Kittie Short, Midland City, Midland county.
Joseph Watson, Coldwater, box 880.
Ella M. Hooper, South Lyon, Oakland county.
Miss Eva A. Bennett, Paint Creek, Washtenaw county.
Dora A. Donahue, Swartz Creek, Genesee county.
Frankie J. Gibbs, Big Beaver, Oakland county.
Laura Ginley, Coopersville, Ottawa county.
A. H. Coon, Bangor, Van Buren county.
C. F. Wood, Hesperia, Newaygo county.
Miss Eva C. Miner, Alba, Antrim county.
Grace E. Bradley, Bridgeman, Berrien county.
Wm. O. Butter, Port Crescent, Huron county.
Miss A. M. Jacobs, Meade, Macomb county.
E. R. Cornell, Benton Harbor, Berrien county.
Flora B. Annis, Burr Oak, St. Joseph county.
Miss Georgia Lillie, Kalamazoo, box 1127.
Wm. Highfield, Cass City, Tuscola county.
F. G. Miller, Lawrence, Van Buren county.
Wm. Warner, Vermontville, Eaton county.
Edna Parks, Birmingham, Oakland county.
Miss L. I. Porter, Allegan, Allegan county.
Phœbe Ernsberger, Watervliet, Berrien county.
Emily E. Royce, Byron, Shiawassee county.
A. Kingston, Irvington, Van Buren county.
A. C. Reed, Springville, Lenawee county.
L. McKay, Strickland, Isabella county.
Jennie Means, Birmingham Oakland county.
Florence N. Kent, South Riley, Clinton county.
R. M. Ayars, Litchfield, Hillsdale county.
Susan Crisman, Romeo, Macomb county.
Geo. A. Woodard, Linden, Genesee county.
Etta Poff, Marshall, Calhoun county.
Florence Wyllis, Moscow, Hillsdale county.
Miss Grace Taylor, Bronson, Branch county.
Mary Weaver, Springwells, Detroit, Indian ave.
Mrs. E. E. Hains, Howell, Livingston county.
Emily Roth, Almont, Lapeer county.
Miss M. A. Palmer, Montgomery, Hillsdale county.
Miss F. Wilson, Marilla, Manistee county.
Miss D. Fry, Howard City, Montcalm county.
O. B. Thurston, Berryville, Otsego county.
Guy C. Parkis, Marshall, Calhoun county.
Miss M. Schlegeemilch, Port Creseent, Huron County.
Eva Sturgis, Hope, Midland county.
Mary C. Chappell, Gilford, Tuscola county.
Helen D. Kearns, Wyandotte, Wayne county.
Alfred J. McClatchie, Ludington, Mason county.
Miss B. Doherty, Clare, Clare county.
Miss M. McLaughlin, Watson Corners, Allegan county.
Miss R. C. Sweat, Linden Genesee county.
M. L. Blair, Litchfield, Hillsdale county.
Miss E. L. Streeter, Jeddo, St. Clair county.
Miss Eva B. Huggett, Camden Center, Hillsdale county.

Alice Thompson, Gaylord, Otsego county.
 Yevia Wadsworth, Blissfield, Lenawee county.
 Jennie F. Hay, Soule, Huron county.
 Miss H. DesJardins, Pillion, Huron county.
 Miss A. Sergeants, Napoleon, Jackson county.
 Geo. M. Mackay, Capac, St. Clair county.
 C. P. Reynolds, Greenbush district No. 1.

These carefully prepared directions accompanied each package of seeds :

DIRECTIONS FOR CULTURE.

Read carefully all of the following directions, before doing anything, and the special cultural directions for each variety again immediately before planting it.

Do not undertake too much; better have a bed 2 feet by 4 under one window, well cared for, than half the yard poorly tended.

Locating the Beds.

Do not locate your flower beds so as to interfere with the play-ground. Unless your yard is very large it will be best to confine them to narrow, rectangular beds, along the sides of the building or along the side or front fences. Be sure and leave ample room for the children to crowd out *en masse* without trampling on the flowers.

Carefully study the catalogue sent with the seeds, and locate your plants according to their height, so that they will not hide each other, and so that the different colors will show to advantage. The catalogue and these directions *should be kept in the school-house* for constant reference.

Preparation of the Ground.

If the spot selected is close turf, spade it up carefully, *inverting* each spadeful so that the grass is left at the bottom. If there is no sod, or but very little, cover the surface with a coat of fine stable manure, varying in depth in different parts from one to five inches. Then spade as before, but *mix the manure through the soil*, not leaving it in a mass at the bottom. In either case after spading, cover the surface with *very fine* well rotted manure, and hoe or rake it in so that it will be well mixed with the upper two inches of soil. If fine, well-rotted manure is not procurable, substitute that from hen roosts, using a less quantity, taking great care that it does not remain in large masses, but is well distributed through the soil.

Remember that your success will depend quite largely upon the amount of manure and the thoroughness of the preparation.

Sowing the Seed.

Do not plant any of the seeds when the ground is wet. Make the surface as fine and smooth as possible.

Cover each sort of seed to a depth proportionate to its size. The finest, like portulaca, not more than $\frac{1}{4}$ inch deep, those the size of a pin head, $\frac{1}{2}$ inch, and those as big as a pea 1 inch.

Press the soil down firmly over the seed. After making the soil as fine as possible with a rake, make it, for the smaller seeds still finer, by crumbling the lumps up in the hands.

Procure a bit of lath (it would be better if planed smooth) about 2 feet long, press the edge down into the soil evenly, so as to make a groove as deep as the seed is to be planted, scatter the seed along this, allowing 4 or 5 of the larger to 15 or 20 of the smaller seeds to the space one plant is to occupy when grown. *Take care not to spill any of the seeds between the rows.* Cover the seed by pinching the earth together over it, then turn your lath flatwise, and *press the soil down firmly and evenly.*

Put a little stick at *each end of each row*, so as to mark it, then *pull up all weeds* that appear between the rows *the first day they can be seen.* Do not pull plants out of the row unless you are sure they are weeds.

Cultivation.

Follow the culture directions given under each variety, but observe this general rule; never stir the ground when it is wet, or when *the plants* are wet from dew. This applies to the first spading as well.

Allyssum.

Select a spot where it will be dry and *not shaded.* Sow as early as you can get the ground ready. Plant in rows 8 inches apart, and thin to 4 inches in the row. If

small black flies eat the plants, sprinkle when wet with dew with a mixture of $\frac{3}{4}$ dry fine road-dust and $\frac{1}{4}$ soot.

Amaranthus.

Select your poorest ground, but in full sunlight. Sow when they are *through* planting corn, in rows 16 inches apart, and thin to 3 inches in the row, and later cut out the poor plants so as to leave the rest about 16 inches apart each way. When nearly full grown press a spade down on 3 sides of each plant, and 8 inches from it, so as to cut the roots; this will make them color better.

Asters.

Select the richest soil, and spade it as deep as possible. Plant when they are planting corn, in rows 12 inches apart, and *transplant* when they have six leaves so that they will stand 12 inches apart each way. *Stir the ground frequently* up to the time the buds are half grown, *but not later*. Just before blooming cover the space between the plants with coarse manure. The richer the ground and the more the cultivation the better the flowers.

Batchelor's Button.

Sow at corn planting in rows 8 inches apart, and thin to 8 inches in the row.

Balsam.

The richer the soil the better the flowers. Plant when the corn in the fields is just coming up, in rows 15 inches apart, dropping the seeds 4 inches apart. When the plants have 4 leaves, *transplant* so as to leave them 16 inches apart. Pinch off all the side branches from *every other plant*, as fast as they appear.

Candytuft.

Sow a part of the seed on poor soil, as early as possible, and the rest on richer soil two weeks later. The first will give early flowers, the second larger and later. It does well mixed with mignonette.

Castor Bean.

The plants grow very large and had better not be planted in the beds, unless they are quite large. Make a very rich spot each side of the gate or door, or in one corner of the yard, and plant there, but not until corn is 4 inches high.

Cockscomb.

Plant and treat like amaranthus, except that they should be *on rich soil*, and may be only 12 inches apart.

Cypress Vine.

Fasten a stout hoop to pegs so that it will be about 5 inches from the ground, drive a stout stake 5 feet high in the center, and stretch strings from the hoop to a nail in the top of the stake, when corn is five inches high. Soak the seed 12 hours and then plant around the hoop. They need rich soil and bright sunshine.

Eschscholtzia.

Needs the full sunshine. Plant on poor soil the same time as corn, in rows six inches apart, and thin to six inches.

Four O'clock, or Marvel of Peru.

It would do best in a bed by itself, on the east side of the house, or the east side of the west fence. Plant in hills two or three seeds once in three feet. Soak the seed over night before planting.

Godetia.

Plant early in poor soil, in rows ten inches apart; thin to ten inches.

Larkspur.

Same as last except on good soil.

Nigela.

Treat the same as godetia.

Mignonette.

Sow one-half the seed very early, the balance later in moderately rich soil. If the soil is too rich the flowers are large, but not as fragrant. Thin to eight inches apart each way. Cut off the blossoms before the seed forms.

Morning Glory.

Plant under the north or west windows after corn planting, and in rich soil, but *do not cultivate* often. Soak the seed twelve hours before planting.

Petunia.

Plant in rich soil and treat the same as Asters.

Phlox Drummondii.

Make the ground very rich and mellow. Sow one-half the seed as soon as corn is planted, and the rest two weeks later. Sow in rows ten inches apart, and mark them well, as the seed is very slow in coming up.

Pink.

Treat the same as the last.

Poppy.

Plant the same as Bachelor's Button. Do not try to transplant.

Portulaca.

Sow in rows six inches apart, *transplant* to three inches apart in the row. Do not plant until corn is three inches high, and in poor soil, in the sunniest spot.

Scarlet Runner.

Plant in rich soil, after corn planting, where it can climb a large string. It will do nicely to cover a south window, or at the back of the beds.

Sunflower.

Plant in the corners of the lot or beside the gate. Make the soil very rich and plant after the corn is up.

Tropæolum.

Plant in the richest soil, on the back side of the bed, or under the south or east window. Provide strings or brush for them to climb on. Do not plant until corn is three inches high. Soak the seed three hours, *but not longer*.

Zinnia.

Treat the same as bachelor's buttons, except thin to twelve inches apart.

Use of the Flowers.

Cut (but do not pull) off the flowers as fast as they are fully matured, even if you have to throw them away, as by this means you prolong and improve the bloom.

The newspapers of the State took hold of the matter earnestly and aided in every way possible by the publication of our circulars and short notices of their own.

In the month of October a postal card was sent to each one to whom seeds had been sent, asking after their success, and for suggestions for future operations in the interest of school embellishment. At the risk of reproducing the same matter a number of times, we shall make extracts from a number of replies received, thinking this will be the surest way of conveying an accurate idea of the good accomplished in our first endeavor in this direction.

Angie Kingston, of Bangor: We did not succeed as well as we would like. Our soil was poor, our fence was poor, and some of the seeds were sown too deep. But despite the mistakes, lack of soil, stray hogs and dry weather, ten varieties grew and did nicely. The children were all enthusiasm, and each vied with the other in trying to think of some new attraction to bring to the

grounds—all suggested by the seeds. We have nice maple trees, rose bushes, dahlias, and pansies doing well.

Grace Taylor, Bronson: The seeds came all right. Our wood pile was on the best spot for flowers. We moved it, prepared the soil by adding well rotted manure, and divided the space into eight rectangular beds two and one-half by six feet, allowing same width for paths. We also made one circular bed five feet in diameter in the front of the yard, placing a cypress vine in the center. We placed castor beans each side of the gate and planted vines at the south and west windows. The beds were numbered and careful memoranda made of the varieties planted, and placed with the catalogue for reference. The school was divided into sections and each section had a bed. Everything grew and the care of the garden was very valuable to the school in many ways.

Georgia Lillie, Kalamazoo: The school board aided us in the preparation of the ground. The children sowed the seeds. But just as they began to grow diphtheria closed our school and when we started again the weeds were ahead. But notwithstanding this and the excessive drouth, we had the best flower garden in the district, and had flowers for the sick and ourselves. When school closed, October 1st, our garden was a wealth of beauty. The children thoroughly appreciated the gift.

Mary McLaughlin, Watson: We succeeded with our seeds even better than I expected. The scholars all took hold with a will, and I do not hesitate to say that the flowers and vines had a refining influence upon us all. I would suggest that shade trees, and especially evergreens, be set in the school yard. In our vicinity school grounds are lacking in these things.

Jennie T. Hay, Soule: Our flowers proved a great success, excepting a few tender varieties which were killed by a June frost.

Emily Post, Almond: We took a great deal of comfort in our flower garden. We made the directions for planting a regular study, and followed them as nearly as possible. The frost cut down some of the more tender sorts, but they did well as a whole. The running vines we trained about the door casings, making our entrance truly beautiful.

Phebe Ernsberger, Watervliet: Scarcely a seed failed with us, but, owing to dry weather, the blossoms were scarce in midsummer. The care of the garden certainly helped me in the government of my school. Even the large boys took a deep interest in the success of the enterprise, and contributed largely in aid of the work. I think some perennials would have been a valuable addition. The children gathered seeds, and have been anxiously inquiring if we are to have flowers next year.

Ella L. Streeter, Jeddo: The seeds germinated well, but, owing to the drouth, we had few flowers the first term, but now (October 24) we have in blossom phlox, batchelor's buttons, marigolds, asters, petunias, candytuft, and Mignonette. We did all the work ourselves, and shall certainly have a flower garden next year. In the spring we planted trees around our ground; all but three lived, and these we shall replace. We have two very pretty pines.

Laura J. Ginley, Coopersville: Our seeds did not come up as well as we hoped. Still enough grew to give us a great deal of pleasure during summer. The patrons and children all seemed interested. The children did all the work. They clubbed together in the care of the beds, planting what they chose. I took occasion to give some object lessons in botany drawn from our "home productions." Although we did not succeed as well as we might the flowers cast a delightful influence about us, and we shall try again next year.

A. Sergeant, Napoleon: The seeds came late, and the season was dry, so

we did not meet with great success; still, when we closed our term of school we had some very nice beds, which made our school ground look better than ever before.

W. D. F., Howard City: We had numerous obstacles to overcome that made us late in planting the seeds. The yard was not fenced, and the ground a mass of weeds and briars. The district felt too poor to clear it up and enclose it. My plan was to have a "bee" and split rails, plow the ground, and fence the yard. The patrons objected to a rail fence, but the voice of the children overcame the objections, and the fence was built. The ground had never been plowed, and was full of sticks and roots. It cost the little people and myself a good many hours of labor to get the beds in shape, but we succeeded. The seed was sown, and all came up. All of the scholars had beds with seeds sown to spell their names in the center of each. But we found our work only begun. The work of caring for the beds fell largely on a few of the older pupils and myself, although the little ones all tried to help what they could. The scarlet runners were planted along our new-made rail fence. The cypress vines, nasturtiums, and morning glories were trained by the windows and on either side of the door, and the sunflowers planted in a row back of the beds. There were so many flowers that our time was insufficient to care for them well. Our school closed before many blossoms came out, but afterward two of the older girls and I visited the beds every Saturday and gave them what attention we could, and there were flowers in abundance. We placed many lovely bouquets in the school room for Sabbath school, from which I think we derived the most pleasure.

May L. Evarts, Big Rapids: We had the ground plowed and partly prepared April 28 (Arbor Day.) We planted beside our flower seeds many small shrubs and flowering plants, maples, larches, and pines. About the middle of May cattle broke in and destroyed all our hopes, but some of the sorts recuperated, and candytuft, old maid in the bush, morning glories, mignonette, Joseph's coat, castor beans, godetia, zinnias, batchelor's buttons, portulaca, phlox, coxcomb, and eschscholtzia all did well. One castor bean grew seven feet in height. A squash vine was planted by one of the boys which bore fruit.

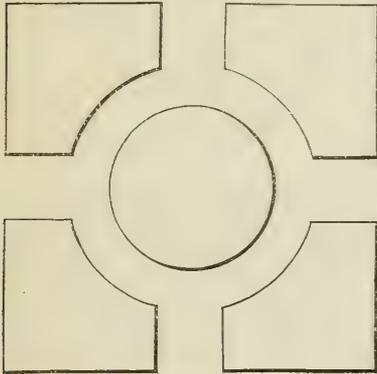
Mary Chappell, Reese: Concerning the success of our venture in horticulture, I will say that I hope the other teachers of Michigan who received the bountiful school collection of seeds were as richly rewarded as were teachers and pupils of District No. 4, Gifford, Tuscola county. Our district is somewhat new, and although boasting of a fine school-house, with all the modern conveniences inside, the grounds are not enclosed, and in the two seasons of my labor there I tried in vain to induce the school board to have a suitable fence built. But when I saw your liberal offer I resolved to avail myself of the opportunity and do what I could, even with our inconveniences. My enthusiasm was soon communicated to the pupils, and when the "school collection" came we had everything nearly ready. We went to the mill, about a mile away, and procured edgings enough to fence in a good-sized yard. The children brought hammers and nails, and we went to work at the fence and completed it, too, though I must confess it was certainly more useful than ornamental. But it served our purpose, and no one noticed the rude fence when our flowers commenced to bloom.

The boys brought leaf mould from the woods and covered the beds deep with it, and stones from a neighboring field to outline them, while the girls and I shaped the beds and planted the seeds. There were two stumps within the

enclosure which we were unable to remove, but we transformed them into "things of beauty" by training morning glories and scarlet runners over the unsightly surfaces. A few of the seeds did not come up and some died before blossoming, but we had a great abundance of poppies, zinnias, portulacas, petunias, pinks, larkspurs, bachelor's buttons, phlox, nasturtiums, godetias, cypress, scarlet runners, morning glories, and last, but by no means least, such beautiful eschscholtzias. We put them in a bed by themselves, and during the heat of the day the bed was a blaze of orange and creamy bloom. We also devoted two large beds to zinnias and they were simply magnificent. Such a variety of colors, and so double they were often mistaken for dahlias.

Though the season was so unfavorable for the cultivation of flowers we did what we could to supply nature's deficiency by giving them a copious draught of from 10 to 20 pails of water from our school well each night so they did not suffer from the extreme drouth. And the beauty and abundance of flowers that rewarded our labors was truly surprising, as were also the children's care and interest, which were unflagging from the moment the seed packages were opened till we gathered our last bouquet. I allowed a certain number of them each morning to gather bouquets, and each seat was constantly supplied with its bunch of flowers in vases, ink bottle or tin cup. The fame of our flowers reached beyond our town and we were greatly gratified by the compliments of our numerous admiring visitors.

Perhaps a plat of our beds may be interesting and I will here draw a diagram which may be useful, as I have never seen any laid out in the same way. In the center of the the middle bed we placed a tall pole and trained nasturtiums, cypress and morning glories to the top. On the last day of school we gathered ten very large bouquets to decorate our tables at our picnic, and our flowers were still in full bloom when we were obliged to leave them. Though my labors this year are not amongst my old pupils, I am satisfied that horticulture will not be neglected by them if I am not there to

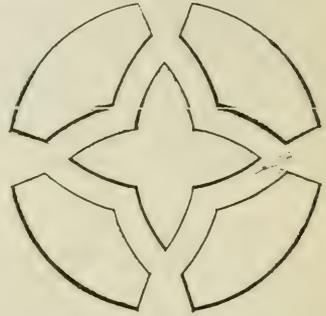


oversee their work, for I believe I was successful in my attempt to instill and cultivate a love of the beautiful in their minds. I cannot sufficiently express my gratitude to D. M. Ferry & Co., for the pleasure thus afforded me, and my scholars join me in warmly thanking them.

I believe the flowers assisted me in controlling my sixty restless pupils much more easily than I should otherwise have been enabled to do; and our mutual love of them was an added link of sympathy between us, and all combined to make the summer an unusually pleasant one. Many thanks to you for the interest you have taken in the hitherto neglected school yards and the pains you have taken to secure to us the means of beautifying them.

Edla Park, Birmingham: Our seeds were a success. The pupils were divided into parties, each party having a bed to plant and look after. A wholesome strife ensued to see which would do the best, and by July 1st our yard was one mass of bloom. Our school closed the 16th of July, so the flowers were left in their glory, but in the sowing and weeding we learned the names and peculiarities of a large number of sorts, which opened a new field of study and enjoyment to us all.

Eva D. McBain, Grand Rapids: The seeds from D. M. Ferry & Co. were received in early spring, but owing to the lateness of the season and the low ground where it was necessary to have the flower garden the seeds could not be planted until quite late. We followed as nearly as possible the directions for planting received with the seeds. The sunflowers were planted in the back part of the yard, as also were some of the vines, which were to hide the fence and give a background to the school yard. Other vines were planted under the windows. Those at the north seemed to do better than at the east or west, probably because at the north it was more moist and the plants did not receive the scorching rays of the sun. The castor beans were planted in the most slightly corner of the yard on each side of the path. The plan of the flower garden was circular in form, 30 feet in diameter, and consisted of five beds—a central cruciform bed, around which was a path separating it from the four outer beds, which were separated from each other by paths entering the garden, thus: At the center of the middle bed is a perennial furnished by one of the pupils; around this, meeting the inner corners of the cross, is a circle of Jacob's coat. Pansy plants were given to us, with which we made an outside border for one bed. The remaining seeds were arranged and planted in the garden as would give the best views from the school-rooms and the street. Until school closed we had no help in the garden outside of the school. The hardest part of the work was done by the assistant teacher. A lively interest was manifested in the garden by the entire school, and all were willing workers. At the close of the term (June 17th) the plants were still small, but large enough to have been weeded twice. The garden was hoed the day before school closed. The young ladies of the school appointed a day on which they would meet to work in the flower garden, and they cared for it, with the assistance and advice of the director, during the summer vacation. Flowers in abundance were culled from its beds, and seeds were carefully saved at the opening of the fall term with which to continue the work another year.



In the district there was considerable interest shown toward our work, and the flowers have been admired by all who have seen them. The labor given to the flower garden has been well repaid; the results are highly satisfactory. Bone dust was given us by a manufacturing firm in the district, and this added greatly to our success, for our soil was very poor. As it would give children much more satisfaction could they see marked results of their labor sooner, I think it would be an excellent plan, in districts where school closes early in summer, to start in hot beds or cold frames a part of the seeds of such plants as would bear transplanting. Besides early flowers this would give the children an important lesson in forcing plants. Instead of this, early flowering perennials could be cultivated for the spring and the seeds planted at the usual time for fall flowering. I think we should by all means encourage the schools in cultivating flowers on the school grounds. Besides the present enjoyment and culture derived by the children, the influence it has on them will be lasting; the results will not end at the fading of the flowers.

Mrs. E. E. Hains, Howell: Dry weather and an early closing of term led to imperfect success in our flower venture, but we are all glad we tried. The

children were deeply interested in it. I, for one, am glad there is an effort being made, not only to make the school room more pleasant, but the school yard, which is too often a sadly neglected place, a sort of open common, cared for by none. But I think rose bushes and hardy shrubs are more suitable for a school yard than garden flowers, as they would not require so much attention, and a dry season would not destroy them utterly. But little can be done in this direction until not only the teachers but the people are interested, and do not consider the time spent in tending flowers or plants as entirely wasted.

Joseph Watson, Coldwater: The flower seeds sent me were sown in their respective seasons, and according to instructions. The scholars lent willing hands to help prepare flower beds, care for the flowers, set out shade trees, and sod barren places. The flowers were well cared for, and during the dry weather they and the trees were well watered. The weeds were kept down in the school yard, the grass was kept trimmed, and the result was a nice school yard. It was a marvel of beauty and the admiration of the whole community. The alyssum was in bloom until quite recently. A rank growth of grass now covers the yard. Each scholar was as choice of the flowers as if he were the sole owner. A strong sentiment in favor of keeping a beautiful school-yard has been created. I do not think that I can offer any suggestions in a general way that would be beneficial, but were I to teach here another summer I could profit by past experience.

Frances Wilson, Marilla: All grew but three varieties, and these failed because of the drouth. The children were deeply interested in the work. I gave each pupil a portion of the garden to look after and the privilege of culling flowers at the proper time. I hope this work may be encouraged.

Lora I. Porter, Trowbridge: We had no fence, but several of the patrons donated posts and boards and built the fence on the first day of school. At school meeting this caused some dissension as some were opposed to fencing the yard, but a vote was cast that it should remain, and that those who furnished the material should be paid for it. The pupils assisted willingly and donated other seeds and plants. The director pronounced the experiment a success and I know the flowers helped me to teach a better school. We carried a great amount of water to the beds and this contributed to our success. When people take more pains to beautify the school premises they will be doing a noble work.

Rena M. Ayars, Litchfield: As far as interest in the work of planting and caring for our garden was concerned it was a decided success. Dry weather, however, was against us. The flowers were few, but eagerly looked for each morning after blooming began. The experiment was valuable to us.

A. J. McClatchie, Ludington: We had no fence but pupils carried edgings from a saw-mill near by and we built one ourselves. The garden was planted but we had no rain from May 1st to June 12th, so we carried water and sprinkled the beds or the seeds would not have germinated at all. Our garden was popular at once because of the scarcity of flowers in our vicinity. I was abundantly paid for my trouble in the pleasure of the pupils and in the influence exerted by the experiment upon my school.

Dora E. Donahue, Lennon: Notwithstanding the drouth our flowers did well, blossomed full and we have saved an abundance of seeds for another year. We have now (Oct. 10th) a nice bed of petunias in blossom. We made an unsightly old stump the most beautiful spot in our yard by scooping out the center, filling it with earth and sowing portulaca. The garden was watered and weeded by my boys and girls out of school hours, and many house plants

were received from people who had never thought before that such things could be cared for in a school room. We have made a beginning in the right direction. I can see the good influence already and know it will grow.

O. B. Thurston, Berryville: The following is a report of the flowers sent me by D. M. Ferry & Co. for cultivation by school district No. 4, town of Corinth, county of Otsego. Out of the 20 packages of seeds the following named can be successfully cultivated.

Morning glory, matures.
 Four o'clock, height 4 feet, matures.
 Castor bean, height 8 feet, does not mature.
 Cypress vine, height 4 feet, does not mature.
 Scarlet runner, height 18 feet, matures.
 Aster, dwarf, height 2 feet, matures.
 Pinks, double, height 1 foot, matures.
 Pinks, single, height 1 foot, matures.
 Joseph's coat, height 2 feet, does not mature.
 Candy tuft, height 3 feet, matures.

Mignonette, height 2 feet, matures.
 Godetia, height 2 feet, does not mature.
 Portulaca, height 6 inches, matures.
 Batchelor's button, height 2 feet, matures.
 Nigella, double, height 6 inches, matures.
 Poppy, height 2 feet, matures.
 Poppy, snow ball, height 3 feet, matures.
 Coxcomb, height 2 feet, does not mature.
 Petunia, height 2 feet, matures.

We derived a great deal of pleasure from the culture of the beds, and had an abundance of flowers to decorate the school room with during the entire term, and furnished large bouquets for several public entertainments.

Rose C. Sweat, Ann Arbor: All my efforts to have flowers in the school yard failed. The weather was so very dry after sowing the seed, and we had no means of irrigation. Our soil was poor, so that after taking off the sod we needed good earth, which the boys had to bring from a long distance. After the seeds failed to come up we put in some cuttings which did very well after it rained. I am not sorry we made the trial, and I shall certainly make another attempt next year, hoping for a more propitious season.

Emma M. Hooper, South Lyon: The scholars all took a deep interest in the work, using their recesses in work upon the beds. The first plants were watched eagerly. The vines we planted and trained over the windows, the door, and over the gate (which is in the form of a harp, with an arch over it), and, in fact, in every place that a vine could be trained. The seeds, with a few exceptions, grew very well, but were not quite as thrifty as they would have been had it not been for the dry weather. The interest did not abate (as I feared it would) among the children, and they took great pride in their beds, and in keeping them free from weeds. I think your idea an excellent one, as there are hundreds of children all over our land in whose homes a flower is never seen, and here they get their first ideas of cultivating the beautiful.

Sue A. Crisman, Romeo: The selection of seeds was good, only we did not need sunflowers. Beds were made and seeds sown according to directions, but the extreme dry weather prevented any very great display of blossoms, although some kinds did nicely, and at present there are many bright flowers in blossom in the yard. When the beds were first made, before time to sow many kinds of seeds, we put out plants of phlox, candytuft, petunia, and several other kinds of flowers, and had in this way beautiful flowers all through the month of June. The plants from the seeds began to blossom the last of June, and from that time through the summer these earlier plants helped in the display. The scholars were all pleased and interested, and willing to do all in their power to assist in taking care of the plants, and had the season

been a favorable one we would, I think, have had a display of flowers hard to have been excelled.

Eva A. Bennett, Augusta: The scholars were delighted with the seeds, but my report is not a very good one. We could only prepare three small beds, as we had no help from outside, so not more than one-third of the seeds were planted, but these did well and the pupils are anxious to put the remainder of the seeds in next year. The children all took hold with a will and were sorry to be deprived in any way of doing their part in the work. One little boy, eight years old, was sick two or three days just about planting time, and grieved very much lest the seeds would be all planted and he not able to aid in the enterprise. A good deal of attention has been given to the yard also, and I think next year better things will be done than the past season.

Evert R. Cornell, Benton Harbor: We planted the seeds under the supervision of a lady who is very successful with flowers and plants, following the printed directions. The lady mentioned also favored us with some very large slips of fine roses and a climbing vine that lives through the winter and is seen generally on the walls of churches and college buildings. These are close to the brick wall of the house and are doing finely, and a plant much like heliotrope in size, form and fragrance, but with a little smaller flower, which is white, is also living well, but that is all that withstood the dry weather. We planted two evergreens and a horse chestnut tree; the former are dead, but the latter promises well. The idea of more flowers and trees in connection with the school has been revived by our efforts and we hope it may grow until many permanent attractions of the kind are added to the house and grounds. We think such sturdy plants—shrubs, vines and trees—as require least attention after a good start are best, as the different teachers may not always be interested in such things.

Wm. W. Warner, Vermontville: Our beds were made in heavy clay, mixed with sand and top-dressed with vegetable mould and muck from the woods. We followed the plan of giving to each child one variety of seed as his special charge. The seeds were sown at the proper time, and arranged in the manner recommended in the directions sent with the circular. The beds presented a very fine appearance after the flowers had blossomed; in fact I think the school had the best collection of flowers in the district. On the whole, the experiment was a decided success, for it not only had a beneficial effect upon the school, but upon the neighborhood, and many who laughed at and ridiculed us when they saw us making the beds not only “condescended” to admire the flowers, but to say that we had done well.

W. A. Fallass, Cedar Springs: We received in good order the seeds so kindly sent by D. M. Ferry & Co., and they awakened a great enthusiasm among our pupils. We assigned a small bed to any two pupils who would agree to take care of it, and the work was generally well done. But our house stands on a dry, sandy knoll; the soil is poorer than I was aware, and when the heat of summer came on the flowers succumbed in large numbers. We raised, however, some fine cypress vines in pots; and on the whole, I regard the result as excellent in its effect on the children, and we acknowledge with pleasure our obligations to the firm who furnished the seeds and the society through whom we received them.

Lydia S. Davis, Flint: I am glad to tell you that our attempt at gardening, in spite of the dry weather, was a positive success. I wish to make special mention of the mignonette, pinks, candytuft, and alyssum; they were beautiful, and the pride of the boys and girls. I would suggest that to graded

schools earlier or later varieties be sent, as the most of those sent were prettiest during the months of vacation. We have tried hard, but the dry weather has prevented our saving seed this fall, but by no means shall we give up the idea of flowers in the future.

Geo. W. Mackay, Olivet: The idea of beautifying our school yards is a noble one. We appreciated your assistance, and made the most of the experiment, learning new lessons every day from our garden. It was an inspiration in our school work.

Clara Bloomburg, Grand Ledge: We had very poor success with our flowers, but not from lack of care, for when school closed (July 1st) not a weed was anywhere to be seen. The months of July and August are vacation, and as most of our flowers bloom at that season, it is almost impossible to give them thorough attention. However, we are not discouraged, but will try another season, and get the seeds of flowers that bloom before July and in and after September if possible.

Frankie J. Gibbs, Big Beaver: As the year was very unfavorable owing to the drouth, they did not do very well, but as the care of them afforded the children so much pleasure, I would heartily recommend the cultivation of flowers in school-yards.

Guy C. Parkis, Marshall: Our beds were carefully spaded and enriched from a neighboring barnyard. The seeds came up, and weeds kept down until July 1st, when we had our long vacation and they were neglected. However, we cleared out the weeds again in autumn and all the plants bloomed nicely until frost came. They were a constant source of enjoyment to us, and as our school-house is on four corners, our experiment attracted a good deal of notice and received many compliments.

Jennie Baker, Pontiac: Joseph's coat, cypress vine, alyssum, candytuft, zinnia, four-o'clock, nigella, mignonette, coxcomb, portulaca, and bachelor's button did well. Dry weather injured the others very much, but our work was highly praised and we derived benefit from it.

Grace E. Bradley, Bridgman: Seeds were planted and did well until vacation, when our school-house was repaired and workmen were no respectors of flowers and our beds were destroyed.

E. Collins, Port Crescent: The seeds sent were well selected and were very gratefully received by the scholars, each recipient receiving five varieties. In some instances it was a real labor of love, and the results in many cases were very gratifying. The success of the experiment was marred however, by the forest fires that devastated this county, making it impossible for me to present anything like a report. I think that the same venture repeated would be much appreciated, and would tend to cultivate a love of the beautiful among the young such as is eminently desirable. I shall be glad to hear from you at any time, and will do all I can to advance the interests of your excellent society.

R. A. Culver, Burlington: We did not have very much success in raising flowers this season because of the drouth. We planted about half of the varieties and cultivated them well until the close of the spring term and then they nearly all dried up. The pupils were very much interested in the cultivation of flowers, and did a large share of the work.

A. Melody, Wyandotte: The children were happy and interested in our flower garden, doing nearly all the work, but unfortunately the drouth began directly after planting and nearly ruined our hopes. The four-o'clocks did well; the morning glories and beans looked thrifty, and also another plant with

a small white flower did well; it blossomed all summer. The portulaca exceeded all our expectations, and blossomed until the last of September.

Z. Garwood, Penn: Seeds were sown and plants well cared for, but drouth shortened the outcome as we had no method of watering. I suggest that it would be well to prepare the ground the autumn before planting, and the using of some plants in pots plunged in the beds.

Alice C. Reed, Springville: The season was pretty well advanced when the seeds reached me, and much difficulty followed in the preparation of the soil. After days of impatient delay for the school board to fulfill a promise to plow the ground, a council was called, at which the children declared their willingness and ability to perform the task by hand. Accordingly a spade, grubhoe, and a wheelbarrow followed the children to school, and were utilized with spirit and earnestness. It will be remembered that the earth was very dry at that season, which rendered the work more arduous, but the little ones worked with a will at every leisure interval until the seeds were planted. The drouth continued, and fearing the seeds would not germinate without artificial moisture, the children devised a plan to meet the exigency of the case, and a neighboring patron learned that his lost sprinkling vessel was being vigorously utilized by the tiny matrons and husbandmen of School District No. 5. After much patient waiting the young plants appeared, accompanied by legions of noxious weeds. Willing, industrious hands eradicated the weeds, and in due time our school-yard presented an attractive appearance from the flowery oases which here and there dotted the inclosure. Among the favorite plants were the candytuft, cypress vine, petunia, mignonette, and others. Joseph's coat did not thrive well, but, considering the mode of culture and want of fertilizers, we were far more successful than we had dared to hope. The project seemed to create an impetus, and added materially to the interest of the school. More perfect unity prevailed during out-of-door exercise, and an increased interest was visibly manifest during school hours. Please accept our thanks for the flower seeds, and having gathered of the various kinds, we hope to perpetuate the cultivation of the same.

B. G. Shoemaker, Reed City: We are thrice grateful for the seeds. We had grave obstacles to overcome but we came out ahead. The school ground was in a most primitive condition; the trees had been cut off and that was all. We had no fence and had to carry water a long distance, and there was a general apathy among the patrons. We had no encouragement at all, but our garden was a success, and we planted out trees and shrubs successfully too. Emulation was created among the pupils by giving each a place to work and a work to do. Children that cared nothing for flowers before were led to love and enjoy them, insomuch that they went home and started beds there. When I look back and see what my school has done it is a perfect marvel to me, for my oldest pupil was but 15. Marauders troubled us somewhat, but we are glad to say that our work has been a grand success and now (November 1st) we have flowers in bloom.

[A sketch of school-house and grounds as they were arranged accompanied the letter from which the above extract is taken, but it is rather too elaborate for a cut in this report.]

The last letter we have to present in this account we give as a whole. It is from Vevia Wadsworth, of Adrian, and is so suggestive that an abstract would be insufficient to do it any kind of justice.

“ In writing at this date I am reminded of the old saying, ‘ Better late than

never.' I am really very sorry that I have failed to keep my promise in regard to the date of my report, but my cares have been such for the past few weeks that it has seemed almost impossible to find time or strength for this.

"Last spring, seeing a notice of Mr. Ferry's generous offer of flower seeds for cultivation in school yards, and having had a pleasant experience in cultivating flowers in one school yard, I gladly accepted this offer. The seeds were received and presented to the school,—district No. 2, Ogden township, Lenawee county, Mich. Then came the lively planting time. Oh, such a busy time. Such eager, interested, helpful children. About a dozen of us working merrily away on one large square of ground must have been an amusing sight, and I think to you would have been a pleasant one. Two large square plats were laid out on opposite sides of the main path, one containing five beds, viz. : a center circle and four corners, separated by narrow paths. The other had six plain beds. Near them were two places for castor beans and the cypress bed. Then near the school-house we had three beds under the west windows, and two by the front steps, each with vines at the back. In another part of the yard was a bed of nasturtiums and four o'clocks, and two lines of sunflowers, forming with the fence an open square. How we watched for each new development and paid frequent visits to these several points of interest. At last the earlier stages of growth were past and buds and blossoms were joyously hailed and gleefully reported even by the rougher boys, who at first had effected indifference or opposition. Our zinnias were beautiful, eschscholtzias, poppies, and batchelor's buttons doing well, portulacas, candytuft and alyssum in full bloom and giving much pleasure, phlox drummondii and pinks just beginning to repay our toil, while the cypress was our pride and joy. Other things were in various stages of progress, some not growing as well as we could wish. Thus far I have presented only the bright side of the picture, but now stern, sad fact compels me to reveal the shadow side. On one of the last days of July some small representatives of the swine family effected an entrance to the flower garden, and being evidently so pig-headed as to mistake our thriving Joseph's coats for pig weed, ate a large portion of them. This was quite a trial in its time but was small indeed compared with what followed.

"On the morning of August 3, I went over to the school yard very early when, oh, the vision that greeted me. Our cypress frame with its white cords and beautiful feathery green vines lay outside in the road, ruthlessly torn from its place; every bright and beautiful spot in the garden showed the night's work of those cruel, unknown, vandal hands. All about were strewn blossoming plants uprooted and soon to wither beneath an August sun. The toil of the summer wasted, lost. No, no, not all lost. I know that "He who doeth all things well" permitted even this for some good purpose, but that was a sad morning for us all. We filled a large box with some of the best of the uprooted plants and placed it in the school-room. We soon found that some choice flowers still adorned our garden beds, and as the days went by and new blossoms appeared, we felt we had yet much to enjoy. I was pleased to know that they bloomed long after I had returned home. On the day after the flowers were destroyed a whisky bottle was found not far off, which may be a significant circumstance, especially as I am known as a temperance worker. Probably a few lawless young men are responsible. Notwithstanding all our labor, and this sad event, our flowers were a great pleasure to us, and I feel sure that the school was made better by them. I think the children were benefited in many small ways that I have not time now to explain.

“A few words on cultivation. One of our large plats we prepared by inverting the sod according to directions; on the other the sods were well shaken and removed. In the former it was hard work to keep the grass from growing, but the plants bloomed freely. In the latter blossoms were not so abundant, but plants were more thrifty. I was much pleased with the collection, but as we have been requested to make such suggestions, I would venture to say that euphorbia would mix beautifully with Joseph's coat, pansies could easily find a place, and acroclinium (everlasting) would be serviceable for school-room decorations in winter. The collection need not be made larger by these additions, as an equal subtraction might be made.”

The secretary in compiling the foregoing account of our attempt to assist in the embellishment of our country school yards, has been impressed with the thorough interest taken by the teachers which have reported. Of course, only very brief extracts have been given from most of the letters, but there is no doubt but the work accomplished even in this exceptionally dry season has been of lasting benefit. By uniting the efforts of people who believe in this work, there is no doubt whatever that Michigan might, in a very few years, be an exceptional State in the beauty of its school premises. Shall the work stop here?

THE ANNUAL MEETING.

HELD IN THE VILLAGE OF SOUTH HAVEN, DECEMBER 5, 6, and 7, 1881.

GENERAL ACCOUNT OF DISCUSSIONS AND FULL TEXT OF IMPORTANT PAPERS.

The State Horticultural Society, in the ten years of its existence, has convened in South Haven three times. Each meeting has been better than the one preceding it, and this last one, held in December, 1881, was by many who have attended the meetings regularly, considered the best meeting ever held by the society.

The Michigan Central, Grand Rapids & Indiana, Chicago & West Michigan, and Chicago & Grand Trunk railroads all gave reduced rates, and the attendance was large. Aside from our State delegates we had with us L. S. Willard and J. S. Woodward, of Western New York Horticultural Society; H. P. Hanford, of Indiana; R. C. Barnard, of Illinois, and J. R. Rupert, Iowa. The exhibit of horticultural products was very fine; Prof. Beal, Prof. Tracy, and Mr. Satterlee, who have been conversant with our exhibitions for some years, united in the opinion that we have never had a display in which so large a proportion of the plates of apples approximated the society's ideal of perfect plates. This is a great satisfaction, for it is a natural result of the severe criticism that has been made in the reports of committees at our meetings and at our fairs.

One of the causes that contributed to this fine show of products was probably the following scheme of premiums offered in connection with the announcement of the meeting:

Best three single plates of winter market apples of different varieties—First premium, \$2; second premium, \$1.

Best three single plates of winter apples for cooking purposes of different varieties—First premium, \$2; second premium, \$1.

Best three single plates of winter dessert apples of different varieties—First premium, \$2; second premium, \$1,

Most beautiful plate of apples on exhibition, color, form, general perfection and size of specimen to rule—First premium, \$1; second premium, 50 cents.

In addition to the above the following offers are made:

Best plate of winter pears for dessert—eating and keeping qualities to rule—First premium, \$1; second premium, 50 cents.

Three best house plants on exhibition—First premium, \$3; second premium, \$1.

There must be exactly five specimens of each variety, and the awarding committee will consider not only the value of the varieties for each particular purpose, but the character, beauty, freedom from defects and general perfection of the specimens, and be governed otherwise by the rules of the society.

One fact in connection with the meeting was quite noticeable. There were nine graduates of the Agricultural College present and contributing to the success of the convention, and several other gentlemen who had taken a partial course at this institution. The delegates to the meeting were met at the station on Monday evening, December 5th, and escorted to the hotel and treated to a bountiful repast, after which all repaired to Leighton's opera-house, which had been very tastefully decorated for the occasion. At precisely eight o'clock the convention was called to order by President Lyon, who immediately introduced Mr. Joseph Lannin, president of the South Haven Pomological Society, who welcomed the State Society in the following pleasant language:

MR. PRESIDENT, LADIES AND GENTLEMEN OF THE MICHIGAN HORTICULTURAL SOCIETY: This is the third meeting of your society in the village of South Haven since your organization on February 26, 1870, and I assure you, sir, the people of this vicinity appreciate the honor you confer and the kindly feeling you manifest toward them.

Do I over-estimate the importance of these gatherings in their social character when I assume that no other association in the State affords greater opportunities for the formation of pleasant and lasting friendship? The hearty, warm grasp of the hand, the cheerful, kindly greeting, and those pleasant, smiling countenances are not soon forgotten. By the free and easy manner in which the many subjects of importance to all horticulturists are discussed in these meetings, we obtain new light and further information upon our beloved calling, and before we separate we can answer in the affirmative Mallock's famous query, "Is life worth living?"

The work in which you are engaged is a noble one. The propagation and cultivation of the vine, of fruits and of flowers, have attracted the attention and labor of some of the wisest and best in all ages, and none but those who have a sincere love for the beautiful can succeed. Perhaps there is no other calling calculated to make better impressions upon the mind than that of the horticulturist. He is brought into intimate and constant intercourse with nature, and from nature his mind is led up to "nature's God." The horticulturist can never expect to graduate in his profession.

To the curious and earnest investigator nature continually and cheerfully unfolds her secrets, and the more assiduous he becomes in his devotions, so much the richer will be his reward. The labors of your society in behalf of the fruit-growing interests of this State have been of incalculable value, not only in promoting a larger production now than formerly, but, what is perhaps of far greater importance, quality. And so remarkable is the improvement in this direction, that no matter where Michigan fruit may be placed on exhibition—whether in the financial centers of the east or the prairie cities of the west—it becomes at once the center of attraction. It is proper to mark in this connection, however, our deep indebtedness for success to our genial climate and generous soil. Among the problems before you for consideration

and solution is the query: "Have we any new light on pear-blight and yellows?" This question is the all important one to the fruit growers of western Michigan, and should you succeed in answering it satisfactorily you will be entitled to the lasting gratitude of fruit growers and fruit consumers.

I congratulate you, sir, on the excellent "bill of fare" provided by yourself and your genial secretary for consideration during this session. And it is to be hoped that the discussions growing out of the questions embodied in the programme may prove effectual in stimulating the horticulturists of this State to greater efforts. And now, sir, in behalf of the people of South Haven and Casco in general, and of the South Haven Pomological Society in particular, I bid you a sincere and hearty welcome.

President Lyon replied in a few well chosen remarks, calling attention especially to the efforts of the South Haven people in making the most complete arrangements for the reception of the society, and suggesting many ways in which organization assisted in building up the reputation of a fruit-growing locality, and announcing as his view that as a society stepped out into the open field of general horticulture it found scope for the best of work, a work which had to do not only with successfully commercial operations, but with the making of beautiful, happy homes, delightful streets, attractive school yards, and nicely embellished church premises.

IRRIGATION.

The subject for the evening discussion was then announced from the chair in the form of the following question: Can horticulturists do something to counteract the effects of our severe droughts? There having been no one appointed especially to open the subject, Mr. J. F. Taylor, of Saugatuck, was called out.

Mr. Taylor: I confess that I have given this subject very little attention. Living, as I do, where the waves of Lake Michigan wash the land at my feet, I have not found the effects of long drought so manifest as others have farther from the shore.

President Lyon: Have you any knowledge of the influence of salt in preserving or increasing moisture?

Mr. Taylor; I have used salt quite a good deal for the past two seasons and am very favorably impressed with its effects, but am very slow to crystallize a judgment upon it by this short experience. I think we can come at accurate knowledge of its value only after repeated experimenting.

Prof. Beal: This subject comes to us with a good deal of meaning after the prolonged drought of the past season. We see the necessity of doing something to help out nature in her need. We impose upon her a big burden in the crops we start into rapid growth under a high system of cultivation, and when the moisture is well nigh used up, and the mouths of the plants are parched, what can we do to take the place of the rain which is beyond our control? The following note from the experience of P. T. Quinn, of New Jersey, has a suggestion in it:

"Like every other grower of strawberries I have experimented with all the leading varieties, and at present have settled down with the 'Charles Downing,' which with me is the most profitable market variety yet tested, and succeeds admirably with the system described. Last year, under very adverse circumstances, with a protracted drought more severe than any ever witnessed here, with less than ten acres, the total yield of berries marketed was 856 bushels.

Of course we resorted to watering in a crude way by means contrived hurriedly, but which I found to work with great satisfaction, and thoroughly convinced me that sooner or later those who will succeed best with strawberries, either on a large or small scale, will have to resort to irrigation. It is the only way to insure maximum crops every year. We applied the water with an ordinary street sprinkling cart, applying 800 gallons of water to beds 400 feet long and five feet wide twice a week during the picking season. There was a trifle over two acres of the strawberry ground which it was impossible to get at with the watering cart, and on this spot the crop was nearly a failure. The first picking on the beds where no water was applied was fair to middling, but the last pickings amounted to nothing. My experience with watering was so satisfactory that in the course of another year I will have my plans matured so that I can apply water to the bearing beds at any time during the picking season. There is no doubt in my mind that those who desire to realize the largest results from strawberry growing will have to resort to irrigation. There have been some statements, which found their way in print, saying that strawberries grown in this way are too soft for the market. This is contrary to my experience last year."

On the same topic I quote from Dr. F. M. Hexamer, of New York:

"Irrigation is of great importance, not only in the cultivation of the strawberry, but in any culture. I have observed this year thousands upon thousands of acres that could be irrigated with no expense worth speaking of, say \$5 per acre. We go to work and put \$10 or \$20 worth of fertilizers on our land, and as much more in cultivation and labor, and because we do not invest another \$5 in labor we lose it all. We must have irrigation in this country. Our seasons are too changeable. In a large part of Europe it is not necessary, but here we are forced to it. We can no more afford to run the risk of our crops burning up than the manufacturer could afford to run the risk of losing his power. We cannot irrigate all of our land, but we can irrigate more than we do now."

Mr. Taylor: Cultivation has a great deal to do in "tiding over" a dry time. Many of our people urge that cultivation should stop in midsummer, that the wood may become thoroughly ripened in preparation for winter. I think a rule of this sort is not good to abide by; oftentimes, if cultivation stops early and in the midst of a drouth, the wood stops growing and the buds arrange for winter too early, insomuch that when fall rains come on they mistake the season and put forth a new growth, which is disastrous to the trees. My conviction is that cultivation should be continued through the dry time, even although it may carry one into the last of August. The weeds got the start of me this season in some of my orcharding and I had quite a crop to plow under in the dry weather, and I am satisfied that in the decay of this growth I received just what was most required by the trees in the midst of a drought.

A. S. Dyckman, South Haven: I believe emphatically in cultivation, and would not forego early culture in order to cultivate through a drought, but would begin early, say in April, and continue through the dry season, even to the middle of August, if rain did not fall in abundance. I believe irrigation is practicable in this country as truly as in Colorado or California. In the latter State I found the water used for irrigation was nearly always raised from the streams by power, and we can do the same thing. We have the water in abundance in our lakes, rivers, and wells. Certainly if the Californians can make money by pumping up water and spreading it over the land, we can.

Mr. Lannin: Will Mr. Dyckman tell us his opinion of salt?

Mr. Dyckman: I have no opinion, but am preparing to make one as the result of experience. Having used salt but two seasons I am not ready yet to venture one.

N. H. Bitely, Lawton: How much do you put on an acre?

Mr. Dyckman: I do not measure in that way. I put about twenty-five barrels over the ground under 7,000 peach trees. I seem to reap favorable results; how they are accomplished I do not know, and it may not be the salt after all.

D. C. Loveday, South Haven: I am satisfied that salt is a benefit to plants. I have used it on clover and have noticed a heavy dew on the portions of the field where the salt was sown, when on the other places there was scarcely any.

Prof Beal: How do you think the salt acts so as to benefit the trees or plants?

Mr. Loveday: In one way by increasing the deposition of moisture from the atmosphere, like the drops on the outside of a pitcher of cold water.

W. K. Gibson, Jackson: In connection with the discussion of this subject of irrigation, I recall the fact that there is a tendency all over our State to drain off the small lakes and ponds so as to increase the amount of arable land. I doubt if this is expedient. The few acres gained for cultivation will not balance the value of the water in the lakes, which is beneficial in two ways: 1st, by increasing the amount of moisture evaporated in the vicinity of them, and 2nd, by furnishing water for percolation through the soil, which becomes drink for thirsty plants. I think this subject is an important one, and should command the attention of the State Horticultural Society in trying to prevent the continuance of this pernicious system.

C. D. Lawton, Lawton: I am not so sure that the plan of Mr. Taylor in turning under his weeds late in the season is wholly commendable; bare ground in winter is unsafe in a peach orchard; the weeds make a good protection.

E. H. Scott, Ann Arbor: We plow under the weeds and continue the cultivation, then sow oats as a winter protection.

Geo. L. Seaver, South Haven: We have progressed beyond that here, and use a better crop for protection,—rye, which furnishes a valuable green manure when turned under the next summer.

J. N. Stearns, Kalamazoo: I have given this matter of cultivation as a conservator of moisture a good deal of practical attention—have experimented in the orchard and nursery, and reached this conclusion: deep culture should be given early in the season, and shallow and repeated culture later in the summer. In cultivation I plow deeply first, and employ a peculiar cultivator through the season thereafter which only lightly stirs the surface. Another thought is suggested by the topic: in planting out trees I often use water after I have placed in about two-thirds of the soil, then add loose soil and keep it loose through the year.

W. H. Hurlbut, South Haven: I agree with Mr. Stearns, and for this reason: The deep cultivation early makes the soil porous and helps capillary attraction, and while it breaks the roots it does the work so early that no harm is done to the feeders of the trees. I am in favor of plowing under weeds, rye and other green crops, and the free use of salt. I have used salt five years, and during our drought last season I could see an effect from it in helping the trees over the dry season. I would have more confidence in these things than in any direct mode of irrigation.

Mr. Beebe, of South Haven, had noted heavier dews where salt had been sown, and noted favorable results.

A. C. Glidden, Paw Paw: Salt, if good for anything, should be evenly distributed over the whole ground. I have no faith in plaster as a conservator of moisture, neither do I believe there is water enough in wells, nor power enough in windmills to furnish very much irrigation practically.

John Sailor, Saugatuck: I am very favorable to mulching as a means of saving moisture for the use of trees.

W. W. Tracy, Detroit: I have been doing a little figuring during this discussion, and find that it takes from two and one-half to three inches of water to make a ton of dry product on an acre; that means one ton of hay requires 200 or 300 tons of water to pass through the vegetation in the growing of it. It is practically impossible, it seems to me, to do very much toward supplying this amount in time of need. Usually in surface irrigation there is a great waste from evaporation before the water is used by the plants. I have experimented a little by running water into tile that lay eighteen inches below the surface and comparing with the same amount of water applied on the surface, and found indefinitely better results from the former method.

H. J. Linderman, South Haven: It looks to me rather impracticable to irrigate, but we can plow in rye, and while we are carrying moisture into the soil we are also enriching it.

Prof. Beal explained that the elements in salt were contained in abundance in most soils for purposes of plant growth, and that although very little was known as to the action of salt, it was supposed by chemists that its value consisted in its power to bring other elements into use for plant growth.

Mr. Dyckman answered Mr. Tracy's objection to irrigation by saying, that although the plants might take up this large amount of moisture, yet we need to supply only what is lacking in a dry season, which is but a fraction of the entire amount consumed.

Some one inquired of Mr. Bixby if he had not injured trees by plowing in rye.

M. H. Bixby, South Haven: I think my trees were injured by plowing in rye in this way: Ground that was already rich was made better by plowing in rye. The rich soil induced excessive growth, which was unfit to resist the winter's cold.

Mr. Glidden: I don't want you people to live under the delusion that rye is a very good manure.

Mr. Linderman: If Mr. Glidden will take a trip to my place, I can prove to his satisfaction that rye is a good fertilizer.

The discussion here closed, and President Lyon announced the following

COMMITTEES:

Fruits—E. H. Scott, Ann Arbor; G. H. La Fleur, Allegan; Rev. J. F. Taylor, Saugatuck; E. M. Potter, Kalamazoo; A. C. Glidden, Paw Paw.

Flowers, Plants and Ornamentation—Prof. W. J. Beal, Lansing; W. K. Gibson, Jackson; Rev. John Sailor, Saugatuck; Wm. Rowe, Grand Rapids; Geo. Taylor, Kalamazoo.

Vegetables—W. W. Tracy, Detroit; Prof. A. J. Cook, Lansing; R. T. McNaughton, Jackson; P. W. Johnson, Grand Rapids; J. N. Stearns, Kalamazoo.

Resolutions—C. D. Lawton, Lawton; C. A. Sessions, Sammons' Landing; E. Le Valley, Ionia.

The meeting then adjourned until Tuesday morning.

Tuesday Morning.

The hall was well filled in good season, and at 9.30 A. M. the meeting was called to order. The exercises opened with prayer by Rev. A. E. Ketchum, of South Haven. The topic for the forenoon was

VEGETABLES—THE MARKET AND KITCHEN GARDEN.

Mr. Tracy made some remarks on the position and plan for a farmer's vegetable garden, which may be summarized as follows:

1. The garden should be so placed as to be of easy access from the barn, so that it may be cultivated without much loss of time when the horse is going to or coming from the field work.

2. It should not be encumbered with fruit trees or vines. These should occupy a spot by themselves on one side. It is impossible to grow good vegetables in a properly managed orchard without far more time and attention than the ordinary farmer will give them.

3. If possible, the garden should be in an open field so as to be easily reached, and to facilitate turning while cultivating. If this is not practicable it should be laid out longer than wide, and an easily opened gate provided at one end for the entrance of the horse and cultivator, and space should be left at each end for turning during cultivation.

4. The different varieties should be planted in long rows reaching across the garden, and arranged in the order in which they should be planted in the spring.

Mr. Tracy illustrated his ideas by a plan, slightly altered from that published in D. M. Ferry & Co.'s catalogue for 1882, of which we print a copy, and explained it as follows:

The varieties are arranged first, very nearly in the order in which they should be set out, or planted, in the spring, with the exception of row 9, which should come in about where row 13 is. And secondly, so that those vegetables which grow late in the season, or remain out all winter, are grouped together on one side. Thirdly, so that a rotation of crops may be secured by simply reversing the plan, putting row No. 1 in the place of row No. 14.

Every part of the ground except the space 18 inches wide, between rows 6 and 7, can be cultivated with the common farm cultivator.

The turning spaces at the ends may be planted late in the season with cucumbers for pickles, putting a hill opposite the end of every other row; this will occupy the ground, and will scarcely hinder cultivation at all.

The proportion of the different vegetables is about what will commonly be most acceptable, but it will be seen that each one can have an additional row, or occupy a part of one of the adjoining rows, without injury to the plan.

Outside Enclosure.—NORTH.

Gate
to
Barn.

Turning Ground 8 feet wide.

Gate
to
House.

5 feet.	Asparagus, Artichokes, Rhubarb, and permanent vegetables.	1
5 feet.	Parsnips, Salsify, Early Peas, followed by winter Spinach.	2
3 feet.	Late Peas. Early Peas, followed by winter Celery.	3
3 feet.	Early Potatoes.	4
3 feet.	Early Cabbage, Cauliflower, and lettuce plants from cold frame.	5
3 feet.	Beets, Carrots, Early Turnips.	6
3 feet.	Onions.	7
3 feet.	Lettuce, Endive, Parsley, Sweet Herbs.	8
3 feet.	Bush Beans.	9
3 feet.	Late Cabbage and Cauliflower.	10
3 feet.	Early Sweet Corn.	11
4 feet.	Late Sweet Corn and Summer Squash.	12
5 feet.	Tomatoes and Pole Beans.	13
6 feet.	Cucumbers and Musk Melons.	14
8 feet.	Water Melons and Winter Squashes.	
8 feet.		

EAST.

Turning Ground 8 feet wide

SOUTH.

WEST.

Mr. E. M. Potter, of Kalamazoo, then read the following on

THE FARM GARDEN.

It is an old adage that "one's practice is seldom any better than his theory," and realizing some of this has caused me to hesitate somewhat about producing this paper, and if any of my neighbors are here, please don't amuse anybody by saying, "you just ought to see his garden once." One will never hit the mark if he does not aim towards it, and if I cannot offer any suggestions that will be of service to others my own thoughts and expressions at this time may aid my practice hereafter.

My earliest recollections of a farm garden are of one in size about 6x9 rods, just across the driveway from a farm-house in western New York, where, like Topsy, "I 'specs I fustest started to grow." This plat was of a limestone clay soil with a very heavy red clay sub-soil, underneath which, at the depth of 8 to 12 feet, was an inexhaustible bed of rock which extended from the bed of the Genesee river and underlying a great section of country. This garden was enclosed by a fence of white oak posts and basswood boards with a little gate about the middle of the west end, which led to a walk reaching to the east end and terminating in a grape arbor with a large, partially neglected Isabella vine on the south side, and a Catawba on the north side, showing that the planter did not understand the habits of these varieties or else their relative positions would have been reversed. While the Isabella yielded an abundance of well matured grapes we seldom got any ripe Catawbas except where the vines ran over the top of the arbor and exposed the foliage and fruit to the more direct rays of the sun. And right here let me say that if a grape arbor is desired, it should invariably extend north and south, so that both sides will get equal benefit from the sun. On either side of the walk were a great variety of rose bushes, pinks and bulbous roots, which my good mother had procured from her friends near and far. On the west, north and east sides were currant bushes interspersed with peach and plum trees, the latter falling victims to the black knot after bearing abundant crops for a number of years. In the north-west corner were two quince bushes; one we used to call the "large yellow ones," and the other "the green ones,"—probably the orange and angiers varieties and undoubtedly both purchased for orange quinces of some reliable nurseryman. (Probably the nurseryman was the victim of misplaced confidence or ignorance when he procured his cuttings.) These currants and quinces received annually a good supply of chip manure and never failed their crops during my recollection. On the south side, next the street fence, was an asparagus bed about five feet wide and one-half the length of the garden, and a strawberry bed extending nearly to the southeast corner. The asparagus bed, which got all the old salt brine in the fall, and a liberal top dressing of barnyard manure, was the only one, I think, in the whole school district, and neighbors far and near used to call in the early season to get "just a leetle of the Squire's asparagus," and if I remember right one of the regular spring errands your humble servant did was to carry Grandma Jameson, who lived half a mile away, a bunch of asparagus. I liked to go for I always found a kind word at the end of the route. Grandma Jameson was a good hearted old lady with a wonderful gift of good common-sense, a first-class nurse and always on hand if any in the neighborhood were ill. She was an accomplished knitter, and while we always called her grandma she was none of our

kindred, but as I look back through the lapse of 40 years I can now seem to see the dear, sweet face of that ministering angel, who long since has gone to the better land.

Well, about the first work in spring was to get out the oxen and cart and haul manure on the garden and then plow it, and I used to wonder how they would get in with the first load until I saw a panel of the fence lifted out, and when it was replaced it looked just like the rest of the fence. After plowing an alley was laid out across the middle of the garden with a narrow border on either side to be occupied by flowering annuals. This alley divided the garden into four plats, the southwest, always planted to cucumbers, beets, parsnips, and onion sets; the southeast, to white beans and sunflowers; the northeast to cabbage, and the northwest to potatoes, and in later years tomatoes were added. All the labor after plowing was done by hand, and while this garden was usually the best in the vicinity I do not think any cauliflower, celery, salsify, Lima beans or even sweet corn ever ventured within its enclosure during my minority, and the strawberries we had were white and few at that. I remember once when quite young, a gentleman came along with colored plates of very fine looking red strawberries, and my father gave half a dollar for three or six plants, but they never produced much fruit, and were probably a pistillate variety. There was nothing peculiar about the soil of this garden only that it abounded in angle worms and purslane, and I have often thought that the old lady who said that the pig which rooted over the hen coop was as "mean as pusley," showed a remarkable aptness in her comparison.

My father used to say that the best way to destroy purslane was to cut it off just below the top of the ground, for if pulled up it would grow whether out or in the ground, roots down or up. I have learned since that the very best way to destroy it is to stir the soil just as soon as the little red leaves can be seen peeping out of the ground. I will say no more about the garden of my nativity only that my father was in too feeble health to work in the field constantly, but managed to care well for the garden, and the requisites for a good farmer's garden have heretofore seemed to be not only suitable soil, but an industrious old patriarch, who was not able to work in the field, but would look well after the garden.

I have heard men that were called good farmers, and who grew abundant field crops, say that they could buy their "small fruits and garden stuff cheaper than they could raise it," and just so long as any farmer believes this, just so long will he be without a good garden. If we pass through the country what do we usually find as an apology for a farmer's garden? More often it is the poorest plat of ground near the house, one-half planted to potatoes and the rest to beans, cucumbers, and cabbage, with a border of currant bushes interspersed with burdocks and thistles. There are very many vegetables not only gratifying to the taste, but nourishing and conducive to health, which are seldom attempted to be grown in the ordinary garden.

With the facilities for obtaining good seeds at the present day, and the illustrated and descriptive catalogues scattered so profusely, and giving minute directions for making hot beds, planting and cultivation, no one who desires a good garden need go far astray. The only criticism I have to offer regarding these very complete catalogues is that the descriptions are so skillfully worded that a novice will imagine every variety to be the best, and have a desire to do as the countryman did with the bill of fare at the Sherman House, in Chicago, —take in everything as he went along.

The great trouble is that most farmers consider the garden as a kind of

“puttering job,” most of the labor to be done by hand, and what care they do give it must be when the field crops do not claim any attention. But I challenge any farmer to the experiment, that if he will select a good half acre of land for a garden, and give it the proper care, and keep a true account of the expense and returns at market price, it will pay him more than double his best half acre of field crops, besides the enjoyment he will get from the table and the saving of expense in the form of doctor’s bills.

I know very well that if the farmer attempts the after-culture of his garden altogether by hand he will fail, and very naturally conclude that it does not pay. I would advise the selection of a plat, the length to be two or three times the width, apply manure and plow in the fall, if possible; otherwise as soon as may be in spring, and afterwards work up the soil fine, giving a top-dressing of salt and ashes. Smooth over the ground with a rail under a harrow, and then mark out in rows lengthwise of the plat. Two or three farmers could club together and buy a good seed drill, and, if desired, one with a cultivator attachment, and the whole patch can be sown in two or three hours, and if the manuring and plowing are done in the fall the garden can be planted in spring and not interfere in the least with the preparation for field crops. Very early in spring a hot-bed may be put up with very little outlay of money, in which can be sown lettuce, radishes, early cabbage and tomatoes.

I had thought to give a list of what varieties I considered most desirable for a farm garden, but as opinions differ so much I will forbear.

Regarding the after culture of the garden, I would say that as soon as the rows can be seen, run through with a hand-cultivator—which may be made cheaply, with an iron wheel, which should run quite true in order to do good work, and a blade in the form of a stirrup. A wooden wheel is not sufficiently heavy to carry the cultivator steady. Afterwards, as soon as the weeds can be seen peeping out, run through with a horse and cultivator, of adjustable width, with very narrow teeth. If one already has a cultivator with shanks, any blacksmith can make some good reversible points or blades out of pieces of old buggy springs, which can be bolted to the shanks and answer a good purpose. By stirring the ground very frequently the weeds are subdued, the plants are kept constantly growing, and the effects of drought overcome to a great degree. As soon as the plants are well up, they should always be thinned out, which can be easily and quickly done with a narrow-bladed hoe, working crosswise of the rows. It gives a two-fold benefit, both thinning and hoeing the plants. I would suggest changing the relative positions of the various sorts each year, as the elements of soil which one kind appropriates are often different from those required for the successful growth of some other.

The least expensive way of planting and caring for a garden, as well as any other crop, is to do the work just as soon as it needs it, and if the farmer puts the work off until there is nothing else to do, he will never have a good garden; when the work needs doing, if he cannot do it himself, he should, by all means, set some one else at it. The Almighty did not say to Adam, “You go out yonder into that 80-acre lot and go to work, and if it rains so you cannot work out of doors, go and hoe in the garden.” But he gave him as his very first employment, on the great and glorious morning of his creation, to “dress and to keep that garden,” and I have often thought that perhaps it would have been better for us all if he had obeyed his orders more closely and not “meddled” so much with pomology.

Mr. Gibson: I wonder that more people do not use a hot-bed and cold frame. They are of such simple construction and really require but little tact

to manage. (Mr. Gibson here described the simplest form of hot-bed either made below the level of the ground or upon the surface.) Vegetables are improving in variety every year, but it is not difficult to keep up with the times if one takes an agricultural paper. A single example of rapid improvement I might cite in celery. Just compare the long, coarse stalks of the larger sorts with the crisp, delicate stems of the Boston market variety and their delicious, nutty flavor. Usually it costs little or no more exertion to grow the finer sorts, and as a matter of satisfaction it pays to keep up with the times in the seeds we sow.

Mr. Glidden: I can give my experience from a farmer's standpoint. I am one of those fellows that are liable to neglect the garden. In truth I felt myself hit several times in the remarks already made. When the spring is late and farm work so behind that every muscle must be exerted to "keep even," a farmer does not feel much like setting down and planning a vegetable garden, or if already planned dislikes very much to break away and sow 20 kinds of seed in a garden patch. Still I appreciate thoroughly the value of vegetables in the family. I would make three points in arranging the garden. 1, have it near the house; 2, keep it upon the same ground year after year; 3, put a high picket fence around it.

N. H. Bitely, Lawton: Is the picket fence to prevent any of the vegetables from getting away?

Mr. Glidden: Every farmer should have fowls, and the garden is no place for them. The lion and the lamb may lie down together, but the lamb will usually be inside the lion. You see the application to fowls and the garden. A good wife is important in connection with the farm garden,—one that is full of suggestions. She will hold a man to this branch of business and lend him valuable aid. I like long rows. This plan is a step in progress. My mother clings to the plan of narrow beds with rows sowed alongside of a board that is about the length of a hoe. I can see she is behind the times. Farmers are very queer about vegetables. Tomatoes will be raised one year, and the farmer will see how easily it is done, and the next season he is all tomatoes and will have enough for his family, the neighbors, the chickens, and bushels will rot on the ground. Again it will be all onions, or all parsnips. You are right, gentlemen, farmers should put more thought into the garden, and I am one of 'em.

J. N. Stearns, Kalamazoo: I wish to call up the matter of preserving vegetables for winter and spring use. I have tried a good many plans and think I have hit the very best one, in the use of common sphagnum (moss) as a packing material. Vegetables may be packed in boxes or barrels, using the sphagnum at top and bottom, and will retain their original freshness. In packing celery I use ordinary shoe boxes; a box is placed on its side and a layer of moss alternates with a layer of celery, and when full the box is set up so the stems will stand as they grew. In this way the plants may be placed in the cellar when only partially bleached, and they will come out as white and delicious as desired.

Prof. Beal: I can add a bit of testimony to that of Mr. Stearns. Sixteen years ago, while at Union Springs, New York, John J. Thomas told me he had packed beets in sphagnum the fall before, and when putting in his next crop, there being some of the old roots left over, he could not tell the difference, the latter had been preserved so perfectly. I have since tried the plan myself and am satisfied that Mr. Stearns has not spoken too highly of it.

E. H. Scott, Ann Arbor: The market gardeners in our vicinity keep celery

very well by setting the roots in boxes as suggested by Mr. Stearns, with a little moist earth in the bottom and the stems packed in dry, clean straw.

Wm. Rowe, Grand Rapids: Henderson describes a successful plan of keeping celery and bleaching at the same time. The roots are taken up after having made a good growth and without mounding up, and placed in tight boxes with a little water in the bottom. They keep on growing, blanch beautifully, and make a fine quality of celery for the table. I am wonderfully pleased with a comparatively new variety of celery called London Scarlet.

Mr. Tracy: The matter of hardening-off vegetables in preparation for the open garden is a very important one. Plants should be prepared for planting out, first by transplanting into boxes from the seed bed; then just before placing in the garden, water should be withheld for a day so that the plants shall be quite dry. Then if placed in moist earth immediately after giving them a good soaking, they will grow on without any check.

Mr. Potter: I raised last year a field of ruta-bagas at a minimum expense. The rows were placed two and one-half feet apart and the plants thinned in the row with a hoe; a dressing of wood ashes was given, and in harvesting the tops were removed with a sharp hoe, and the roots pulled with a potato hook.

H. D. Adams, Galesburg: I have a simple plan of making a hot-bed cover that works well with me. A light frame is made the size of the bed, and a cover of sheeting stretched over it. This is given a good coat of boiled oil, and when dry is given a second coat. Then sheeting is stretched on the reverse side of the frame and treated in the same way. This has the same effect as double glazing, is cheap and very satisfactory.

Mrs. Adams explained the methods of preparing some kinds of vegetables for the table.

Mr. Gibson: If you have never tried it you will be surprised to learn how good celery is cooked as asparagus is ordinarily prepared for our tables. The stems that are rejected as not quite nice enough for eating in hand are excellent when prepared in this manner. The delicate flavor of the celery is retained perfectly.

Mr. Tracy: In our family we think a good deal of spinach, and have learned in its preparation for the table to place salt in the water in which it is to be boiled; and the leaves are not put in the water until it boils. The salt allows the water to get hotter before it boils and thus the vegetable is cooked more quickly and is seasoned nicely at the same time.

The hour of eleven o'clock having arrived Professor Beal was called on for his address, entitled

WHAT CAN BOTANY DO FOR HORTICULTURE?

[The following is only an abstract.]

Horticulture is a department of agriculture, and includes pomology, floriculture and vegetable gardening. It is intimately related to arboriculture and landscape gardening, and is almost inseparable from botany. The intimate relations of botany and horticulture are almost too obvious to need mentioning. The new botany of to-day is a very different thing from the old botany of 30 or 40 years ago. Botany was then chiefly studied by medical students who wished to learn the medical properties of plants. The leading botanists then gave most of their time to discovering, naming, and classifying new plants. From 1850 for 12 years, morphology may be styled the leading idea

in botany. What is morphology? I will show you by referring to these charts which illustrate the various forms of roots, the numerous forms of stems, some of which are often mistaken for roots or leaves, and the numerous forms of leaves.

From 1862 to 1875 in this country what Gray calls "How plants behave," may be said to be the dominant feature in the science of botany. From 1875, with the appearance of the grand text-book of Julius Sachs, vegetable physiology has been considered the leading thing in botany. All of these different phases of the subject have their value, and none of them should be ignored.

Botany is yet by some too often placed with the fashionable studies which give accomplishment to young school girls. In the new botany, plants are dissected and all of the parts studied with simple and compound microscopes. Students are at once set to observing for themselves. They study plant growth. They study the various tissues, their relation to the soil, air, heat, moisture, how they feed and grow, how the sap circulates, how it is assimilated. They study the effects of gravitation, the movements of plants, how insects are attracted by showy petals and nectar, which are mere advertisements to allure and pay the insects for fertilizing the flowers. They study the arrangements by which cross fertilization is secured in plants, and the devices by which unwelcome insects and other animals are kept away. They study how certain plants entrap and devour insects and worms. They study how plants twine and climb by tendrils, roots and leaves; how nature sows seeds and sometimes buries them in the ground. [The above were fully illustrated and examples given.] They study and compare leaves and buds and branches, and learn to distinguish one young tree from another by this means. In a word, they learn to see by constantly trying to see. They learn to experiment by constantly trying experiments and carefully noting the results.

Botany relates almost entirely to the science of horticulture so far as any relations exist. There are countless numbers of plants in great variety. Without botany they would be in hopeless confusion. The study of botany as now pursued in the best schools cultivates the analytic and sympathetic powers of the mind, *i. e.*, it trains the mind to analyze objects and how to compare and classify them. Professor Henslow says "Experience has satisfied me that structural botany may be more conveniently and extensively employed than any other branch of natural science for strengthening the observant faculties and expanding the reasoning powers of children in all classes of society." Better observing and reasoning powers are admitted by all to be valuable stock for any one engaged in any department of horticulture.

Baron Von Liebig said: "The scientific basis of agriculture (of course including horticulture) embraces a knowledge of all the conditions of vegetable life, of the origin of elements of plants, and of the source from which they derive their nourishment."

Professor Lindley said: "Good agriculture and horticulture are founded upon the laws of vegetable physiology. No man deserves the name of gardener who is not master of everything known as to the way in which plants feed, breathe, grow, digest, and have their being."

Botanists—and botanists only—are employed to explore countries for new plants which are valuable for their beauty of foliage or flowers, or valuable for fruit, for grain or forage. Descriptions of plants for dictionaries or other purposes are not possible without some knowledge of botany. No one can now give a good description of a new apple, pear, peach, plum, cherry, raspberry, strawberry, potato, Indian corn, wheat, or clover, without knowing consider-

able botany. Who have written on science, or the theory of horticulture? Such men as Dr. Lindley, President Knight, J. J. Thomas, and Dr. J. A. Warder, who are good botanists. Who suggest the most intelligent and valuable horticultural experiments? Lindley, Knight, Darwin, and other noted botanists. In Morton's Cyclopædia of Agriculture, nearly one-fourth of the text consists of descriptions by botanists of useful and ornamental plants. In similar works devoted to horticulture, a much larger portion must be prepared by a botanist. The preface of the cyclopædia above named contains these words: "The comparative quality and productiveness of the different kinds of wheat, barley, oats, and the different root-seeds, together with the successive introduction of new species from other countries, have so connected the researches of the botanist with the interest of the farmer that to no science, historically speaking, is the agriculture of this country so deeply indebted as to botany. I have shown, and will further show, that the statement is also true with regard to improving our cultivated plants by crossing and hybridizing, and the study of their physiology. If men knew the structure and uses of roots they would not carry trees in the sun on a windy day, for miles, without any covering. This is often done. A knowledge of vegetable physiology teaches a person the effect on a plant of flowering, of seeding, of high culture, or poor culture, of root-pruning, of pruning the top, of pruning at different seasons of the year. It teaches how to manage plants to produce flowers, and how to manage them to grow without flowering. Geographical botany teaches us, if the soil and climate are known, where a plant thrives, how to treat a new plant in a strange country. Here, however, come in the value of experience, experiment, and reason. Plants are not always found in a wild state where they will thrive best. This is true of many of our weeds, and of quite a large number of our plants in cultivation. Considerable knowledge of botany is needed in the care of an arboretum, or a plantation of forest trees for producing timber or fruit. As well might a man try to be a surgeon without a knowledge of anatomy as a forester without his botany. Many gardeners come to this country from Great Britain and the continent of Europe, where the climate is very unlike our own. If they are ignorant of the science of botany, and have only learned by experience, as an apprentice learns a trade, they are most sure to fail in America till they begin and learn the trade over again. If a gardener is well grounded in a knowledge of the principles of plant growth he will very soon become master of his new situation, no matter where he may go.

For want of a little botany results are often attributed to wrong causes, as to improper soil, when something else is the matter. For the same reason many worthless experiments have been made, wasting time and money. A knowledge of botany often enables one to explain why trees blossom but do not bear fruit; why certain varieties of strawberries will not bear when planted by themselves; why cucumbers and melons often fail to bear when planted in greenhouses or in hotbeds. A knowledge of botany suggested to our friend, W. W. Tracy, that he might increase his crop of squashes by artificially fertilizing the flowers. It is now a well established belief with our best horticulturists that artificially crossing and hybridizing plants, which are selected with some purpose in view, is the surest way to produce new and improved varieties.

Professor Tracy, in his lecture on "Progress in Horticulture," four years ago, showed us that horticulture had advanced but very little in the past 150 years, excepting in two respects: The greatest of these was due to the botanist, who made a systematic effort to originate new varieties, as above mentioned. The second

in importance was due to the entomologist for his systematic warfare against insect enemies. The botanist discovered that bees and some other honey-loving insects were his friends, so far as visiting flowers was concerned. They take from flowers only what was placed there in surplus pollen, or in nectar to induce visits for the benefit of the plant. The botanist alone can collect and plan a botanical garden and give instructive lessons on the subject, and on most of the interesting plants which it contains. The botanist points out the affinities and relationships of plants, and has never failed to name those which might very likely be successfully grafted on to each other. He can often foretell the effect which a certain stock will produce on a scion. He would know better than to attempt grafting a chestnut on a horse-chestnut, as I have seen done by a "practical" man. I use the word "practical" as too often misused.

A knowledge of botany set Professor Burrill to experimenting on blight of the pear and apple tree to find the fungus which very probably causes disease. Botany explains the process of raising mushrooms in the dark, rich mould. It led to the discovery of the cause of potato rot, the cause of blight in lettuce, mildew of the grape vine, rust in wheat, smut in Indian corn,—with some suggestions as to the best remedies. It discovered the fungus which caused the death of silk worms, wasps, hornets, and flies. Probably horticulture has only just begun to reap the benefits from this department of botany, which is yet destined to solve many vexed problems. Another advantage of having some knowledge of botany is this: You can learn to be accurate in the names of plants. The common names of plants are very unreliable, because everybody in any part of the country is all the time giving his own common name to any plant which is new to him. The plant very likely is not what he thinks it is. He gives it a new name. Our grasses are in inextricable confusion among all but botanists, and even they are puzzled in some cases. The late Senator Chandler pulled a handful of red-top and other wild grasses from one of his hay stacks and showed it to a crowd of friends with the exclamation, "Here is your fowl-meadow grass, pure and unadulterated." He supposed he bought seed of fowl-meadow grass in Vermont. So he did, but it was mixed, or the grass for the stack in question came from a piece of wild marsh. Many people would not have known the difference between red-top and fowl-meadow grass.

A similar confusion exists in the names of many of our forest trees, ornamental trees and shrubs. We have two kinds of maples, indiscriminately called soft maple; two kinds of elms, called the white elm. Trees and herbaceous plants of certain kinds indicate the nature of the soil. Botany is often a great help to a man in detecting a new weed, when it has first been sparingly introduced. If then attacked, it may be easily subdued before spreading all over the farm. This is often the case with Canada thistles and quack grass. Botany is valuable for bee-keepers, an industrious and amiable class of persons becoming quite numerous. Every time a bee-keeper discovers his bees busy on a plant, he wants to know what it is, because he thinks he has found something new and of great value. These persons often send a plant to the botanist for identification, and he tells them it is *Solidago canadensis*, *Diplopappus umbellatus*, *Aster macrophyllus*, *Eupatorium sessilifolium*, *Scrophularia modoso*, or some other name equally intelligible to them. The fact is we have about 1,600 good bee plants east of the Mississippi river.

For the florist some knowledge of botany is indispensable. Farmers, bee-keepers, florists, vegetable gardeners,—all classes of inquiring minds are often anxious to learn the names of some plant which is new to them. The botanist is often called on to identify the seeds which are bought among those of grasses

or flowers. Seedsmen quite often appeal to the botanist to tell them whether a certain seed is genuine or not.

The horticulturist may think he could get along without a knowledge of botany. He may believe that he could learn everything by practical experience. This is a very slow way. He would only acquire a moderate amount of information in one lifetime, and that is all that is given to any mortal in this world. We get most of our knowledge at second-hand. We can not begin at the foundation of everything we come in contact with. It is true that there are many good horticulturists who have but a very little knowledge of botany. They have learned much of those who were botanists, or those who had directly or indirectly learned of botanists. As colleges and normal schools are necessary to educate the teachers, make books, and keep up an interest in education, that we may have good common schools, so botany is necessary to the advancement of horticulture. It is very likely that some small discoveries in horticulture have been made by persons who know very little botany, but with a fundamental knowledge of plants the same person would doubtless have made much greater advancement in horticulture.

In very many respects, then, botany will make a horticulturist more capable. It will make him a good observer, improve his reason, strengthen his judgment, cultivate his taste, broaden his views, weaken his respect for the traditions of his fathers. It will sharpen his wits, make him an investigator, and help make him a better neighbor and a better citizen.

M. H. Bixby: I would like to ask Prof. Beal if there is danger of communicating disease from one tree to another by means of the pollen.

Prof. Beal: You refer more especially to the yellows, I suppose? Well, diseased pollen will probably have no influence in fructification and does not carry disease in that way, but if the disease is caused by a fungus, which propagates itself by minute spores, these little bodies might become attached to the pollen grains and be carried down the tube of the pistil and thus enter the circulation of the tree.

Mr. McNaughton, Jackson: While in Cincinnati during the past season I noted a Virginia creeper with roots like the poison ivy. Was that a sport or a new variety of the species?

Mr. Gibson: Was it not the new Japanese species?

Mr. McNaughton: No, it was the *Ampelopes quinquefolia*.

Prof. Beal: Mr. McNaughton I know to be a good observer and although I have never seen the Virginia creeper with these aerial roots developed in place of tendrils I am prepared to receive his testimony.

C. A. Dutton, Holland: It is not true that the Virginia creeper varies a great deal in its ability to cling by means of its suckers?

Prof. Beal: Yes, I have noticed this fact in my experience upon the college grounds. Plants have an individuality in this respect, and cuttings propagated from them will carry the peculiarities into their own growth.

Mr. McNaughton: This year I have tried to raise some cauliflower, and although I have given the plants good soil, good care and plenty of water, still they have not headed satisfactorily. What can be the matter?

Prof. Beal: The chances are that your seed was poor.

Prof. Cook advocated the application of pure science to horticulture and gave some capital illustrations of the important bearing that pure scientific investigation has had upon medical practice in France. He cited the microscopical researches of Pasteur, who studied the blood of animals that died of malignant anthrax and found the cause of the disease in a fungoid

growth that multiplied rapidly in the blood. The disease was taking off its thousands of animals and no remedy was found. It was even communicated to men. While the disease was raging Pasteur in a quiet way continued his work with the microscope. It was found that sheep became diseased in fields where animals had died of it a long time before and been buried 10 or 12 feet below the surface. It could not be accounted for until Pasteur's microscope found the same deadly germs in the earth-worms that burrowed in the pasture, and had brought them in their own circulation from the buried carcasses to the surface. He found that he could multiply these germs in chicken broth kept at blood temperature, and while he studied them he inoculated healthy animals with the germs and found that as a result of using the cultivated germs for inoculation the animals thus taking the disease had a light form of it. Pasteur continued his researches so far as to learn that animals having had this light type of the disease could not be induced thereafter to take on the deadly anthrax by inoculation. Thus far his investigations had been purely scientific. Now look at the practical result. Pasteur was given 50 sheep for a public demonstration. He inoculated 25 with the mild type of anthrax and marked them. Upon a certain day about a month thereafter a large number of prominent people witnessed a confirmation of this man's theory. He said he would inoculate the 50 sheep with deadly anthrax and 25 of them would die in 24 hours, while the remainder would remain perfectly healthy. The result exactly coincided with his predictions. The 25 marked sheep were uninjured. Here we have a discovery made by a man delving in pure science which will prove of inestimable value to the owners of stock, and even in saving human life. But how many that reap the benefit will still laugh at scientific men and call them hair-brained theorists? I say all honor to Pasteur and any and all other scientists who benefit the world by their careful researches.

Prof. Tracy followed with other illustrations in practical horticulture, saying that scientific workers are rarely given credit for the discoveries they make by practical men, because men do not know the intimate relation between these discoveries and advanced methods of practice. One illustration given by Mr. Tracy was this: Peter Henderson has recently put a great deal of stress upon the necessity of packing the earth with hand and foot about the roots of plants that are transplanted. This practice is not old but has been taken up as a practical inference from the discovery that plants feed by root hairs and not by spongioles.

The society now took a recess until afternoon. A grand dinner had been prepared by the ladies and was in waiting at another hall to which all repaired, and in the most jolly way imaginable united in doing complete justice to this most agreeable arrangement.

Afternoon Session.

The meeting was called to order with Mr. Satterlee, of Greenville, in the chair.

Prof. A. J. Cook, of the Agricultural College, opened the general subject of Birds, Insects and Diseases with a paper upon

NEW INSECT PESTS AND NEW WAYS OF FIGHTING OLD ONES.

After calling attention to former statements concerning bisulphide of carbon as an insecticide, Prof. Cook detailed his experiments with carbolic acid, which the reader will find in the Secretary's Portfolio of this volume. He then said :

I have a second remedy to bring to your attention, more as a suggestion than as a positive recommendation. All observers have noted the fact that many of our most destructive insect pests are attracted by lights. This led the great pioneer of economic entomology, Dr. Harris, to recommend the building of fires in the garden and orchard to effect the destruction of these insect destroyers. Such fires involve so much labor, and are so local in their effect, that they are not generally adopted by those most interested in this insect warfare.

Last summer I received from Mr. Carroll, of the Agricultural World, a cigar box full of insects, with the remark that they were a part of about a bushel which had been attracted and destroyed, in one evening, by the electric lights in the city of Grand Rapids. The examination of the insects in this box led to a knowledge of some very interesting facts. Among the beetles that I found were more than two score of the rose chafer, *Macrodactylus subspinosus*. You of South Haven know too well this little plague. This is he that is said by some of you to grow fat on Paris green, and then chuckle at you for thus trying to effect his banishment. Wouldn't it be sweet revenge to invite him to an exhibition of the electric light, and then use him to illustrate the beauty of cremation? There were many others of our most dreaded insect foes in that box. The tent caterpillar moth, *Clisiocampa Americana*, our worst cut-worm moths, as *Agrotis subgothica*, and even the little Turk, or plum *Curculio*, had become victims in great numbers to this fatal curiosity to know more of this, one of the greatest of our recent inventions. Thus we have clearly demonstrated the fact that this light will attract and kill some of the very worst pests of the orchard and garden, some of which are proof against any other practical remedy so far as we have yet experimented.

Another fact that has impressed me very strongly is the great distance that this light throws its alluring beams. By elevating the light sufficiently it would throw its inviting rays for miles into the country, and I see no reason why it should not attract just as strongly as though it were nearer the earth.

Now for the practical application of this matter. I know of no more favorable place in which to try an experiment of this kind than right here at South Haven. First, you are an enterprising folk, who are willing to put out feelers where very likely you may feel in vain, for the very fact of an experiment implies a doubt of any practical gain. Again, the motive power could be had at one of your mills in town, and so the expense would be but a trifle. The experiment for a month would cost less than the proceeds from one of your exhibitions, in premiums, at the State Fair. Such an experiment through the month of June, when it should be tried, might bring such fruits as would carry the name of South Haven down all the long future as a benefactor in the pomological world.

Again, from the variety of fruit and other vegetables raised in the very suburbs of your favored town, there is no place where this experiment would receive so fair a trial as here. One experiment for a single month would settle the matter for all the future. But does some one say, why not do all of this at

the College? That is what we want of you. Well, I am making an effort to do that very thing. But as suggested in what I have said above, we are not as well situated to give this a fair trial as are you here. We have no rose chafers, we have no peach trees, and, indeed, the concentration of different plants is not such as to make the experiment show forth its possibilities. But if you will enter into this matter I will promise to examine the game and faithfully report the importance of the catches that you may make. And further, if the method proves of no practical value, which, of course, may be the case, I will condole most sorrowfully with you; yes, and rejoice, too, that one more point is satisfactorily settled. There is one more point not mentioned in the above. Your streets would be lighted just as they do it in Paris. The press of the country would herald forth the fact that South Haven was lighted by electricity. These items would teem with such terms as push, enterprise, excelsior, and *mirabile dictu*.

NEW INSECT PESTS.

Perhaps no year has been so noted for new insect enemies in the United States as the one just past. A newly-imported weevil, *Phytonomus punctatus* Fab., has been terribly destructive to the clover in New York. Acres of this most valuable forage plant have been ruined. Another moth, *Crambus vulgivagellus*, a common moth in our State, has developed a very unwelcome habit in New York. It has done great damage to the meadows of the Empire State. Of course we do not know when these enemies may essay to blight our prosperity, but as "sufficient for the day is the evil thereof," I will only speak at this time of such pests as have invaded our goodly State for the first time in destructive numbers. The little grain moth, which is playing havoc in the bins of some portions of our State, is not a horticultural pest, and so may rest at peace at this time. The enemy which all of us as horticulturists are interested in, as its ravages touch our pockets, is the corn-worm, or cotton-boll worm of the South, *Heliothis armigera*. This moth has long been destructive in the States south of us, but has not attracted attention here till last year, when it was brought to my notice as doing no little damage to the corn. This year it has renewed its mischief, and has managed some way to become scattered well over our State. This insect, as the cotton-boll worm of the South, is next in its destructiveness to the real cotton worm, *Aletia argillacea*. As an enemy to the corn crop, in the west and southwest of our country, it is almost as much to be dreaded, especially in dry, hot seasons. In Kentucky whole fields of corn have been entirely ruined by this pest at several different times. In southern Illinois it has often been very destructive. In Kansas, during the dry season of 1860, it is said to have reduced the corn-crop in some entire counties to one-fifth the average yield. These larvæ also feed on tomatoes, pumpkins, peas, hemp, tobacco, and lucern. These latter plants, however, are not favorites with it, but are preferred to starvation. This moth is a cosmopolite, as it is found not only in our own southern and southwestern States, but it exists everywhere in Europe, in Japan, Australia, and all through South America. The fact that it has not visited the North before,—I say North, as this year it is found not only in Michigan, but in New York, and even Ontario, —is probably that our seasons are usually too cold for it. If this is correct, then we may expect to be troubled with this pest only occasionally a year. Yet we fail to see why they paid our State a visit in 1880, as the summer was very wet and not very warm.

The larvæ as they are found eating the corn from the ear are very variable in color. Some of them are bright green, some quite dark, while others are of a pink hue. Whatever the general color, however, whether gray, brown, pink, or green, they are all lined with darker colored stripes. When full-grown these worms are one and one-fourth inches long; I have seen them one and one-half inches long.

Like nearly all of the *Noctuidæ*, the family to which this insect belongs, this insect pupates in the ground. The chrysalis is found in an earthen cocoon, a few inches beneath the surface. It seems probable that they pass the winter in all the stages, as I found them late this fall as partly grown larvæ, as pupæ, and as imagos or moths.

The moths are variable in color. I have found them of all hues, from yellow to brown to obscure olivaceous. Whatever the color, however, they are always flecked with a darker color. The moth is an inch long, and expands one and one-half inches. Unlike most of the *Noctuid* moths, these fly in the hottest sunshine as well as in the night. This fall, in November, I caught a great many of them on our flower beds during the hottest time of the day. They are not easily disturbed when sipping nectar from the flowers, but when they are once disturbed they dart off with a remarkably rapid flight. We also took them at night, on sugar, in great numbers. If these moths all pass the winter in safety, we may well tremble for the corn in the spring. I think it very doubtful if these moths that were flying so abundantly this fall do any mischief, as I expect they will mostly die before their eggs are deposited, or if the eggs are laid they will not be in a position to do much harm, even if they retain their vitality during the winter.

REMEDIES.

As already suggested, it is not likely that we shall find this pest able to do us continuous evil; but as it may have come to stay, it will not be amiss to suggest ways to fight it. Prof. Comstock suggests fall plowing, which he thinks will destroy the pupæ. To this I would add the method already described, of attracting them by lights and thus destroying them; also trapping them by placing dishes of sweet liquids in the fields, in which they will be drowned. Nothing is better for this purpose than stale beer and the cheapest New Orleans molasses, half and half. Sour milk is also good for this purpose. As the eggs are laid on the silk of the corn, these latter remedies should be applied when the corn is in silk in June, and for the second brood of moths again in September. As stated above, the third brood of moths appeared here this year late in November. This may have been due to the very mild, dry fall.

E. Graham, Grand Rapids: Will the Professor suggest some remedy for the cabbage aphid?

Prof. Cook: I know of nothing better than pyrethrum powder.

J. J. Parshall, Ann Arbor: I expect a visitation from the seventeen-year locust next summer; what shall I do?

Prof. Cook: Unfortunately I have never been where these insects abounded, and have no knowledge of them save in their natural history.

Question: What about the codling moth; have we anything new and good?

Prof. Cook: I can give some facts, but hesitate to make any recommendations in connection therewith. I have been very successful in the use of Paris

green, and others have, and for myself I would not hesitate to use it, but some of our best entomologists consider there is great danger in the use of this poison, and I prefer not to be put on record as recommending it for others' use. I used the poison on my own trees and shall not hesitate to do so again.

H. W. Doney, Jackson: Did you eat the apples?

Prof. Cook: Yes, without hesitation, and have experienced no disastrous effects. I took a hundred calyxes out of as many apples when full grown, upon which Paris green had been used freely, and placed them in the hands of Dr. Kedzie, who did not succeed in finding a trace of poison, and chemistry, you know, detects pretty small quantities.

H. P. Hanford, Bristol, Indiana: I know that London purple is an effectual remedy for codling moth. I have tried it, and one application does the business. I use five ounces to 48 gallons of water. The same solution will use up the thrips on our grape vines.

J. S. Woodward, Lockport, N. Y.: We use Paris green in solution for destroying the codling moth. We use it instead of London purple because there is not so much danger of killing the leaves. In western New York we feel pretty good over this application of Paris green for it originated with us. Two men will spray 100 trees in half a day by the use of appliances that will suggest themselves to any orchardist, and it will be remembered that while working against the interests of the codling moth you are defeating the purposes of the canker worm and leaf slug, and I have yet to learn of a single instance where any one has been injured by the use of the poison. I confess that for my own part I do not use this remedy much for I have a better one.

A voice: Tell us about it.

Mr. Woodward: I have told it before in your meetings. I grow hogs and sheep in my orchards. The latter I consider rather the best "insecticide" for hogs sleep too soundly. I know that others have not found this plan successful, but my belief is that their lack of success is owing to their stinginess. A good many more sheep should be kept in the orchard than will be supported there, and they should be fed well and given plenty of pure water.

Mr. Hanford: I have seen trees peeled by sheep the whole length of the trunk. Don't you find trouble?

Mr. Woodward: No sir; good water for the animals to drink and a wash of whale oil soap on the bodies of trees will effectually prevent this.

A paper was now read from the pen of H. D. Cutting, an apiarian and horticulturist of Clinton, Lenawee county, upon the topic

BEES AND GRAPES.

In commencing an article of this kind I am well aware there exists a great prejudice in the minds of some horticulturists in regard to bees doing damage to grapes and other fruits. I have talked with a great many fruit men and find many will say, "The bees just swarm on my grapes and destroy them." Again I find men who say, "The bees swarmed on my fruit, but I found they were after damaged fruit and did not touch any that was sound."

About five years ago I commenced a series of experiments to ascertain if bees did do any damage to grapes and other fruits. I found that bees would go on to grapes if they were in a damaged condition. I found that the wasps and birds did the damage in some cases and then the bees would finish up their work. Great changes in the weather at time of ripening would cause grapes to crack open ever so little and the bees would go on and clean them out. In

the whole five years I failed to find a single case where bees did actually bite open the skin of fruit and destroy it; but if there is the least opening in the skin from any cause and the flow of honey is scarce, they will clean out all damaged grapes, but will not go near fruit of any kind if honey is plenty; and I ask, is it not a benefit in place of a damage? None of us want to pack fruit in a damaged condition, grapes especially, for if on a cluster of grapes are only a few cracked ones they will spoil the whole cluster and all others they may come in contact with if they lie any length of time.

I have over thirty varieties of grapes, some with very thin skins and some very early, and I cannot get my bees (I have four varieties) to touch any sound fruit. I have cut fine clusters of very ripe fruit and placed on the platform of the hives; the bees would go over and around them. I then cut small openings in a few berries and in a few moments they were covered with bees cleaning them out. After finishing all those cut, they went all over the sound ones but did not cut one of them. I made a few pin holes in some with the same results; all were cleaned out. I had some very thin skinned grapes sent me for trial, but with the same results as before; none were touched unless first punctured. I suspended a cluster under a tree and poured sugar syrup on it. They took all of the syrup but did not damage the cluster until a wasp managed to bite three berries before I could kill it. Those three the bees finished.

In conclusion I must say that with the many different experiments covering a space of five years, being surrounded by bees, and affording them every opportunity of doing damage, and failing to find them doing any, I think those who are so bitter against the bees had better experiment for themselves and ascertain if the bees do them any damage or not. They may come to the same conclusion as the good people of Massachusetts, who years ago thought the bees were a damage to their fruit and had them banished; but finding their fruit began to decrease and to be of a poor quality, were only too glad to have the law repealed and get the bees back again, when their fruit began to improve. The field is broad, let all those who have their doubts carefully experiment for themselves.

Prof. Beal: I would like to ask what bees will do when nearly starved to death?

Prof. Cook: I have experimented a good deal in this direction, and find that when starved, bees will gnaw to get out, but will not attack whole grapes to get something to eat. If a bunch of grapes is put between the starving bees and the light they may in their endeavors to get out gnaw open a grape, but it is purely accidental with them.

Prof. Beal: We can put these two things together then: bees can gnaw—they have mandibles that can be used for this purpose; when a grape is burst open they will take the inside out—they like grape juice. Then may we not expect they will be found damaging the grapes with the intelligence that is claimed for them?

Mr. Lannin: I am confident they will destroy peaches from my own observations, and it matters little to me whether they make the first incision or not.

Mr. Barnard of the Western Rural detailed a year's experience in which bees did his grape crop an enormous amount of damage, and he had every reason to believe they made the first openings in the skin of the grapes.

Mr. Edgell, South Haven: One season I allowed a neighbor to set a few hives of bees upon my premises near the vineyard, and this is the only year in my experience that my grapes were injured by bees. I believe they used their jaws upon the outer grape to get at the pulp.

Mr. Sheffer, South Haven: I am satisfied the bees ate a good many of my peaches, but feel just as confident that the first break in the skin of the peach was made by a green tree hopper.

Mr. Sailor: It occurs to me that peaches should be gathered for market before they are in condition to be enjoyed by bees.

Mr. Linderman: In my case the past year the hail storm broke the skin of the peaches, and the bees made their way inside from these openings.

Prof. Cook: The best argument outside my own observation has come from the fact that Prof. Riley, who is always ready to sustain his position when taken, by statements of experience and observation, has neglected to do so in this case. A number of years ago he took the same position against the bees that many of you do here, and although opposed by all the most observing bee-keepers in the land, he has not renewed his argument nor combatted them in the least.

Mr. Lannin: What shall we do for the ants which are such a troublesome pest in the house and in the orchard?

Prof. Cook: Molasses and Paris green, and bisulphide of carbon are both good remedies.

Mr. Edgell: Are the "snap bugs" that we find when hunting curculio liable to do any harm?

Prof. Cook: No, they are not bad except as one species produces our wire worms.

Prof. Beal suggested that a good way to catch ants was to place a sponge moistened in sweetened water in their haunts as a trap.

Mr. Lawton recalled the question of bees and grapes, and said that wasps, yellow jackets, and black hornets had damaged his grapes to a considerable extent, but thus far he had no direct testimony against the bees.

The chairman announced that the time for this subject had been fully taken, and called upon the secretary to read a paper sent by Prof. Burrill of Illinois Industrial University, at the request of the society, upon the question

HAVE WE ANY NEW LIGHT ON PEAR BLIGHT OR YELLOWS?

Upon the yellows of the peach, I have nothing further of practical investigation to report. No attempt at further examination of the affected trees has been made because it seemed to me the only satisfactory study of the disease which could be made must be on the grounds, among the infected trees, with abundant material collected by the investigator, or, if not, by some one equally as competent to select and to judge of conditions, influences, and effects. While therefore no confirmation of the published accounts can be offered based on new observations of diseased peach trees, it is not the case with other apparently similar, at least in some respects, plant diseases, and it may be appropriate to say that I am still very confident that the immediate cause of the disease called yellows is a living organism, so small that its presence has been overlooked by those who have studied the diseased tissues with the aid of the compound microscope. I am aware that some have reported the finding of the mycelial threads of large fungi, and that a very common idea prevails that the roots of the tree are first—at least in many cases—attacked. Dr. B. D. Halstead failed after very careful, and, I may add, very skillful microscopical examinations to find any such disease producing mycelia. In my own too limited examinations nothing of the kind was observed. Having long studied plant diseases like the rusts, smuts, mildews, etc., and thus gained something

of an acquaintance with the general characteristics of these maladies of cultivated plants, I cannot readily credit the statement that the yellows is due to any similar parasitic fungus, the published descriptions of the disease being for the most part my information concerning it. Besides this the spores of moulds and the hosts of decay producing fungi being ubiquitously present and germinating wherever favorable conditions permit, it is exceedingly easy to mistake their vegetative threads (mycelia) for the true disease producers. It is, therefore, to my mind, quite improbable that any one or more of the species or classes of the ordinary parasitic fungi having distinct vegetative and reproductive systems, cause the peach yellows.

On the other hand the well demonstrated contagious nature of the disease strongly points to a something capable of growth and multiplication; no mere chemical poison nor simple exhaustion with vital debility. These latter do not increase and become widely distributed through any process of contamination. An inorganic poison accomplishes its work and disappears, or at least grows less effective through the dissipation of its substance. A sickly animal or plant may genetically produce offspring inheriting constitutional weakness and diseased individuals may thus be increased in numbers; but it is, in questions of this kind, exceedingly important that we distinguish clearly and certainly, as we may, such a propagation of disease from that produced in healthy individuals by inoculation. It is true the effects of the latter may become inheritable, but if so, because the pathological agent continues to reproduce itself after being once introduced; and this continued reproduction at once announces its true nature. It cannot be too well understood that the separate cellular elements of the higher plants do not readily propagate themselves. Wounds in plants, except under peculiar circumstances in the cambium, do not even heal in any proper sense. The old injuries are simply overgrown, covered up by new material, without union or any sort of connection of growth. It is absolutely impossible to transfer living cells of any of the higher plants to other living plants of the same kind and cause them to grow in their new situation by any process like inoculation with a needle. It certainly is never true that the simple fluids of a diseased plant can injuriously affect a healthy one except perhaps as a local and temporary poison. There is no such thing as multiplication and increase in these cases.

Leaving grafting and budding out of the question, whenever a disease is found to be communicable from an unhealthy to a healthy plant by inoculation, we may rest assured that the virus contains some organic, living, parasitic germ, capable of self reproduction and possessing a vitality and life history of its own. It is so in the animal economy. There is no longer the least ground for doubt as to the nature of vaccination as a preventive against small pox. The vaccine virus owes its potency to a discovered living, self propagating organism. Small pox itself grows and prevades the entire body from a small beginning, and the microscope reveals the minute agent and its manner of increase. Similarly there is no further room for question as to the nature of the morbid agent in diphtheria. Not only the existence of the actual and active disease producer is known, but its shape, size, color, composition, and many of the conditions required for its development have been studied and established. Some of the other contagious diseases of man and the higher animals are as well or better known, all pointing to the same or similar origin, parasitism.

Having, for reasons stated, expressed the conviction that the yellows is not due to the more highly organized parasitic fungi which send their vegetative system through the internal tissues and produce their fruit or reproductive bodies only

on the surface, we reach by exclusion the probability of bacteria-like organisms, and sufficiently account for their discovery now by investigators by their exceedingly minute size. Further, such organisms have been found (by myself) in great numbers in two different sets of specimens. Two lots of specimens ought not to be allowed to decide a matter of so much consequence, and for myself, these examinations would only be taken as strengthening a probability, did not the published accounts strongly support the results reached. Nothing can be clearer from practical experience than that the yellows is contagious, that the malady may be spread with the pruning knife or that it does spread in some way from diseased to healthy trees in the orchard.

It is very doubtful as to the roots being in any special sense the chief seat of the disease. In my specimens the roots were not infected at all, neither can we suppose the organism believed to be the exciting cause lives in the earth. The contagion is rather in the tops from which the roots as well may be infected.

But the members of your society will surely ask, "What preventive or remedial measures can be adopted to eradicate the pest?" Perhaps some will say, "To know the cause is nothing, the cure is the valuable thing." While you will not expect me to indorse the negative part of the last sentiment, it does seem to me that there is sufficient support for the careful, vigilant "stamping out" already in operation through the efforts of your society. To do this effectively and economically, there is scarcely a doubt as to the value of further scientific investigation. If, in pursuance of its good work, the Michigan State Horticultural Society can bring this about, another laurel will be added to its many splendid tokens of victory and success.

BLIGHT.

The announcements of last year upon the cause and character of the so-called blight of the pear have been confirmed and verified during the past season. Further inoculations have been followed by similar results, and the disease in nature, studied under the light of its artificial production, is, I venture to affirm, pretty well understood. Want of sufficient attention has still left many questions unanswered, but there is certainly a reasonable prospect that all these having important bearing can be solved.

The most important result of some experiments and continual observations during the last summer (so far as my own efforts are concerned) is the recognition and demonstration that the disease known as fire-blight in the pear is a common one in other plants. According to my observations, the so-called twig-blight of the apple tree is much more prevalent and destructive in Illinois than in Michigan. Of the identity of this and pear blight enough was advanced last year. The fact is our apple trees are, if not as much injured as the pear, badly affected. Not only the twigs, but often larger limbs, and great patches on the trunks, succumb to the destroyer. Whole trees, ten to twenty, or more, years old, die in some, though not numerous, instances, in one season. The Lombardy poplar is with us more liable to be taken off than any fruit tree, and the disease in cause and consequence is assuredly the same thing. It may be, for it has been, communicated from one to the other by inoculation. Thus this worthless poplar is a dangerous neighbor for a pear or apple tree, though how dangerous cannot now be told. A beetle (*Agriolus*) bores the bark and outer layers of wood doing considerable injury itself to this rapidly growing tree, but in most cases the wounds thus made speedily heal over when permitted to do so. The latter, however, is by no means always the case, for the entrance way through the outer coats having been made, the blight bacteria

penetrate to the living tissues, and set up the deadly fermentation of the carbonaceous food materials stored within the cells. The process is easily observed without other aid than a pair of good eyes and a pocket-knife, though the mischief-makers themselves require high magnifying to be seen. By shaving off the outer bark in thin slices (a draw-shave is a good instrument to use) the tortuous holes made by the long, slender-bodied larvæ running, for the most part, parallel with the outer surface, may be readily found in a blighting Lombardy. From these holes may as readily be observed the gradually spreading infection. The previously white and compact inner bark becomes watery and fibrous, changing in color to a rusty brown. The boundary line between the diseased and still healthy portions is sharp and easily determined, and may be observed, day by day, encroaching upon the healthy parts. As is always the case, whatever has been, or is, thought to the contrary, the blight progress is slow. It very gradually spreads from cell to cell, often hardly enough to be noticeable, without careful measurements, during twenty-four hours. The broadly apparent effects, as the death of the leaves, may be sudden enough, just as a mine explosion is sudden after weeks of laborious drilling and charging. With abundant opportunity and extensive examination, I have never found the roots of a Lombardy poplar in the least affected with blight until after the disease had been communicated in the manner described, by spreading from the parts above ground. The same is true of all kinds of plants, woody or herbaceous, in which this blight has been observed. What a commentary upon the periodically-revived idea that the heat of the soil is the direct cause of blight! But roots do suffer, and severely, too, through the contagion from above, showing that their ordinary immunity is simply on account of their protection by the earth from an external, air-distributed foe.

The aspen, the maples, the elms, the willows, the mountain ash, the lilac (leaves), the butternut, some herbaceous plants (peony, lettuce, potato?), etc., more or less, suffer in the same way, and on account of the same, or an indistinguishable, voracious, little, but sufficiently potent, parasite. If it should be demonstrated that the yellows of the peach is also due to the specifically identical organism (which does not now seem to be the case), the process of stamping out would be less hopeful.

In this connection a pertinent query in regard to the possible use to the producing plant of the poisonous substances which many of them secrete forces itself upon our minds. Why does the peach tree, especially in its wild state, manufacture the deadly hydrocyanic acid and hold it within the starch and chlorophyll cells? Why are the articles we call medicines stored so abundantly in the bark of living trees and other plants? The fact that nearly all the alkaloids, acids, essential oils, etc., thus stored away are destructive to bacteria-like organisms is a curiously interesting coincidence if nothing more. By our processes of cultivation and selection many plants lose in part these peculiar products as in the case of the garden parsnip. Are such cultivated and selected plants therefore more exposed, more liable on this account to succumb to an invisible but living and active enemy? Is the struggle for existence which we find so universal in nature maintained in part by such means as these? It is said that wolves will not touch the dead bodies of Mexican soldiers on account of their saturation with the great amount of pepper these people use in their food. Are many living plants similarly protected from equally voracious foes?

Returning from this speculative digression I conclude by narrating an observation of the last season of practical interest to nurserymen.

In May, 1881, I received through the mail a package of apple-tree root grafts

from H. C. Graves & Son, Sandwich, Ill., with the statement that something had prevented the usual union which ordinarily takes place between the cion and piece of root in certain parts of their stored grafts. Other peculiarities and conditions were also given going to show that the management of the grafting, packing, etc., had been such as their own abundant experience as well as the common practice of the country had proved best. The work was done in mid-winter and old sawdust used for packing material. The boxes were stored in a frost proof cellar.

An examination clearly showed that the cions were at the time undergoing the destructive process we call blight. The case was positive enough to my mind from this examination, but to make assurance doubly sure, some pear limbs were afterwards inoculated with the bacteria laden fluid of the diseased cions, and veritable blight in a previously healthy tree followed in two instances. I was not surprised that more inoculations did not "take," for previous and other contemporaneous experience showed the difficulty of making successful inoculations at that season (the last of May) of the year. The disease had plainly started from the cut ends of the cions, and in most of those received had not yet involved the whole length.

Having communicated these things to the nurserymen and expressed my conviction that the trouble came from infection from the grafting knives, word soon came that this entirely explained the facts as presented. Those kinds which had been known to have suffered with "twig blight" the preceding summer were exactly the ones diseased as grafts. The workmen had now and again thrown out affected twigs as they rapidly cut them up, but they knew nothing of the danger there was in smearing their knives occasionally with trial or accidental cuts of diseased pieces. Ordinarily having finished any one variety the work would be cleaned up, the knives sharpened, and a fresh start made upon another. Thus the contamination was not continued. With the use of the same stock, stored in the same way and place, blight destroyed many of one kind, none or nearly none of another. It was not possible to find out whether any one variety certainly known to be free from blight during the summer was at all infected in the grafting as might have been the case with careful experiments tried for the purpose.

As to remedy after a tree is infected, I cannot recommend anything but to remove the diseased parts as has been so long practiced. But much care should be taken to cut low enough to really accomplish the object sought. It will not do to be governed by the discoloration of the leaves alone. When the outer bark is smooth a characteristic discoloration early shows itself externally, while the thinnest shaving from the outer bark serves to definitely locate the advancing border of the blight. Care must also be taken not to further spread the contagion with the pruning knife and saw. Wounds should be covered with some protective material like clay, linseed oil paint, grafting wax, etc. If the trees are carefully examined at least every two weeks and the infected parts as carefully removed, the cure is almost positive. The disease is of the bark rather than of the wood, and of the bark it is the outer, living cellular layer which most suffers. Sometimes this thin stratum may be diseased more or less throughout most of the tree, while by a casual observer the tree would be accounted perfectly healthy. Sometimes the whole thickness of the living bark, especially in patches on the trunk, may be affected, though the cambium may continue healthy, as is sometimes shown by a new layer of bark formed under the old. Quite often the disease is checked or permanently stopped by the

effects of winter, but not unfrequently it remains slowly active during the winter and in springtime assumes its original virulence.

As direct preventives, everything that tends in any way to wound the epidermis or bark, whether it is man with his pruning knife, or gnawing and boring insects, must be banished as far as possible. Then some protective wash or paint may be advantageously applied. Linseed oil (raw), lime wash in which carbolic acid has been stirred, etc., doubtless may help to keep out the bacteria.

The discussion of indirect prophylactics must be vague and speculative to a great extent. Cultivation or starvation, sun or shade, root pruning or double working, these and such as these have their day and are forgotten until by some new brain evolution they are restored. There is no doubt whatever but that the general surroundings and conditions have much to do with the more or less rapid progress of the disease, just as scarlet fever in man rages at one time more than another, and in one place more than another; but these conditions are exceedingly complex and apparently not always uniform. The safest plan is to manage so as to secure good, thrifty growth with well-ripened wood, without placing much reliance on the temporary successes and failures of Messrs. A. and B. With careful selection of varieties and intelligent management, pear growing can be made successful throughout large areas of our country, but I have no hope that any medicinal treatment of soil or tree will ever be found as a specific against blight.

Mr. S. D. Willard, Geneva, N. Y.: The work done by Prof. Burrill has been very valuable in setting us aright as to the cause of these terrible plant diseases. I have noted a marked analogy between diphtheria and pear-blight. In that grade of society where there is less physical strength and vitality, the disease has proved more fatal than in a rank where there is a more robust health as a result of regular physical labor and out-of-door exercise. In our native varieties of the pear we find less difficulty with blight than with the finer-bred, imported sorts. I should expect, from my observation, to find the Seckel and Winter Nelis less troubled than others that have come to us with long French names. My convictions are all in favor of rather light, sandy soil for pears. This comes from my knowledge of the largest pear orchard on this continent, which is on the James river, in Virginia, on soil that is very sandy. This orchard is singularly free from blight. I have noted others in Canada similarly situated that are very little injured by the disease.

Mr. Gibson: My trees the past season were attacked very seriously with blight. I used the knife freely, and all the oils and nostrums that are recommended, with no success. Finally, bringing to bear a little knowledge I had of human diseases and remedies, I saw an analogy, and went to work accordingly. I mixed a wash of lime, sulphur, and carbolic acid in water and put it upon the bodies and limbs as far as I could reach. Then I bought some mineral paint and placed it among the feeding roots. The trees stopped blighting, and have made a vigorous growth.

Mr. Woodward, in answer to a question as to the Kieffer's hybrid being blight proof, said it was not, and as a pear to eat, was worthless, anyway. He further remarked: The Duchesse is more free from blight than any variety I grow. In an orchard of 4,500 trees, there has not one blighted enough to kill it. I treat my pear trees to a dose of salt, bone-dust, ashes, and copperas. I have faith in Saunders' (of Washington) solution of slacked lime, sulphur, with a little carbolic acid added, as a good wash to prevent blight. It should be applied twice a year.

Mr. Hanford had tried this solution with no satisfactory results; but the linseed oil remedy had been very effective with him.

The exercises of the morning closed with a short paper written by Prof. T. J. Wramplemeier, of the State University, upon

POISONS AND THEIR USE AS INSECT EXTERMINATORS.

By far the most common insecticides used by the agriculturist are those compounds of arsenic, Paris green and London purple, with the former of which at least, you are well acquainted. Besides its use for the destruction of the potato beetle, Paris green is highly recommended to be used against the apple coleophora, the juniper web-worm, the elm-leaf beetle, Chapin's apple leaf-sewer (Dept. of Agric. Report, 1878), the army worm (Rep. of Entomologist, Dept. of Ag., 1879), and a number of other insect pests.

London purple is a dry product obtained in the manufacture of aniline colors. It is composed mostly of arseniate of calcium. (Report of the Chemist Dept. of Ag., 1878, p. 144.) It is much cheaper than Paris green and can be used wherever that substance can be used. It has been found by experiment that weight for weight it is more efficacious than Paris green. Indeed, Prof. Riley says that a given weight will go twice as far as the same amount of the green. (Amer. Naturalist, 1881, Oct., p. 821.) It occurs in much finer powder than Paris green, hence can be more readily suspended in water or more intimately mixed with diluents in the dry state than the former. Prof. Riley recommends the proportions, one pound to 36 pounds of the diluent in the dry state, or one-half pound in about 50 to 55 gallons of water. (Bulletin No. 3, U. S. Ent. Com'n, 1880.) Its color is also an advantage, as it not only colors the ingredients with which it is mixed, but is more readily seen on the plants than Paris green.

Other salts of arsenic as well as arsenious acids are used and largely form the basis of the patented insect poisons. The objections to the use of these other compounds of arsenic are: 1, Their white color, on account of which they can more easily be mistaken for harmless material; and 2, The strength of each has to be determined by experiment, and unless used in the proper dilution they are liable to injure the foliage.

Not a little has been said and written about the danger attending the use of arsenicals. Their highly poisonous nature of course necessitates their being used with the greatest precaution. Whenever there has been a case of poisoning it has been explained as due to accident or gross carelessness. In a case of poisoning by arsenic the best antidote is ferric hydrate, or as it is more commonly called, hydrated peroxide of iron, in the condition of moist precipitate. This must be freshly prepared in order to be most effective and can be obtained of any druggist. While waiting for this give the patient an emetic, as for instance, a teaspoonful of mustard in warm water. The hydrate should be given then in doses of a tablespoonful. As to the effect of these poisons on the land, it has been pretty well established that their use in such small quantities and in such finely divided state may be continued for years, even centuries, without giving cause for alarm.

The use of white hellebore, either as powder or suspended in water, and which is so highly recommended for the destruction of the currant worm, (Mich. Board of Ag. Report, 1876, pp. 170, 173), appears to be attended with no especial danger. Though it contains the poisonous alkaloid veratria, it is in

very small proportions, and I have seen no record of a single instance where symptoms of poisoning have followed the rotting of fruit from plants which have been treated by it.

Among other poisons which have been used with more or less favorable results are carbolic acid, lye and tobacco. Soap, kerosene and alcohol have also been found useful in certain instances. Infusions of various poisonous herbs have been tried, but without marked success. But those which promise to be the most important insecticides are the so-called Persian and Dalmatian insect powders (the former pyrethrum roseum, and *P. carneum*, the latter *P. cinerariæ-folium*), as they possess the great advantage of being perfectly harmless to man and beast. This subject has received a great deal of attention of late, and I probably could give you some interesting information were it not for the fact that my words would necessarily be nothing but a repetition of a small portion of what your associate, Prof. Cook (an authority on the subject), has doubtless already told you.

A recess was taken until evening.

Evening Session.

Mr. Mann, of Adrian, was called to the chair. Upon a motion a committee of three was selected upon credentials, to whom delegates were requested to report, so that a record could be made of the societies represented. The chair named Mr. Bitely of Lawton, Mr. Chapman of Bangor, and Mr. Town of Barry, as such committee.

The first paper of the evening was presented by R. Haigh, jr., of South Haven, upon the topic

RURAL IMPROVEMENT.

The subject of rural improvement, while of interest to all and admitted to be of much importance, as generally treated is productive of little practical benefit. Individual effort has been stimulated, but no definite results of any extent attained. Something more than individual effort is needed. I have been very much interested in the working and success, at the East, especially in Connecticut, of rural improvement societies. These are organized for the general improvement of the township or village. As the idea is comparatively new I trust I shall be pardoned if, in speaking of it, I quote largely from the originator, Dr. Northrop, Secretary of the Connecticut Board of Education.

In this part of the country the township is the unit, and its members in better condition, as to location and interest, to work together for a common good. It is only by organized effort that results of any magnitude can be attained. The need of something of the kind is sadly evident almost everywhere. We need a waking up of public spirit and town pride. Our youth should be taught in their homes and schools to be jealous of the good name of their home and State. The love of home and of country is akin. The feeling that honors the place of one's birth or adoption is ennobling; it is an element in the character of true manhood.

We of South Haven especially need to rouse ourselves. We are not making the advancement we ought in these things. Just look over our village; scarcely a dozen rods of real good road, hardly a single block of perfect sidewalk, and

much that is unsafe to traverse even in daylight. Our school grounds almost a barren waste; our cemetery, with the exception of a little private work, almost as bad; and our park, that might be the pride of the village and the envy of the State, almost wholly neglected; and the sides of the streets made the receptacle for all the rubbish of the adjoining houses. How can we expect to draw and retain in the place the better classes, so long as such things exist. Lack of public spirit has contributed to the decline of many towns, and evidence is seen in poor roads and sidewalks and neglected public grounds.

I do not think we are lacking in public spirit, and I know there is abundance of taste and desire for improvement, and I believe all we need is an organization whereby all efforts can be united and if need be, concentrated to accomplish results that shall tell wonderfully in the improvement of our village.

Too often neglected private grounds, dilapidated dwellings, barns, or sheds, or a street ugly with piles of decaying brush or chips, discarded fruit cans, broken harrows, carts or sleds, a front fence with missing pickets and a disabled gate give an air of shiftlessness that mars the effect of an otherwise beautiful village. Here an association is needed to develop that private taste and public spirit which will remove such defects and disfigurements. When every citizen is stimulated to make his own grounds and wayside not only free from rubbish but neat and attractive, the entire town becomes so inviting and homelike as to give new value to all its homes. Such affectionate care and attention to the homes indicate a kindly, intelligent, home-loving people, and no better praise need be given to any people than that they tenderly cherish their homes. A stranger can hardly drive through such a town without saying, Here are people of refinement, who love their homes, and therefore tastefully guard the surroundings of their daily lives. These surroundings, trifling as they seem to some, are the more important, because they are constant forces in moulding character. Cleaning up, dusting, putting things in order are little matters in the parlor, sitting room or kitchen, yet how soon each becomes forbidding when these trifles are neglected. Just so in a village, these minor matters neglected, and the comfort, content, reputation and prosperity of a whole community suffer. But worst of all, home-life suffers and character deteriorates.

Among the specific objects of such an association is the securing of better roads. In no way can the reputation of a place be better established than by good roads; they are an index of the character and enterprise of the people. The first impressions of all visitors will be influenced by the roads. All the good features of the place will be enhanced by good roads, but will be almost entirely spoiled by bad ones. The improvement and care of the roadsides is an important consideration, second only to the roadway. A smooth green space at either side adds much to the appearance of the road and to the pleasure of passing over it, and this is largely increased by the addition of rows of thrifty trees.

The subject of street lamps would properly come before such a society. Well lighted streets would remove a great hindrance to social enjoyment, add much to the comfort of all, and tend to promote the good fellowship so essential to the welfare of any community.

The improvement of public grounds is one of the important objects. Every village in the State should possess its public park or green, which may be made not only a source of much enjoyment, but will add many times its cost to the value of property. Money wisely expended in adornment of this kind is a profitable investment.

The cemetery should receive earnest attention. Instead of being a tangled mass of briars, and weeds, and grass, and all unsightliness, that makes one fairly shudder to think of, it should be so beautiful and embellished that it shall be a source of pure and quiet pleasure to all who visit it, and that it may be worthy of its sacred title, "God's Acre."

The educational bearings of this subject, if less obvious, are not less important. The external improvements prompted by these associations have in many cases developed a local pride and public spirit which have displaced many a weather-worn and comfortless school-house. Public interest once enlisted in the adornment of streets, parks, cemeteries, and kindred plans, is sure to embrace the school-house. The people are learning that village improvement promotes the growth and prosperity of a town by inviting wealthy and desirable residents from abroad, just as neglected streets, school-houses, and other signs of an illiberal policy invest a town with an air of discouragement and decay. The influence of such an association in cultivating the taste, fostering the study of nature, developing in youth a love of flowers, vines, shrubbery, and trees, all the stronger because they have planted and cultivated them, thus fostering domestic attachments, and checking the excessive passion for city life, suggest some of the ways in which it supplements the work of the school. The interest should center in the homes and home life. "The hope of America is the homes of America." There remain still too many homes and grounds desolate, neglected, and repulsive, where taste, and trees, shrubbery, hedges, or creeping vines, with a bit of lawn, would make "the wilderness blossom as the rose." Unquestionably, neglect and slatternliness in and around the house repel from their rural homes many youth who might otherwise be bound in the strongest ties to the fireside.

Modern civilization relates specially to the homes and social life of the people; to their health, comfort and thrift—their intellectual and moral advancement. It is a good omen that public interest in the embellishments of rural homes and villages is widely extending, and that the varied charms of the country with its superior advantages for the physical and moral training of children are attracting many thoughtful men to the simpler enjoyments and employments of rural life. Every influence should therefore be combined to foster home attachments, for there is protection as well as education in the fervent love of home with its sacred associations. Patriotism itself hinges in the domestic sentiments. Whatever adorns one's home and ennobles his domestic life, strengthens his love of country and nurtures all the better elements of his nature.

These are a few of the ways in which a society of this kind can be useful. It may be said that the village or town authorities control some of these things, but they are the servants of the people, and go only so far as the people say. What we want is such a rousing of public sentiment that these improvements shall be demanded, and such an awakening of interest and enthusiasm that everybody shall be stimulated to individual effort. If we of South Haven can make such an organized as well as individual effort, then shall our village put on a beauty of which we never dreamed. People of taste and culture and refinement shall come to us, and shall abide with us; our own attachment for the place shall grow stronger and stronger; value of property will increase; business will grow, and in every way the prosperity of the place will be advanced.

May not our State horticultural society very properly add to its valuable labors by aiding in the formation and promoting the welfare of such organization? It may not seem so vitally important as some other things, and yet I

believe it would add much to the general welfare, happiness and prosperity of the people. The efforts of the society for the improvement and ornamenting of school grounds is producing good results.

Valuable papers have been contributed to the reports and excellent addresses delivered at nearly every meeting for some years. At the first meeting of the present year our honored president submitted a paper suggesting that the legislature be requested to authorize townships to offer aid to the amount of fifty dollars to each school district, expending a like amount in improving and ornamenting its grounds, the same to be used in continuing the improvement. At the same meeting a report was made to the superintendent of public instruction urging him to make the improvement of school grounds a prominent feature of his State teachers' institutes, and to use his influence towards having instruction in this branch given at the State normal school, to the end that our teachers might be better qualified to give aid to the improvement of the school grounds under their charge.

I deem it no more than justice to extend our thanks to Messrs. D. M. Ferry & Co., who through the efforts of Mr. W. W. Tracy have made under very favorable conditions a generous gift of flower seeds to the schools of the State. The value of all these efforts is beyond estimation, and if to them can be added efforts in the direction I have named, the good influences will be extended, the society will be strengthened, and the people will be benefited.

Prof. Beal read some notes he had made on

RURAL CEMETERIES.

MR. PRESIDENT: I am glad this subject is beginning to attract the attention of members of this society. It may seem to some that in considering the subject of cemeteries the State Horticultural Society is going beyond its legitimate work. I think not, Mr. President. We have an illustrious example in the Massachusetts Horticultural Society. That old society about 1825—55 years ago—was the means of establishing Mount Auburn cemetery, now the chief burial place for the dead of Boston. On this topic I glean items from the history of the Massachusetts Horticultural Society, recently published:

In 1825 "Dr. Jacob Bigelow, then a young physician of Boston, cherished a love of the country by the character of his early botanical studies, and this led him to desire the institution of a suburban cemetery in the neighborhood of Boston, which might at once lead to a cessation of the burial of the dead in the city, rob death of a portion of its terrors, and afford to afflicted survivors some relief amid their bitterest sorrows."

At this time nothing of the kind existed in the United States, nor even in the world, on the scale of Mount Auburn as it now is. The gentleman who is said to have originated the idea of neat rural cemeteries was the late J. Jay Smith, of Germantown, Pennsylvania. He died the 22d of last September, 1881, at a good old age, and deserves the lasting remembrance of all lovers of rural adornment. It is not many years ago that he accepted a request and visited London, England, with the view of founding a similar kind of cemetery with all recent improvements.

Robinson, editor of *The Garden*, in London, and author of the "Parks of Paris," says "The Americans are the only people who bury their dead decently and beautifully; that is so far as the present mode of sepulture will allow them. For beauty, extent, careful planting, picturesque views and keeping, the garden cemeteries formed within the past generation or so, near all the princi-

pal American cities, are a great advance upon anything of the kind in Europe. There are half a dozen or more within driving distance of New York. No good fashion ever spread so rapidly."

In reference to the mode of burying in the old country, Prof. W. H. Brewer, of Yale college, says "There are many places where they leave only a limited space for their graveyards, and the remains are removed after five, seven or more years to make room for others."

As I have said, one of the oldest and the most distinguished State horticultural societies was not only influential in adorning a rural cemetery, but selected and purchased the land. By an act of the legislature the society was clothed with authority to make a perpetual dedication of the spot as a rural cemetery and to plant and embellish it with shrubbery and flowers, and trees and walks, and other rural ornaments. Although not intended as a speculation for the society it proved to be a good money investment which still brings the society from \$3,000 to \$7,000 or more a year. Perhaps it would be a good plan for this society to go into some speculation which would bring as good returns. In Mount Auburn the rubbish and undergrowth were cleared away and the whole converted into a park. "The avenues and paths were planned as far as possible to conform to the natural surface of the ground. Curved or winding courses were generally adopted, both for picturesque effect and for easy approach to the lots. The drives were about 18 feet wide and the paths about 5. The lots were 25 by 15 feet and set back six feet from the paths. The beautiful and appropriate names of trees and shrubs were adopted for the paths and avenues. Ponds were deepened and streams of fresh water introduced into them." In a flat, low country, as in the vicinity of Chicago, lakes are excavated to get earth to raise the rest of the cemetery to a proper height. "From the outset the Horticultural Society of Massachusetts exerted its whole influence to make Mount Auburn a model in all respects." It was advised that the area of the lots should not be planted with trees or shrubs, but left free and open, and that plants used for edgings should be of very humble character, and that hedges should be avoided as liable to become so filled with wood as to present a mass of brambles with but little verdure, while the ground would be filled with roots and the monuments would be hidden from view. Directions were also given for securing a verdant surface of turf and for forming the borders for flowers and ornamental trees and shrubs. The committee sum up with the remark that "the general appearance of the whole grounds should be that of a well managed park, and the lots only so far ornamented with shrubs and flowers as to constitute rich borders to the avenues and pathways, without giving to them the aspect of a dense and wild coppice or neglected garden." Art and nature were to combine their beauties to grace a scene devoted to the last resting place of the dead.

The good example set by the Massachusetts Horticultural Society soon "took the public mind by storm." The adornment of rural cemeteries became all the rage. Another good regulation now adopted by all the best cemeteries is this: "Whenever a lot is sold, an additional sum of money is required, the interest of which is used in the perpetual care of the lot, which precaution insures the grounds being always kept in the best possible condition. It is a pleasant thought while one is yet alive that his last bed will be continually and forever strewn with beautiful flowers." It is of little use to select and plant trees or shrubs without making some provision for their care.

When trying to keep a cemetery in fine condition there are many difficulties to contend with, especially in a new country. Every person owning a lot

wishes to consult his own taste in keeping it. The taste of the average person is not very good, and the tastes of all of them do not harmonize very well. To check this defect the deeds of lots should provide that no planting shall be made without the approval of the trustees or the superintendent. The next thing, or rather the first in order, is to secure a competent superintendent and a good board. A good soil for grass and trees is very desirable in a cemetery, although this is too often overlooked in making the selection. Large trees, natives and exotic, are desirable in certain places, but seldom if ever on lots intended for burial. Evergreens and oak trees are especially appropriate, and certain weeping trees and some shrubbery. Well kept turf is very important. For this good soil, proper grasses and frequent mowing are necessary. And these places must not be much shaded with trees, which also cut off the nourishment and moisture which the grass must have if it makes a thrifty growth. It is much better to plant but few trees and shrubs and take good care of them than to plant many and give but little care. Good care cannot be secured without money to employ a competent person who understands the planting and care of trees, shrubs, and the making and care of a lawn and paths. Trees and shrubs need occasional watching all the year through; they need trimming a little and protection from mice, rabbits and snow.

With no care except fencing, a cemetery presents a sorry and forbidding sight and is scarcely worthy to be called a cemetery. Such places are still very common, especially in small church yards in the country. The surface is rough, the grass and weeds are tall, straggling and uneven. Bushes, briars, and unkept trees, a white board fence with a few marble slabs complete the picture. The list of suitable trees and shrubs is a long one and includes almost anything which would be suitable for a park or arboretum.

I cannot close this paper, already too lengthy, without uttering a protest against the common and almost exclusive use of white marble for marking the last resting place of the dead. The color is too cold and glaring, the material is too soft and perishable. It will at best only remain for a life-time in respectable condition. Marble works easily and can be cheaply furnished. This can also be said of wood. Weather wears away the inscriptions and time eats the marble. Except wood, marble is one of the poorest materials for such a purpose.

CULTURE OF PLANTS.

Mr. Gibson: The adornment of home is an incentive to virtue. A good citizen, a good parent, a dutiful child are all the outcome of a beautiful home. Nature produces the most beautiful things with which to adorn a home. The most delightful attractions that can be brought into home life are not confined to the rich. We find greater delicacy of texture in a petal than in the finest silk fabric, and far greater beauty of form and color in the flowers and plants about us than were ever produced by a Raphael or a Rubens. The wealthy can spend vast sums, and very properly too, upon the finest of art, and there still remains a higher type of beauty that can be obtained without money and without price, by bestowing a little love upon a few plants in the window.

But I was to give a few practical hints upon the culture of plants from my own experience. To make good winter bloomers set young plants in the open ground in spring and keep them from blooming all summer; pinch in the

strong shoots so as to dwarf them. If practicable when potting them to take in the house, do it when the plants are comparatively dry—before a rain rather than succeeding wet weather. If to be placed in an ordinary window put up a couple of brackets with a shelf. If to be placed in a bay window, turn the carpet back for the winter and place zinc or oil cloth upon the floor in such a manner as to allow the frequent showering of the plants. If you can accomplish this in no other way, take the plants out in the kitchen every few days for a bath. As to the plants that succeed best, the begonias, geraniums, and yuccas are all good; and I would suggest as a plant to get the most good out of, the Chinese primrose.

The temperature of the room is of a good deal of moment. You all know that the upper stratum of air is very much warmer than the lower in a room. This should be remembered in arranging your plants. Plants need constant attention which can only be given them satisfactorily by hands that love to do the work. Gas is not good for plants. Watering is an important matter. Too many give a little water on the surface every day, regardless of requirements, while beneath, perhaps, there is a ball of perfectly hard, dry earth; and then wonder why the plants do so poorly. My rule is to water thoroughly, and only when needed. Turn your plants out of the pots occasionally and note the condition of the roots. Stove plants can be grown in the house by careful attention, but rarely are the best results obtained without a conservatory. Plants repay all they cost and are a valuable accompaniment to any home.

By request the following essay from the pen of Granville Cowing of Muncie, Indiana, had been sent up to be read at this session:

A HOME FLOWER GARDEN

Should be composed of a rich, well-drained loam, and, if possible, should slope slightly to the south or east. To secure the best results with the least labor, the walks should be in straight lines and intersect each other at right angles. An annual top-dressing of unleached wood ashes will be found stimulating and beneficial. Of bedding plants annually produced from seed, none in duration of bloom, variety, or beauty of colors, can equal verbenas, Drummond's phlox, petunias, portulaca, and Japanese coxcomb. Their flowering season is only terminated by frost, and may be much lengthened by sowing seed in a hot-bed and transplanting early. Verbenas and petunias should be planted 18 inches apart; phlox, portulaca, and coxcomb in rows one foot apart, with plants six inches from each other in the row. The earth in all cases should be firmly pressed against the roots when planting. Loose planting annually entails the loss of an immense number of healthy plants of all kinds—useful as well as ornamental. If crowded in the row, Drummond's phlox often mildews in wet seasons. If fairly treated it is of easy management and a most persistent bloomer. Dwarf rocket larkspur, and candytuft are also very desirable, the latter especially, for bouquets, but they should be sown where they are to grow, and do best if planted in autumn or very early in spring. Of course no flower garden would be complete without mignonette, with its inconspicuous but fragrant flower. Should bouquets be desired a bed of *Ageratum Mexicanum* would be indispensable. It blooms from June until frost. Seedling verbenas are more free from disease and stronger growers than named sorts from cuttings, and white, scarlet and striped varieties can now be produced with certainty from seed. Of Drummond's phlox, grandiflora is the most beautiful

variety. Double varieties of portulaca, and the fringed and beautifully marked new petunias are very attractive when well grown. Of hardy perennial plants, the rose is most prominent. As persistent bloomers in seasons of remarkable drought, I have found none equal to Gen. Washington, hermosa, moss salet, Baron Prevost, Madam Charles Wood, and Louise Odier,—all of which are of great beauty and perfectly hardy in this latitude. A single application of white, powdered hellebore, steeped in water and sprinkled over the leaves, has for several years enabled me to effectually destroy the green slug, or worm that often defoliates rose bushes in June. Of hardy perennial bulbs, tulips, hyacinths, and lilies are best. Of lilies I have found none more satisfactory than the old white variety, *Silium Candidum*; when undisturbed it does best. Last year an old bed of it near my house contained at one time at least 500 open flowers, and at night resembled a snow bank. Its agreeable fragrance is hardly excelled by that of any other flower. Bulbs of it should be planted when dormant—about the 1st of August. Tulips and hyacinths should be planted in autumn. Old beds of tulips are generally better than new ones if annually mulched with well-decayed manure. Hyacinths degenerate after the first flowering. All bulbs here named should be planted 4 or 5 inches deep. Of tuberous rooted plants, rose and white peonies are among the best, and are most easily grown. Of hardy, climbing plants, none are better than Hall's honeysuckle, Clematis Jackmannii, and prairie queen. Of autumnal flowering plants, the dahlia is the most stately and showy. I plant them in rows 2 feet apart, with plants 12 inches apart in the row. Such close planting makes them self-supporting, and keeps the ground shaded. An elevated location to protect from early frosts is best for this flower. The tuberose and gladiolus are the best of the tender bulbs. They and dahlias should be dug when frost fairly appears, their roots dried one or two days in the sun, and then placed in boxes in a warm cellar. There are many other beautiful and desirable flowers. I have named those only that I regard as indispensable. All possible attention should be given to flowers. They are found on every habitable portion of the earth, and after enlivening the landscape with their beautiful hues, and filling the air with delicious odors, they leave us a legacy in seeds and grain sufficient to feed all mankind. Their cultivation indicates a high order of civilization, and the presence of kind and gentle natures, and there is a species of freemasonry connected with them which enables those who love them to become acquainted with but little ceremony. In an unknown town or city you need never fear offending a stranger by stopping, without an introduction, to admire a bed of beautiful flowers belonging to him. But his air would probably be much more distant if you should, without acquaintance, pay a compliment to any other portion of his possessions. Flowers create and cement friendships, and are the most universal and generally the most acceptable presents. When the Queen of England recently desired to testify in the strongest possible manner her great sorrow for our national bereavement, she sent a wreath of roses to be laid upon the bier of our dead President. Flowers come to the aged like a gleam and a breath from the lost Eden of youth, bringing memories of deep blue skies, of winding streams, and an atmosphere fragrant with the bloom of the wild grape and crab-apple.

Wm. N. Rowe, of Grand Rapids, continued this discussion by saying:

The elements of success in the management of the home flower garden, as I have found them, may be classified as follows:

Location, soil, choice of varieties, sowing seeds, care of young plants (which includes transplanting and proper arrangement), general methods of cultivation, fall and winter protection.

This outline of topics comprehends the whole matter from the beginning, but the question, How best to manage a home flower garden? pre-supposes that the flower garden already exists, and calls our attention merely to its management, which is a subject far too broad for an exhaustive treatment at a time like this.

One of the most important things to be considered is the selection of varieties, especially of annuals and perennials that flower the first season from seed; and to this I would briefly call your attention. As we pick up the various catalogues of seedmen which disseminate much useful information, and which have been powerful agents in developing a taste for floriculture, we find an almost endless list of varieties, and nearly every one is pronounced alike beautiful and worthy of cultivation. To the inexperienced the task of choosing the most desirable kinds from the average seed catalogue is an enigma with the attempted solution of which they are often disgusted before midsummer. To this subject I have bestowed much care and thought, and notwithstanding the varied experience I have enjoyed in different localities and the opportunities I have had to study conflicting tastes of those who cultivate flowers, I find it a very difficult and perplexing task to select a given number of varieties that will be considered the best for general cultivation; and especially suitable for those who have small gardens and desire a few plants of several kinds, to a larger number of but few kinds. I have made a selection of twenty-five varieties, and in choosing them the following characteristics have been observed: Beauty, fragrance, hardiness, habits of growth, effects of transplanting, value for bedding for the border or edging, for summer and winter bouquets, for church and parlor decoration. In this collection you will find sixteen which are commonly called bedding plants, three everlastings, three climbers, and three ornamental grasses. The arrangement is as follows:

Hardy Annuals.

Phlox Drummondii, TenWeeks' Stocks, Asters, Ageratum, Gypsophilla, Dwarf Nasturtium, Sweet Alyssum, and Mignonette.

Half-hardy Annuals.

Balsam, Celosia (Cockscomb), Verbena, Zinnia.

Biennials, or Perennials, which flower the first summer.

Dianthus, Petunias, Pansy, Scabiosa (Mourning Bride).

Climbers.

Cypress Vine, Balloon Vine, Sweet Peas.

Everlastings.

Acrolinium, Ammobium, Helichrysum.

Ornamental Grasses.

Agrostis Nebulosa, Briza Maxima, and Lagurus Ovatus.

Of course every lover of flowers will miss some favorites from the above list, but in order to select a given number some must be sacrificed. For variety of

colors, continuance of bloom, and all the characteristics aforementioned, I believe this collection stands unrivaled, and will give general satisfaction.

Professor Beal remarked as follows upon

HIGHWAY PLANTING.

The finest roads are to be found in a country where gravel abounds. To the landscape gardener or the artist roads are pleasanter which wind about through the country, parallel to the ridges or streams, or pass obliquely up and down the hills. In Michigan most of the roads follow the points of the compass. In some portions, where hills abound, these straight roads are a great tax on those who work them, and on all those who travel them. In too many cases a road goes over a hill when it would be just as near and save much unnecessary labor if it went around the hill.

Along the highway, we have all of us been accustomed to see trees, wherever they are planted, set at equal distances from each other, and at a uniform distance from the fence. They are generally placed too close to each other for the best results. Large kinds of trees ought not to stand nearer than forty feet of each other.

If the row is straight and unbroken, only one kind of tree should be used. The longer the unbroken row of uniform trees is made, the grander the effect. But just here comes in a difficulty which I have never yet seen remedied. I never have seen such a long uniform row of trees. I presume no one else has ever seen one. Trees are often set out all right, but one or more of them dies, or is broken down by an unruly cow, or it wears off where the wind rubbed it against a board, or the soil is uneven and some trees grow faster than others; borers kill or injure now and then a tree; the wind splits down a limb or breaks off the top. Perhaps another tree is kept in reserve, and is set out in place of the one just planted; but this does not catch up with those near it. In spite of you, vacancies will occur. The break in the row is an eye-sore, and causes a sigh of regret to every particular person who enjoys things which are neat and in good order. Whenever seen, he exclaims "What a pity this row is not complete!"

I venture to present a different plan for highway planting, even at the risk of differing from most of those present, and most of those everywhere who advocate trees by the roadside. I am fully convinced of the plan after much study and observation. As I cannot have a long row of uniform trees at equal distances apart, I will not attempt it; neither will I attempt anything which looks like a row of trees. I would plant trees in irregular groups. In rare cases, at long intervals, let one come quite near a track of eighteen feet in width. This would usually occur where the road is rather high and not likely to get out of order. The groups would have a varying outline, but the length would generally be in the direction of the road. Some of these groups may extend into the edge of the field, if the owner of the farm is a lover of trees and does not object to a little shade for his cattle and sheep in the midday sun of a hot summer's day. I would plant large kinds of trees on the elevations, and smaller trees or slow growing trees towards the hollows, which would generally be left destitute of trees. A thicket would now and then be very appropriate.

To increase the room for tree planting, allow the road occasionally to come near one of the line fences, and farther on let it bend in an opposite direction. I know this will be opposed by every one who has grown up to believe that the

track must always be exactly in the middle of the space for a highway. But I trust no one will condemn the plan without first giving it some attention.

When trees and shrubs are grouped in the manner here proposed, a dead tree can be cut out without destroying the beauty of the rest. If one is smaller than the rest, or if it grows in a different shape; if one sends out branches nearer the ground than others; if they are not of the same kind, all the better for the good effect produced.

For the highway we have a good assortment of fine trees. Among the large trees, first stands the American or weeping elm—the gem of our American forests. Its habit is more graceful, its bark is tougher, its growth is more rapid than the sugar maple, which is almost everybody's favorite. The Norway maple is in almost every respect superior to the sugar maple. White pines are very appropriate where people will protect them for a few years. This is one of a few evergreen trees which is not spoiled when deprived of its lower branches. Birches, especially the cut-leaved weeping birch, are very desirable for the roadside. Oaks are desirable, but usually grow slowly. The same is true of shagbark hickories. Basswood and tulip trees seldom make good roadside trees, but would answer in groups. Sassafras, pepperidge, native hawthorns, wild crab-apple, native junipers, red cedars, and arbor vitæ are very desirable.

The secretary said that in preparing the programme, upon reaching the subject of highway planting, he had bethought himself of the excellent taste and love for trees that he had noted in Mr. Benjamin Steere, of Adrian, and immediately wrote him asking for some notes upon this subject. Mr. Steere replied with the following excellent paper entitled :

ROADSIDE TREES.

There are various matters that should be carefully considered by all who contemplate highway planting. The most important, perhaps, is to secure kinds that are long-lived, not alone for the enjoyment of future generations, but also because our own and children's interest and pleasure in them will be greatly enhanced by the reflection that even centuries hence their grateful shade will be enjoyed, and their grand old forms admired by all lovers of nature. Of minor consequence are habit of growth, shade of green, time of expanding, and fall of the leaf, with autumnal coloring, etc. But leaving these and many other things that will naturally suggest themselves, I wish to call particular attention to the want of variety in our planting, and the monotonous effect of long rows of maple, or other single species, that greet us on every side. A foreigner might readily conclude that maples and elms were about the only suitable kinds in our woodlands, while the fact is, we have a great variety, which, if properly used in connection with the above-named beautiful kinds, would add greatly to the effect. It might be presumption in me to undertake to say just how this should be done, whether by planting one side of a highway, or one row with a single kind, and the opposite side, or another row, with a different kind, or by interspersing varieties irregularly and at frequent intervals. Think I prefer the latter plan, as I never seem to tire of the mixed rows of oak, maple, hickory, etc., that have sprung up and been left to adorn our roadsides in various parts of this county. The irregular spaces, and breaking up of the straight, formal row, may have much to do with this, but am inclined to think that the diversity of form and color consequent upon the mingling of a larger number of species has a still greater in-

fluence. In passing along a highway, we may be delighted on first approaching a row of maples; we examine critically and admire a few specimens, but soon realize that there is something wanting to complete that row as a whole; but on turning to the opposite side, we forget the maples, and cease to wonder what was lacking, in our admiration for the splendid mixed native growth that has been thinned and judiciously cared for there. Perhaps I can better illustrate my meaning by supposing we are about to commence a new planting. And here at the end of the row, where the roads cross, we will set, say a black walnut, or a whitewood (tulip tree), then three or four sugar maples, next a white ash or so; then, in this low ground, several elms and soft or red maples, and perhaps where wettest a black ash; and as we rise the warm slope more whitewoods, black walnuts, a butternut or so, and magnolia acuminata, and if bottom land or deep, dark soil occurs, two or three negundo or ash-leaved maple, then three or four silver maples, always ending or beginning with some long-lived, grand tree, such as white oak, black walnut, or whitewood, according to soil, etc. White birch and European larch would have a fine effect in some situations, and white, red, scarlet, and burr oaks, also shellbark hickory, beech, and basswood, with many other deciduous trees are worthy of a place and should receive more attention. Now that stock is shut off in many places, evergreens and flowering shrubs could be introduced.

How delightful to meet now and then by the wayside some favorite rose, or spirea, a rose wiegelia, or Japan quince, or to inhale in early spring days the sweet breath of the Missouri currant, or later to breathe the heavier perfume of lilac or syringa. Then to think of the music of the wind in that grand old white pine, standing as sentinel at the turn in the road, towering up eighty to one hundred feet and rejoicing in a vigorous middle age of two or three centuries.

To some a special attraction of the mixed growth or planting would be the greater variety of birds that would make it their home, for birds, like other bipeds, have their favorite trees. The Baltimore oriole loves to swing his hammock to the slender, drooping branches of an elm or silver maple, while the nearly horizontal limbs of some oaks afford an excellent foundation for the nests of humming birds, wood pewees, and others of like habit, and perhaps in some cosy nook among the slender twigs of the same tree may be found suspended the beautiful basket-like nest of the warbling vireo. The robin, scarlet tanager, and rose-breasted grosbeak will find convenient forks in sugar maples, white ash, etc. And so nearly all of our tree-building song birds may be suited; while those usually nesting on the ground, such as the meadow-lark, bobolink, song sparrow, and many other sparrows, buntings, finches, etc., in the greater variety of trees can find the right amount of shade or sunshine and just such a perch as they like to use when cheering the passer-by with their songs.

But to return to the more strictly practical. I wish to say a word in regard to the proper distance for planting, as more mistakes and blunders are made in this—perhaps I may say more ignorance shown—than in anything else in relation to the subject. How often do we see people planting trees 20, 15, 10 or even eight or six feet apart, apparently with the idea that they are fully grown already and will never need any more room, when in fact some of those very trees if allowed room for full development, would in time cover a space from 60 to 80 feet in diameter? On our lawn is a silver maple with a spread of over 50 feet, and a white pine of nearly as much, and both comparatively young. But

to accomplish such results the foolish idea of setting closely at first and thinning out afterward must be abandoned. Give plenty of room from the start that top and root may spread out and develop harmoniously on every side.

Note the trees that stand alone in fields where they have been fully exposed to sun and storm from little saplings. What objects of strength and beauty they are. They seem rooted to the soil firm as a rock, and we feel that nothing short of lightning or a whirlwind can injure them. I think the law in New York requires elms to be 70 and maples, etc., 50 feet apart. What our law is now, if we have any, I do not know, but years ago, if I remember rightly, our law-makers in their wisdom, allowed us to plant trees on the margins of highways "provided they were not less than nine feet asunder." Possibly this liberal space was specified not from unbelief in the capacity of trees to flourish even closer, but because in view of probable bad roads some of our far-seeing statesmen found it necessary to explain to the advocates of six or eight feet that that would scarcely allow the free passage of teams between trees when sidewalk travel became necessary. Be this as it may we will suppose a person about planting adopts somewhere from 40 to 60 feet—say he settles upon 50 feet. This may appear like a wide space to any one not in the habit of looking into the far off future, even to the time when he may be a citizen of that land where the trees and all else are perfection. As a partial remedy for these wide openings we might set half way between very small growing trees or large shrubs, such as redbud or Judas tree, burning bush, dogwood, white and purple fringe, snowball, hawthorn, etc., also a few native thorns and crab-apples, where the wood thrush, blue jay and cuckoo would be at home. Farther from the dwelling, where the boys and girls are supposed to have more freedom, some fruits and nuts could be set, such as chinquepin, persimmon, sloe or blackhaw, and especially dwarf apples of hardy, early and productive kinds, like red astrachan, maiden's blush and Oldenburg.

If these ideas or suggestions or anything similar are ever carried out in practice, of course stringent laws with severest penalties would be necessary, and an officer or committee in each school district could see them enforced, and should be qualified to direct and advise in planting, pruning and general management, and also in seeing that the best of the natural growth is preserved.

But I am using too much time and will close, hoping that these hints may assist, if ever so little, in calling out such a thorough discussion of this important subject as will finally lead to practical results.

IMPROVEMENT OF SCHOOL GROUNDS.

Upon the above topic Professor Ross, of the South Haven schools, was called upon, and addressed the assembly as follows:

It is related of Mungo Park, the first great African explorer, that when he was, on one occasion, hungry, thirsty, and weary, and ready to lie down in his despair and die, the sight of a beautiful flower standing alone in the desert revived his drooping spirits and gave him courage to pursue his journey till he reached succor and shelter. The human mind is so constituted that every thing which affects the senses has an effect upon the higher part of our being. So subtle is the affinity between mind and matter that our surroundings are of infinite consequence in retarding or developing our mental faculties. Upon some nature has a keener effect than upon others, according as the individual is of coarser or finer mental fiber, but it does not need that a man be a poet that

he may enter into communion with God's sweet gifts in plants and flowers. Cooper's trapper could appreciate the solemn grandeur of the woods as fully as Moore, or Shelley, or Emerson, but the trapper's love for the beautiful was begotten by his constant association with the things that he loved. And so it is in life, with mayhaps an exception here and there,—association with the beautiful generates love for the beautiful in the soul and this love, once aroused, is a glory to the inner life, even if the outward be full of trial and suffering.

The Roman adage "Poeta nascitur, non fit," is true as regards the appreciation of the deeper mysteries of nature and the heart, but the soul has never yet come into the world which had no enjoyment in that which is beautiful. Even the idiot will be attracted by a glittering bauble, and the untutored savage will barter his comfort for gaudy beads. In the former nature is speaking through the obscured faculties of the soul; in the latter she is expressing the craving of the ignorant mind for something it has not attained. We have all watched the unfolding of the infant mind, and seen the human flower open, petal by petal, before the glowing sunbeams of parental love. We may have wondered how soon nature uttered her cry for the beautiful when the babe expressed it in infantile ecstasy over a picture or a flower, and the mother who will not strive to gather round her child such things of beauty as her means will allow is checking the God-given aspirations for nature and her gifts, which the loving Father has implanted in the human heart. But there is scarcely a mother who will not do what she can to please her child in this, even if it be in very selfishness, that the gratification of the baby's love of the beautiful may lessen her own care. But as the child develops in body and as the childish mind expands there are many mothers who give all their care to the former and heed but little the nurture of the latter. Thank God, there are also many who, themselves delighting in the beautiful, surround their children with what will lead them toward God in the works of His great hand-maid, Nature. It is not difficult to distinguish between the child who has been trained to love the beautiful, and the other whose childish cravings for the beautiful have been checked or thwarted. Disguise it as we may, the surroundings of a child are not hard to read in the child's proclivities, and, whether we acknowledge it or not, there is a grace about the child in whom the love of the beautiful has been cultivated, that gives him an advantage over the other in whom it has been thwarted. As I heard it lately expressed with much aptness and force, "Weeds alone will grow in soil where no other seeds are planted."

In this utilitarian age the realities of life crowd æsthetic tastes out of sight. You seldom see a farmer give much attention to his flower garden. If you find a bed of flowers in front of a farm-house, you may rest assured the hand of woman has been there. In like manner, the merchant is so engrossed with the cares which weigh upon him that, if his home be surrounded with the treasures of beauty and color, in nine cases out of ten, it is due to feminine taste, assisted by hired labor. If this be so around our homes, what need we expect around our school-houses, so long as utilitarian man shuts out æsthetic woman from a voice in what pertains to school affairs? Take a twenty mile ride into the country in any direction, and every school-house that you pass stands a monument of utilitarian niggardliness, and a protest against all that nature holds as beautiful. At the best you will see a building with white, glaring walls, set down in some unseemly corner, devoid of all that is attractive, the grounds a wilderness of weeds, everything hard, angular, repulsive,—and this is the sort of place where the boys and girls of America spend a fourth of their time. In some places that we wot of, the monotony of

study is diversified by the inspiring music of the cow-bell, and in others the beauty of the school-yard is enhanced by the attractive radiance of the thistle,—that delectable bugbear of the progressive farmer. Inside you will find bare walls,—outside, disgraceful desolation. And with such surroundings we expect the childish mind to be contented. No beauty, no grace to attract them towards the house where the seeds of education are to be planted in their minds,—nothing to brighten school life, nothing to aid the teacher in making the school anything but a prison. In some of the large towns of our State the citizens have entered into sympathy with nature, and cultivated æsthetics in the school-grounds as well as in the school-rooms. In the utilitarian city of Jackson this is specially noticeable, for there the splendid school structure is surrounded by well-kept grounds. But in nine-tenths of our villages, and in ninety-nine-hundredths of our districts, no words can be too strong to express the neglect of everything that will inspire the children to love neatness and beauty, or train them to surround themselves with things that are lovely in their after lives. Were it not foreign to my subject, I would also enter a protest against the over-forcing of the young in what is, by courtesy, called the common school education of our day. But sufficient for my subject is the evil complained of therein, and it would need stronger words than I can utter to do justice to what may be considered a disgrace to ourselves, and a grave injustice to the young, who are so entirely at our mercy. It would be a blessing to many a boy and girl if, at this meeting, the inspiration were given to some who are school officers to make their school-houses and school grounds beautiful and attractive. Probably it is not unwillingness to do this that is the obstacle, but a phase of that apathy which stands in the way of school visitation on the part of parents. Bestir yourselves, then, and strive to infuse into school life some of the brightness which beautiful surroundings will bring, and if, by doing so, you help to lead one young soul towards love of nature and nature's God, such a blessing given will flow back into your own lives, to brighten and comfort your steps as you totter down the hill of old age towards the beautiful city that lies beyond the river,—the paradise of God.

A. S. Dyckman said that in ornamentation we should not lose sight of nature. He took exception to the remarks made by Professor Ross about beautifying school grounds, and attributed the absence of ornamentation about the school-houses to the general poverty of the people, claiming that they could not afford to spare money for that purpose. He denounced the practice of trimming trees in order to give them unnatural shapes, claiming that their natural beauty was thereby destroyed. He was a great lover of nature in all its purity, and he even thought it marred the beauty of lawns to remove dandelions therefrom. He was also opposed to the removal of fallen leaves from lawns and gardens, as he thought the rustle of the leaves was music to the ear and added to the natural beauty of the garden landscape.

Mr. Woodward: I take issue with the idea that any people or any district is too poor to beautify the school yard. It is downright shiftlessness and lack of public spirit. In the school-house and yard are the places to sow the seeds that shall grow into the best kind of horticulturists; while planting trees and watering flower borders the children are acquiring a taste for the things that will give them comfort and satisfaction when they are older. It is hard work to get the older ones in a school district to add to the school grounds, but by putting the matter properly before the children there will be no lack of workers. Emulation between the two sides of the district by giving each party one-half of the grounds and asking for results has been known to work wonders.

Mr. Comings, St. Joseph: I think the churches in our villages are about the most barren looking buildings we have to look upon; I wish the horticultural society would take hold of them. It seems to me that some attention might be given to the planting of trees for utility in our school yards and along our highways; the chestnut, cherry, and crab apple are good for ornament and fruit.

Mr. Glidden: I hold to the opposite view from Professor Beal as to roadside planting. In New England upon the mountain roads it may be well to group trees with reference to the uneven surface, or to make nice sky-lines, or to give variety; but ours is a flat country, our land is in rectangles, and I object to engrafting a mountainous system upon our even surface. I like straight rows, straight roads, straight fences, and straight furrows; and nothing in connection with the highway strikes me as grander than a nice, even row of maples or elms extending in right lines on either side of the road for long distances.

Mr. Tracy: I favor the irregular grouping for several reasons not cited by Mr. Steere or Prof. Beal. It tends to secure the highway from the drifting of the snow; it allows us to give open space for the wet places to dry out, and where two farms come together, at the intersection of the line fence and the road, this plan allows us to make a nice group without losing much by draft on the resources of the arable land. But I say plant trees; the question of straight rows or groups is a minor one. I doubt if we could get people to plant so well under a system of grouping as under a law which defines distances.

In closing the evening session Mr. Mann, the chairman, took occasion to congratulate the people of South Haven on the admirable preparations made for the reception and comfort of the Horticultural Society. They seldom met with such a cordial reception, and the delegates would carry to their homes the warmest feelings towards a village and people that made the meeting of 1881 such a pleasant one.

Wednesday Morning.

The continued large attendance testified to the interest the people entertained in the discussions of the society. At nine o'clock the President called to order, and after prayer by the Rev. Mr. Skentleberry, proceeded to read his

ANNUAL MESSAGE.

The close of the year seems to be an appropriate time for a review of its doings in the light of added experience, and for the devising of plans for more effective operations in the future. The constitution and by-laws of the Society make no provisions for reports from the several officers prior to the date of the annual meeting. The condition of the departments of the Secretary, Treasurer, Librarian and Business Committee, will doubtless be fully given in those reports. The commissioners designated by the Governor to represent the State at the meeting of the American Pomological Society at Boston, in September last, attended the meeting as proposed and exhibited a collection of the fruits of the State which attracted much attention, and received the award of the Wilder silver medal as the best general collection of fruits. A large map of the State illustrating its horticultural capacities and their present development, was shown in connection with the exhibit, attract-

ing a great deal of attention. It was prepared, under the direction of Secretary Garfield, as an illustration of a pamphlet entitled, "A Glimpse at Michigan Horticulture," prepared also by him and extensively distributed during the exhibition, as a means of calling attention to our State. An extended report of the doings of the commissioners, as well as of the transactions at such meeting is in process of publication in the Michigan Farmer.

The society is now in its second year as a horticultural association. While the overshadowing interests of fruit culture in our State clearly demand that our work should continue to be in an important and leading sense pomological, it becomes us to consider whether our duty to those sections less exclusively pomological may not demand a more careful consideration at our hands than we have heretofore given them; and this, with the double purpose of arousing a wider interest in the work of the society, while at the same time developing a wider knowledge of the capacity of the State. Of this more will be said in connection with particulars to be hereinafter considered.

The society's fruit catalogue was a year since revised with more than usual care, with the purpose to bring it into so complete a condition that in the future the needful changes would probably be very few,—mainly the dropping of discarded varieties and the introducing of new and valuable or promising ones. At the last moment, however, the publication of the interesting and valuable "Flora of Michigan," by Chas. F. Wheeler and Erwin F. Smith, of Ionia county, was found to enlarge the annual volume of transactions quite beyond the prescribed limit. For this reason a pruning of the matter for the volume became needful and the republication of the catalogue of fruits was omitted for the year. Observations of the manner in which the two publications of the catalogue have been received by the public, both of this and other States, together with the fact that its plan has been adopted in whole by other societies, may warrant the consideration whether it should not be more widely circulated than will be possible as a part of our annual volume of transactions, since the whole number of volumes entrusted to the society affords but a single copy for about 300 of our population, reserving none for distribution beyond the limits of the State. The society has heretofore at its own proper expense, circulated the catalogue somewhat extensively, but it may fairly be supposed that a very large portion of the people of the State, to say nothing of outsiders, if aware of its existence, infer that it is only obtainable in connection with our annual report, and hence to them unobtainable. With the very limited means at the disposal of the society its extensive gratuitous distribution at its expense is out of the question. The most natural and economical process would be an authorization by the legislature of the printing and distribution of extra copies of this portion of the annual volume separately. For convenient reference, and indeed to adapt it to popular needs, the botanical catalogue already spoken of should have been accompanied by a copious index, alphabetically arranged,—an omission that may perhaps be remedied in a future republication.

In connection with this, we may also call attention to the need of something within the reach of the mass of our people, and more worthy of confidence than the descriptive catalogues of nurserymen, that shall serve as a guide in the selection and planting of trees, shrubs, and plants for the ornamentation of city, village, and country ornamental grounds. Such catalogue should specify hardiness, size, habit, and other peculiarities, so far as may be needful to enable the purchaser to judge wisely as to the capacity of each to meet the object he may have in view. Such catalogue may also very properly contain

rules simply formulated, laying down the more essential requirements of good taste in the laying out, preparation, and planting of such grounds. A statement of its dictates also, in the location, laying out, and planting of the villager's and farmer's shrubbery and flower garden may very properly find expression in such rules.

Under the inspiration of our efficient and earnest secretary some good and, we trust, effective work has been done in awakening an interest in the ornamentation of country school grounds; and we learn that the offer of seeds by D. M. Ferry & Co., to be planted in school yards, has borne some fruit, of which the secretary will doubtless tell us something in his report. This movement will doubtless extend itself (as it certainly should do) to the rendering of our school architecture, including the relative location, attachments, and more immediate surroundings of the buildings and their approaches more appropriate and tasteful.

Little, we imagine, that shall be either effective or satisfactory can be reasonably anticipated from a movement of this character till the fountain head shall be reached, and by legislation or otherwise teachers shall have become interested in the effort, and even district officers become conscious how important and beneficial an educational influence upon scholars may be thus exerted. So important, and indeed radical, does this necessity seem to me, that I am impelled to repeat my suggestion at one of our previous meetings—that if needful the legislature be invoked to provide for teaching at least the essential horticultural principles involved to prospective teachers at our State normal school; and further, that teachers applying for certificates may, if they so desire, be examined as to their qualifications in this particular; and if found satisfactory, be entitled to a certificate specifying such qualification. It was also proposed, as a means of creating the desired interest on the part of the officers and people of school districts, that any district expending a given moderate sum in such ornamentation, after having constructed a suitable school-house, upon a lot of suitable size, be entitled to receive a similar sum as a bonus from the township, county, or State treasury, the same to be expended in the farther ornamentation of such school grounds. Such may not prove the preferable means of reaching the desired results, but to us the hope of success must be based upon reaching the source of power in the district, and at the same time providing in the teacher or district officers a competent head to conduct and supervise the needful processes.

That such effort may very appropriately include not country school grounds only, but public buildings and grounds in general as well, will seem obvious to those who may have occasion to observe the utter disregard of taste and even propriety which so frequently characterizes them. In all matters of this character, respecting either public and private buildings and grounds, architecture properly occupies so prominent a position that it may well be thought desirable to the society to invite coöperation on the part of experts in that speciality.

The rapid destruction of Michigan forests under the joint and insatiate efforts of both lumbermen and farmers has for a considerable period attracted the anxious attention of the thoughtful and observing meteorologist, as well as the economist. How severely this reckless vandalism has now twice been visited upon portions of our State will long be feelingly remembered; but so gradually and stealthily are its climatic results made manifest that there is great danger that little will be thought or feared respecting the result till the calamity shall be past help, the remedy impossible, and the State largely given over to the severities of a prairie climate, without their compensations.

The society may, and probably ought (as it has heretofore done) to offer inducements for the preservation and planting of screens and wind-breaks; but its capacity to reach and abate the evil is too vastly disproportioned to the object. This evil is of a magnitude demanding extensive concert of action, and the joint and earnest coöperation of the federal as well as the State government. To the question "How best to secure such action?" we invite the earnest and thoughtful attention of the society. The last legislature, in its amendment of the highway law of the State, to provide for the planting and protection of shade trees along the highways, has taken an important step in a right direction. We suggest a careful study of such law as amended with reference to its possible improvement or amplification; and we further suggest the desirability and sound policy of exempting from taxation such grounds as shall be either reserved in clearing, or artificially planted, as wind-breaks; and that the society take into consideration the propriety of memorializing the legislature on the subject.

The society has now, for nearly or quite two years, been engaged in the effort to extend its influence beyond the few principal points to and about which its operations had previously been largely confined. At the late meeting of the society, at Allegan, it was stated that, in the face of the fact that there is often a large attendance at its meetings, it was, practically, almost without actual paid annual memberships, and that it was, in fact, mainly sustained, and its expenses paid, by the voluntary and unpaid efforts of its officers and a few interested and public-spirited friends; while its annual report, distributed without even the form of recompense, had, to a very considerable extent, come to be an apparent means of preventing the purchase of memberships, since it supplied nearly or quite all the information to be gained by attendance upon the sessions of the society without even the effort and expense necessary to such attendance. Soon after the Allegan meeting, at which a committee had been charged with the duty of the much needed revision of the constitution, upon the suggestion of one of the most considerate, careful, and earnest of our members—Hon. W. K. Gibson, of Jackson,—the plan now in operation for increasing our membership, by the organization of local societies as auxiliaries, was adopted, and became part of our revised constitution. The work of organization was given into the hands of Secretary Garfield, whose efforts up to the present time have secured the organization of nineteen auxiliaries, widely distributed over the southern portion of the lower peninsula, with a total of about one thousand members, including those of the parent society, each member of an auxiliary society being also a member of the parent society. This process is doing very much to increase and disseminate the influence of the society in heretofore unoccupied sections, and has begotten an earnest desire that such efforts may be still farther continued, and the beneficial influences of the society come to be still more widely felt.

One of the incidental and yet important uses to be made of these auxiliaries is, and is to be, the employing them as aids in the work of collecting such facts or other information as may, from time to time, become needful for the advancement of the purposes it may have in hand; also, as aids in the missionary work of disseminating such matter as it may have reason to employ in the advancement of the interests of horticulture among the people. Their instrumentality will doubtless also be sought in providing for the holding of its meetings, and for the dissemination of notices thereof.

The society had also come to fear that, with the existing broadcast system of distributing its annual reports, there might be danger that it would be

charged with lack of proper discrimination in the disposal of them. Although published at the expense of the State, the brains, the knowledge and experience, in fact the *all* that goes to render them valuable, is the free gift of the society and of its volunteer friends. Under this state of affairs, it seems to be practical suicide on its part, nor can it be supposed to be the intent of the legislature, to require that they be so employed as to interfere with the efficiency of its operations. Under these circumstances, the society elected to act upon the obvious truth, that horticulturists and members of horticultural and pomological societies must, as a rule, be the most proper persons to carry out the requirements of the Legislature by placing the society's share of these reports, together with its other distributions, in the hands of those known to be interested in horticulture from the fact of their membership in an auxiliary society, thus cutting off a waste of such volumes as had heretofore, in large degree, gone into unappreciative hands, and, at the same time, constituting such distribution an aid, rather than a hindrance, in building up the membership of both the society and its auxiliaries. I have considered this particular the more at length for the reason that there have been those who have charged the society, though unwarrantably, with selling these volumes as a means of replenishing its exchequer, instead of treating it as the exercise of a wise and warrantable discretion in making provision for the efficiency of its operations, and, at the same time, guarding against possible censure in the performance of the duty entrusted to it.

The associations of this society with the State Agricultural College have, for many years, been of the most thoroughly cordial and satisfactory character—a state of affairs to which the voluntary and self-sacrificing efforts of Professors Beal, Cook, Kedzie, and others of the faculty have, no doubt, largely contributed. Quite recently it is understood that action is contemplated looking to the appointment of an additional member of the faculty, with the powers and duties of Professor of Horticulture, and, inasmuch as the incumbent of such position will, naturally, if not necessarily, be expected to exert a large influence upon the operations of that department of the institution, whether of a scientific or practical character, while upon his sympathy and cordial cooperation with this society must, in a great degree, depend the ability to induce and continue the harmonious and effective joint action of the two, it becomes a matter of no little moment to us that such appointee be a thoroughly capable horticulturist as well as a person heartily in sympathy with the objects of this society. Communications received by the Secretary from members of the board, indicate a disposition to favorably consider the wishes of the society in the matter, and invite the full and free expression of its wishes respecting it. It is understood that action on the matter by the Board of Agriculture is deferred to give the society the opportunity at this meeting to mature and express its views and wishes on the subject, with assurance that any action we may take in the case shall receive its careful consideration. The subject involves much that may be considered essential to the highest interests of the society, and we trust it will not fail to command considerate and thoughtful action on our part.

It will be recollected that the arrangement with the State Agricultural Society, under which the Horticultural Society has for a number of years taken the responsibility of the getting up and management of the exhibits of fruits and flowers at the annual State fairs, together with the offering and awarding of premiums thereon is not of a permanent character. It has now been annually renewed for a series of years at the annual meeting of their executive

committee, which occurs early in January of each year. At their last January meeting the sum allowed this society in consideration for its expenses in connection with such an exhibit was very considerably reduced from that of former years; so much so indeed, that the committee of this society felt much doubt as to the propriety of accepting the proposal, which however, was finally done with an implied verbal engagement respecting certain incidental expenditures, which however, upon the occurrence of the contemplated emergency was quietly ignored by them. The amount of the reduction spoken of was \$400, which sum taken from its available means while the needful expenses continued the same has seriously interfered with the efficiency of the society's operations, and has been the more seriously felt for the reason that an unfavorable fruit season called for more than the usual expenditure of both effort and means for the securing of a creditable annual exhibit. Under these circumstances the question as to the abandonment or renewal of such arrangement calls for the careful consideration of the society. It should be understood that with us an important inducement to the continuance of an arrangement of this sort has been the fact that in so doing we are enabled to infuse into the principal annual pomological exhibit of the State correct nomenclature and practice, while previously it had been instead a most prolific source of error in these respects, as well as of loss, both in reputation and in financial results, so far as the State and its people are concerned. A proposal to continue, renew or modify such arrangement for the ensuing year must be provided for, if at all, by the representation of our wishes at the coming January meeting of the executive committee of that society.

The reports of officers still being in order Mr. Garfield read

THE SECRETARY'S ANNUAL STATEMENT.

MR. PRESIDENT AND MEMBERS OF THIS SOCIETY—My desire is to make this annual report a concise statement of the year's work. In our volume for this year I shall develop in various articles some special matters that have occupied our attention quite fully, so they need only be referred to in this connection. In matters of

LEGISLATION.

We began early in the year and accomplished some quite desirable things. Our present yellow law combines in the enactment the suggestions of the most experienced peach growers in our State. The Legislature appropriated \$1,000, at the earnest solicitation of our society, for the purpose of properly representing Michigan horticulture at the meeting of the American Pomological Society, in Boston, during September. The money was well expended, and from Nova Scotia to Georgia, and Maine to California, they received a lasting impression of what Michigan can do in horticulture. It is the conviction of some of our strongest partisans for Michigan's progress, that money has never been expended to a better purpose than this small appropriation.

A law was enacted last winter looking toward the embellishment of our highways upon the urgent demand of some leading members in our society. Also a law for the gathering of crop reports, which contemplates the securing of valuable statistical information concerning orchard products. The law which provides for the publication of our annual reports was so modified as to cover the whole field in which we are working, instead of only a portion of it.

EMBELLISHMENT OF SCHOOL GROUNDS.

A practical attempt at the ornamentation of a few rural school grounds in the State was begun last February, and through the kindly assistance of D. M. Ferry & Co., of Detroit, and the genius of Will W. Tracy, the effort has proved a success, a full account of which will be given in our volume for this year. I trust the work will not be given up, for the success already attained indicates the value of continuous endeavors in this direction. It seems to me that a series of prizes might be arranged, if the society can see its way clear as to funds, that would increase the interest in this important subject.

BRANCH SOCIETIES.

Not as much work has been done in the organization of branch societies this year as we expected. If the officers of the society and interested members would do a little practical work in paving the way for such organizations, I am certain this scheme of making the State Horticultural Society especially interested in the progress of localities, by organizing branches over the State, is a very worthy one. Nothing we have ever done has awakened so favorable comments from abroad as this plan of branch societies. But to insure success the burden of building and maintaining these societies must be evenly shouldered by the horticulturists of the State.

STATE FAIR.

More than usual exertion was employed to secure a creditable show at the annual fair, and the result satisfied everybody. The use of one large flat table for single plates ought, from its beautiful appearance, to satisfy the most obdurate that this method of displaying fruit is far superior to the stairs against the wall. In my visit to the Kansas State Fair I learned how much behind we are in making our products show to the best advantage. It seems to me very proper that good taste should have "full swing" in a horticultural exhibit. At the suggestion of our President I drew up a plan of special prizes for the adornment of the inner walls of horticultural hall, which was intended to draw out the special tact that so many have of arranging commonplace things to produce excellent effects. But it was thought best by the State Agricultural Society not to attempt its consummation this year.

The officers of our society and our exhibitors were treated with great courtesy by the State Agricultural Society during the week of the fair, and all separated with the utmost good feeling. To be sure our hall was not very well adapted to the purpose on account of the lack of sufficient light, but skylights were inserted, and the inner walls whitewashed, so that the conditions were modified for the better, wherever practicable, by Mr. Gilbert, chairman of the business committee. If it is thought advisable to continue our annual exhibits I would urge that methods be adopted by which every effort will be employed to render our building attractive to visitors. Lessons in good taste may prove as valuable as lessons in nomenclature.

HISTORY OF MICHIGAN HORTICULTURE.

Last year I undertook to gather facts connected with the early efforts in horticulture in our State, and was quite successful in awakening an interest in some of the counties. But with our limited funds we must depend upon individual enterprise in the different counties for the data. Although I have issued circulars and written numbers of letters this season I have added very little to our

stock of information. I wish the society might assist the secretary in this matter, that the work may be continued to its completion. Every county in the State should be represented in this history. Our volumes are the appropriate place in which to store this information for future reference, and I trust during next year a good deal of progress may be recorded in this work.

THE VOLUME FOR 1880.

Our report for 1880 was not printed and bound until July; a number of unpleasant things occurred to defer its publication, the enumeration of which would do no good now. The general index, which was a long and arduous work, has received favorable notices everywhere. Michigan Flora, furnished by Messrs. Wheeler and Smith, is a valuable contribution to Michigan botany and horticulture, and will be used for reference a great deal. The volume is the largest one issued by the society (on account of the two contributions just mentioned), which I admit is not commendable. I was tempted, when I learned the amount of space required for the index and flora, to leave out the secretary's portfolio, and consulted with leading members of the society, all of whom counseled against it.

OUR MEMBERSHIP.

I feel it a duty, whenever opportunity offers, to say a word about our membership. We shall have but a little over a hundred annual members this season—aside from those taken by branch societies, and nearly all of these net us but seventy-five cents each, because a volume is sent post-paid with each certificate, unless as in the case of our friends Buell, of Kalamazoo, and Town, of Barry; we send all books in bulk at their expense, and they return us the members, which is certainly not very profitable to them. I am weekly receiving letters inquiring for our earlier volumes, which are gone (except a few that have been gathered for purposes of exchange). Now, I apprehend that this demand will increase, and the very men who are indifferent about our volumes to-day in ten years from now will be trying every possible way to get them. We ought to have a thousand annual members in Michigan—outside of local societies—in place of the hundred we now have. There are plenty of men who would like our volumes if the books could be handed to them in their homes annually, and would gladly pay the annual fee. I have wondered if it would not be for the good of our horticulturists that we adopt the methods of enterprising book firms and go into the field after subscribers. We have now one hundred and sixty-six life members, which gives us a fund of \$1,660. We certainly should not let a year go by without having this fund increased. The interest upon it helps carry on our enterprise, and this fund is working for us night and day.

EXECUTIVE BOARD MEETINGS.

There have been but four meetings of the board during the year, as follows: Lansing, February 1; Lansing, June 2; Benton Harbor, June 9; Jackson, September 22. The first meeting had to do with matters of legislation principally; the second meeting was for the purpose of visiting the Agricultural College in acceptance of an invitation extended by State Board of Agriculture; the third meeting was largely for the purpose of considering matters connected with the exhibit of Michigan products in Boston; and the September session was upon State fair matters.

RECORD OF DISBURSEMENTS.

I found it somewhat difficult to make such a classification of disbursements as will, in concise form, present a record that will show on just what account the expenditures have been made. For instance, about \$60 have gone into the report for 1880. A goodly portion of this amount was spent in connection with State fair records, and fruit catalogue. And again, the secretary's salary might properly be distributed over the other departments of work, while the expenses of the executive committee were very largely connected with the State fair. But the accompanying classification will aid somewhat in conveying intelligence to the members of our society of where our money has been expended, and the vouchers in the hands of secretary and treasurer can be consulted for details.

There have been drawn during the year ending December 1, 1881, forty-seven checks, aggregating in amount \$1,340.99, of which the following classification has been made for convenience in my office :

President's office	\$7 25
Secretary's office	19 98
Treasurer's office	2 55
Librarian's office	*44 66
Salary of Secretary	600 00
Advertising	4 25
Printing blanks, circulars, etc	40 50
Incidentals of quarterly meetings	26 97
Executive Board expenses	174 39
State Fair	253 20
Fruit Catalogue	50 00
School grounds work	16 65
Boston exhibit	9 75
Branch societies	16 48
Report of 1880	59 53
Report of 1881	2 40
Back Reports and Exchanges	12 43
Total disbursements for the year	\$1,340 99

RAILROAD COURTESIES.

The Chicago & West Michigan railroad take a lively interest in our affairs, and have aided us in many ways in the prosecution of our work. The Michigan Central, Grand Rapids and Indiana, Detroit and Milwaukee, and Chicago and Grand Trunk railroads have all acceded to our requests for reduced rates to our meetings. The Lake Shore and Michigan Southern has extended special courtesies to me by granting me a pass to aid in the visitation of branch societies.

I feel that the society has made some progress this season. In order to keep up the life and interest of the association it becomes necessary to undertake each year some special work that all can "lend a hand" in. I trust we shall never cease to be useful to the horticultural interests of Michigan.

The society next listened to the

* This includes all expenses connected with shipping reports.

REPORT OF THE TREASURER FOR 1881.

MR. PRESIDENT AND MEMBERS OF THE SOCIETY.—The year has been quite a prosperous one financially, and I am glad to be able to report a handsome amount on hand with which to open the work for the new year. The following is a statement of the condition of the treasury to-day, with an account of the year's transactions, beginning Dec. 8, 1880, and closing Dec. 7, 1881.

RECEIPTS.

Amount on hand Dec. 8, 1880.....	\$557 51
Received from local societies	82 75
Annual membership.....	189 00
Interest on bonds.....	8 00
Interest on mortgage (life fund).....	140 00
Received from State Agricultural Society.....	1,036 64
Received from H. Dale Adams.....	190 00
Donation	50
	<hr/>
Total.....	<u>\$2,204 40</u>

DISBURSEMENTS.

Forty-nine checks paid during the year, aggregating.....	<u>\$1,391 86</u>
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GROSS RECEIPTS AND DISBURSEMENTS FOR 1881.

Receipts	\$2,204 40
Disbursements	1,391 86
	<hr/>
Balance on hand Dec. 7, 1881.....	<u>\$812 54</u>

The above statement is entirely outside of the life membership fund, an account with which is kept by itself, of which the following is a condensed statement:

Amount of life membership fund in my hands Dec. 8, 1880.....	\$1,270 00
Added during the year four members	40 00
	<hr/>
Total in my hands Dec. 7, 1881.....	<u>\$1,310 00</u>

The Secretary informs me that there are in all 166 life members, which would at \$10 each, give a fund of \$1,660. The amount in my hands is \$350 short of this amount, and I am told that this balance is covered by a certain mortgage given by H. Dale Adams and held by our Business Committee. I would recommend that the amount due the life fund be transferred from the general fund, and that the Adams mortgage be placed to the credit of the general fund.* The life fund in my hands is invested as follows:

* On a subsequent page of this volume there appears action of the Executive Board, by which the life fund, \$1,660, is made whole.

One mortgage on real estate.....	\$1,000 00
One mortgage on real estate.....	150 00
Three U. S. 4% bonds.....	150 00
Cash.....	10 00
	\$1,310 00

Respectfully submitted,
S. M. PEARSALL, *Treasurer.*

President Lyon's address was referred to a committee, with Mr. J. N. Stearns as chairman.

Treasurer's report was referred to Business Committee for final action.

ELECTION OF OFFICERS.

The election passed off quietly, resulting in the selection of T. T. Lyon for President; Chas. W. Garfield for Secretary; and S. M. Pearsall for Treasurer. Two members of the Executive Board were selected to fill the vacancies occasioned by the expiration of the terms of Mr. Mann, of Adrian, and Mr. Coryell, of Jonesville. Mr. A. D. Healy, of South Haven, and E. H. Scott, of Ann Arbor, were chosen. The vice-presidents elected are named on an early page in this volume.

Afternoon Session.

The afternoon session was opened with a report from the committee to whom was referred the president's message. Mr. Stearns, chairman, reported that the committee were unanimous in recommending the adoption by the society of the suggestions made by the president. He called attention especially to that part concerning the professorship of horticulture at the Agricultural College, and recommended that the Executive Board take such action as seems desirable to secure the proper man in the new position. The courtesy extended to our society by the Board of Agriculture in asking us to give a list of suitable persons for the position from which to select, should be met half way by our Executive Board. In regard to further exhibitions with the State Agricultural Society, the committee thought best to continue these exhibits for the good of both societies and the industrial interests of the State, provided such terms could be united upon as for years before 1881 proved so acceptable.

Report accepted and adopted, and on motion of Mr. Gibson, of Jackson, Mr. J. N. Stearns was recommended by the society as a delegate to attend the meeting of the State Agricultural Society with the delegation from the Executive Board.

THE BOSTON EXHIBIT.

Prof. Beal was called on to report the result of the Michigan exhibit in Boston, a full account of which is given elsewhere in this volume.

The general topic for discussion during the afternoon was

COMMERCIAL FRUIT-GROWING.

Mr. Charles J. Monroe, of South Haven, gave the following very interesting statistics in reference to the amount of fruit shipped from South Haven during the past season, and the value thereof:

Peaches, 235,040 baskets; apples, 18,114 barrels; grapes, 33,000 baskets, berries, 8,450 cases.

From June 13 to December 6, 1881, the bank had made the following payments on checks and drafts issued for fruit shipped from South Haven:

June and July.....	\$9,889 39
August.....	16,281 68
September.....	58,353 77
October.....	38,088 78
November and December.....	12,399 37
<hr/>	
Total paid by bank.....	\$135,012 99
Estimated amount paid to shippers in Chicago, and received in currency for sales to local speculators.....	20,000 00
<hr/>	
Total value of fruit shipped.....	\$155,012 99
<hr/>	

Last year the amount realized for fruit shipped from this port was only \$72,043.58, or \$82,979 less than the receipts of this year from the same source. Alluding to the yellows, Mr. Monroe stated that Mr. Williams, one of the yellows commissioners, had examined 71,353 peach trees in the vicinity of South Haven during the past season, and the loss by yellows was only $7\frac{1}{2}$ per cent. In 1879 the loss from the same disease was $4\frac{1}{2}$ per cent and in 1880 $12\frac{1}{2}$ per cent.

Mr. Hanford, of Indiana, gave statistics about apple-growing in his State, which tended to prove that it was a remunerative industry. He thought apple-growers generally sold their fruit too early in the season. If they kept it till January or February they would realize much more money. He kept his fruit in a building specially designed for that purpose. It was a patent structure, whose mode of construction he was not at liberty to divulge, but he described it as an "ice-house with the ice out." He thought the right of erecting similar houses could be purchased very reasonably. He found no difficulty in keeping his apples in it until March or April. A building in which 3,000 barrels could be stored would only cost about \$300. It is, also, an excellent place in which to keep vegetables.

Mr. G. H. LaFleur, of Allegan, read a short paper upon

COMMERCIAL FRUIT GROWING.

During the past few years at our meetings the peach has been prominent among the subjects under discussion. Having gone over the peach question thoroughly, it seems to me that we could spend an hour profitably in discussing the apple and its future, as a question of practical importance that should be squarely met and thoroughly analyzed, to enable the fruit grower to act judiciously in whatever steps he may take in planting, cultivating, and marketing apples.

One may make a prediction upon this or any other subject, but unless based upon sound reasons and antecedent causes which naturally lead to certain results, he may mislead and cause more harm than good. However, I make the statement that the prospect for growing apples for market is better to-day than at any previous time. From the time of planting the first orchards in Michigan to the present, we have passed through a school of experience which ought

to enable us to act more wisely in the location of the orchard, in the selection and management of varieties, as well as in gathering, sorting, packing and shipping. All of this will enable us to grow apples cheaper than formerly, to select better varieties, and place a better apple in better condition upon the market; it must be remembered too, that transportation is cheaper. If this be true then we have gained the principal points in successful production and marketing; so that we can place our apples upon the market at distant points at less cost than ever before, and we may reasonably expect to progress on this line and greatly improve upon the present economy of producing and marketing.

That the intelligent fruit grower can place first-class apples in first-class condition and at a moderate cost upon the market, is no longer questioned; but will he always find a ready market at remunerative prices is a question not so readily settled. The prospect is not all sunshine, nor is it very cloudy. While attempting to satisfy ourselves upon this point we must look at both sides, taking the facts and weighing them thoroughly, admitting fairly all the circumstances that can have any bearing upon the question either way.

Apple growing for market has steadily improved for the past, taken as a whole. There are many reasons why this should continue to do so, and not many reasons why it should not. A large part of the west and some parts of the south depend upon the apple-producing States for their supply. There is room for it, and I doubt not within the next twenty years there will be found a population of fifty millions of people living within that portion of the United States where apples are not grown to any extent at present, and the prospect is not very promising that they ever will be grown. The demand from this section for apples is already quite large, one which has grown from a few hundred barrels to many thousands and is steadily increasing. As the number of inhabitants increases and large towns and cities grow up, and the people become able to buy, the demand will increase in the same ratio.

Already quite large shipments of apples are being made to Europe annually from the United States, and the demand for apples for shipment abroad promises to rival the demand from the western States. The limit of our apple market is being extended from year to year and bids fair to keep pace with any extension to our orchards which is likely to take place. Not only does the circle increase, but the demand inside that circle increases steadily. If this continues, and in all human probability it will, then the prospect for an outlet for apples is almost certain to become much larger than we have been accustomed to think. The new methods of evaporating fruit, which are coming very generally into use, consume a large amount of fruit, and it is of so much better quality than that dried by the ordinary process, that the popular demand has kept pace with the supply. We find that we have already a good market for apples in our own country, one that is improving each year with a fair promise that unless something occurs to prevent will become many times greater than at present. Then the foreign demand seems likely to be even greater than our home market, and is thought by some will be the better of the two in time.

What reasons have we to expect the foreign demand to increase? First, the nations of Europe that grow apples at all have long since passed their meridian in apple growing; in other words they have had their best day. Their orchards are old and on the decline, becoming less in number, having passed their age of growth and vigor, are failing in productiveness, and from the same cause the quality of the fruit is becoming impaired. There are but few new orchards being planted out in these countries, not enough to make good the number that fall from age and natural waste. The common people, especially in England,

are beginning to consume more apples; if we can furnish them at cheap rates this consumption will increase.

The orchards of New York State and the New England States are not in a condition to produce apples sufficient to affect the market seriously. Most of the apple orchards there are quite old, having passed their prime, and are beginning to fail from age. To say the least they never will be any better or more productive than at present. The chances are that not more than enough young trees will be set to replace those that fail. The same is partially true of Pennsylvania and Ohio.

Now, one of the most important points in the solution of the apple problem is, will the great West in the future be able to grow its own apples? Past experience and the present condition of the orchards already there, would not indicate much success with apples, but it may be fairly presumed that almost ceaseless efforts will be made to grow at least part of their apples in some, if not all of the western States. Already the crab apple and some of the Russians with a few of the iron-clads of western origin, are producing some fruit, and are able to withstand the rigors of their cold winters; but the fruit is not of good quality, and they are by no means sure of a crop except under favorable circumstances. How many of these difficulties the enterprising people of the West will yet overcome remains to be seen. That they will be partially successful in growing some varieties of apples in some parts of the West is almost certain, but that they will ever be able to grow apples to any considerable extent upon the prairies of the West I very much doubt. We must expect that the wide-awake people of the West will make every effort to grow at least some part of the apples they consume. Our future market is somewhat depending upon their success. Having examined somewhat in detail the outward surroundings likely to affect the price and sale of apples, it may not be amiss to give a few thoughts upon the growing of apples.

To enable any one to grow apples successfully, and at a profit, it should be under favorable circumstances and in a proper manner. So much has already been said and written upon that part of the subject that I pass it by without comment, and will only offer one more suggestion. In selecting varieties for a commercial orchard, I should not go outside of eight or ten varieties, and in an orchard of one thousand trees I should select the larger part from three or four sorts. I do not think it good policy to sell the bulk of the fruit in the fall; by so doing we throw too many upon the market at one time, which has a tendency to break it down. The varieties intended for early to midwinter use should be disposed of in the fall; the balance, which should be two-thirds of the entire crop, should consist of good keeping sorts and be packed for spring market. Of course this requires a cool cellar or room provided expressly for that purpose. The subject of fruit cellars ought to be thoroughly discussed. The experience of those who have such cellars, and have kept their apples over winter and sold them in early spring, will be more practicable and to the point than anything that I could say. We can overcome most of the difficulties in the way of producing apples, but we cannot so successfully control or provide the market for them. But one thing is certain, the American people will have good apples to eat, and Michigan will furnish her share of them: she will rank in this as she did at the Centennial, at the American Pomological Meeting, and at the Chicago Exposition, taking the highest honors, and adding laurels to the pomologists of our grand old Peninsular State.

J. N. Stearns: I want to call attention to the sub-topic, "How much

profit is there in care?" My belief is that nearly all the profit in fruit is in the care given to picking, packing, and shipment. This society has a work to do in educating the apple growers to a higher standard of handling fruit. Michigan is a great fruit State, and should lead out in this matter. It pays to select carefully. Apples like these upon the tables will sell in our village of Kalamazoo for six dollars per barrel to-day. Every package should be what is represented. I bought two barrels of greenings the other day, and told the seller I wanted excellent fruit. When delivered he charged me only \$2.50 per barrel, and I was quite satisfied with the price, but when the apples were opened I wished I could have paid four dollars per barrel and got selected apples. The result is I shall buy no more apples of that man; his reputation injures him.

Secretary Garfield read the following note from our venerable friend S. B. Peck, of Muskegon, upon

EFFECT OF A REPUTATION IN MARKETING FRUIT.

In 1869 my brother, Frederick B., sent, among many other barrels of pears to his commission agent in New York, one of specially selected and uniform specimens, containing 153 by count. This was sold to a retailer for fifty dollars. In 1870 another barrel of the same count sold for the same price, and in 1871 another barrel counting 126 sold for forty dollars. These pears were of his own raising, of the Duchesse d'Angouleme variety, and the barrels intended to hold two and a half bushels each. The fruit was simply laid in bare, the head pressed in and nailed. As to any secret about the prices, the facts were that his name as grower and shipper, with the count on the head, was before known as a reliable guaranty as to count, size, and condition. It is further related that the retailer on opening one of these barrels readily sold to one person twenty of these pears for one dollar each. My brother then lived in Ontario county, N. Y.

E. H. Scott described the large, successful fruit house of Mr. S. W. Dorr, of Manchester, saying it had paid for its construction in the work accomplished by it in one season.

A. D. Healy: I am not very much in favor of fruit houses which take fruit over the natural season. I have seen too much of this fruit upon the markets; it will not stand it long; decay sets in rapidly when it is taken from the house. This kind of storage should be in, or near, a large city, where the fruit can be placed immediately upon the fruit stands.

Mr. Woodward: I am quite in sympathy with this idea. Well selected and well handled apples in ordinary fruit cellars will keep their full season. Hog apples will not keep and ought not to. Too many poor apples are put up for spring market, and we don't want any fruit houses to keep this character of fruit. Canadian apples sell better in England than ours, because they are better selected and handled. We have a bad name abroad, and until we put more care into this department of the fruit business even our best packers will suffer.

Mr. Buell explained his method of handling apples. The apples are picked and laid carefully upon a table, where they are assorted and placed permanently in barrels. It requires experience to even assort apples properly.

Mr. Sheffer: Dealers come in here and go to a good grower and buy his apples, paying so much for No. 1, and something less for No. 2. The dealer goes to the next farmer for a bargain and says, "I have bought Mr. A's apples

for so much," naming the price for the second-class apples, and by this mode of tactics secures large quantities of apples at a less price than he ought to. The grower finds out the fraud and "comes up" with the dealer by placing in the barrels apples that should never go to market. I tell you, gentlemen, no grower should put No. 2 apples on the market, and then this difficulty would not arise, with its temptations.

A short letter was read from Mr. F. B. Johnson of Lansing, on

MARKET APPLES IN CENTRAL MICHIGAN.

It is with pleasure that I comply with the request of Secretary Garfield in giving my views as to the best market apple for central Michigan. I believe that Michigan is the surest, and the most to be depended on, of any State in the union for this most important of fruits, and will always be more or less depended on for apples for other sections of the country. Therefore I believe that one of the most important duties of this society is, if possible, to give to the people a very few varieties out of the hundreds (and I might say thousands) of varieties that will take the place of all others for market.

My experience with packing, keeping, and marketing apples commenced with last year's crop, when there was a surplus in all sections of the country where apples are grown at all, and all markets glutted through the whole season. Then, again, this year, when there is a demand from every part of the country for our Michigan fruit at large prices, and I have had on my mind all the time this one great question: What are the best two or three varieties that will take the place of all others? While there are a great many kinds that we should dislike very much to discard from our own tables, and, in fact, would bring equally good prices in market, yet, if we let our own tastes direct us in setting orchards for market, we fall into the great, inconvenient mistake of too many varieties. Now, when I say I have settled down to two varieties of apples for marketing from this section, no doubt you would think this a little too fine, but this is the ground I take, and (as I said at our Ingham County Society meeting) if I were to plant an orchard of one thousand, or ten thousand, trees in this location, I would put one-half to Canada Red, the other half to Rhode Island Greening, or what is better, put out Spy or Astrachan stock and then top-graft to these two varieties, for I believe in the double work for these kinds we get better results, and also in so doing we get better trees and hardier stock than they will make of their own kind. I choose these because in them we get two varieties that seem to grow more nearly perfect, more uniform in size, nearer the genuine color peculiar to the variety, the most regular bearers and always bring the top of the market anywhere you put them.

Now, as there is perhaps not one in this society that would agree with me, I will give my reasons for leaving out some of the great favorites of a majority of the people. First among them would be the Spy and the Baldwin. The Spy is all right if packed and gotten into market in good shape, and nothing but the large, well-colored ones taken; but they will not stand handling like other varieties, for a bruise on a Spy always rots,—never dries, and from the fact that they are so large and solid, one dislikes to pack or press them in barrels. They do well in this section and if put into market in good shape (which is difficult) bring a good price.

The Baldwin, unlike those grown in western Michigan, are inferior, wanting in size and color. Wagener good in its season, but soon discolors and loses its flavor; no sense in raising it where the Canada Red will grow. Spitzenburgh

does not bear well with us. King of Tompkins County grows watery and does not compare with Canada Red as a keeper. Peck's Pleasant comes the nearest to the standard of the Rhode Island Greening; tree a good grower, good bearer, fruit excellent, but does not hold its flavor as late as the Greening, nor is it as uniform in size. All the different kinds of Russets do well here, but do not sell for as much as others, unless kept till all others are out of the market; then they will only bring about what the others did when in the market; so I can see no reason for growing an inferior fruit for late keeping, unless one should make a business of growing the Pennocks for the southern trade, where they take them for their looks and not for their value as a dessert or for cooking.

Now a word about early fruit. I have never known early apples to pay in this section for even marketing, say nothing of the expense of growing. Most of the early apples do well here in central Michigan, and every orchardist, of course, wants a few for his own use, and there is always surplus enough for our own markets. While I have only had two years' experience in buying and marketing fruit in distant markets, I have all my life been interested in growing apples (as well as all other kinds of fruit), and with an orchard of seven hundred trees on my land to begin with I found I had only thirty-nine varieties, and have (until within the last few years) been successful in walking off with the first premium on the largest number of varieties exhibited by one man, at our central Michigan fair. I now have the orchard down to about fifteen kinds, and still find, so far as market is concerned, that I have thirteen varieties too many for convenience or profit. I find that almost all of the large orchards about here are a good deal as mine was, and that every owner feels just as I do about it, although they would not all agree with me about what to discard or what to keep.

Now in closing I will say that I believe this society could impart no more useful information to the planters of Michigan than to inform them through your reports what few varieties out of so very many would be the most profitable for the different portions of the State.

Mr. G. Cowing, of Muncie, was quoted as follows upon

PROFITABLE BLACKBERRIES.

I have carefully tested every blackberry of especial promise that has appeared since the introduction of the Lawton and have found but three varieties that have proved profitable in this latitude,—Snyder, Wallace, and Taylor's Prolific. They are more hardy than any other varieties and have passed through severe winters and produced a full crop of fruit when all other kinds were killed to the ground. Last winter, for the first time since their introduction, they were materially injured by intense frosts and droughts, and yielded but little fruit this season; but such a winter was never before seen by the oldest inhabitant, and its like may not recur during the present generation. These varieties are all free from rust, a disease so injurious to Kittatiny, and which also affects Western Triumph. Snyder is the first to ripen. Its berries are sweet as soon as they color and are of medium size. It is a strong, upright grower and inclined to overbear, but that inclination may be controlled by pruning. Wallace ripens a week later than Snyder; berries above medium size, of exquisite flavor, and produced in great profusion; as hardy as Snyder. The broad, round leaves of this variety and Snyder, unlike the foliage of any other kind, indicate a probable relationship between the two. Taylor's prolific ripens last. It is very productive and its berries have the delicious flavor of

the wild dewberries of the South. Young plants of it are inclined to droop, but become stiff and erect in old patches. These varieties all originated in Indiana,—Snyder near Laporte, Wallace in Fayette county, and Taylor's Proflific at Spiceland, Henry county. Neither Knox nor Western Triumph has proved hardy here.

W. A. Brown, of Stevensville, said that fruit-growers did not keep posted in regard to prices, and very often undersold the market.

Mr. Woodward remarked that such men ought to be bitten, for they could not belong to a live horticultural society, nor even take an agricultural paper, and remain in such ignorance of prices.

Mr. A. C. Towne, of Barry county, was called out upon "fertilizers," and advised the securing of the largest quantity of barnyard manure possible by using up the coarse products of the farm, and such as could be bought, feeding cattle and sheep, the profit upon which would pay expenses, and the manure would be clear gain.

The hour of 4 o'clock having arrived, the president announced that the programme called for reports at this hour, and led the way by presenting the following report of the standing committee on

NEW FRUITS.

To the Michigan State Horticultural Society:

GENTLEMEN: In submitting the following report on fruits new or little known in this State, it should be stated that the committee on new fruits, consisting of G. H. LaFleur of Allegan, George C. McClatchie, Ludington, C. Engle, Paw Paw, and Dr. A. Conklin, Manchester, has had no warrant, in any previous action of the society, for the holding of a session, except at the personal expense of the several members; and in the lack of such warrant no meeting of the committee has been called. The chairman has instead, been compelled to do what could be done through the medium of correspondence. Some of the members, who have new fruits under trial, have preferred to omit any report respecting them till the experience of another year shall be had. Credit will be given to the proper person, in connection with the notices of varieties.

STRAWBERRIES

Were more than usually affected by the long, severe winter, and the continued presence of water from the slowly wasting snow, thus affording a severe and unusual test of the comparative hardiness of varieties.

Crystal City

Was the first to ripen among the very recent sorts, showing a few mature fruits, along with Metcalf, on June 6th. As a very early berry it may prove desirable to the amateur, but it will scarcely be thought valuable enough for any other than home use. Soft, staminate.

Hervey Davis

A Massachusetts seedling, has again fruited and seems to have come through the winter unusually well. It ripened June 12th. We regard it as worthy of extensive trial. Staminate.

New Dominion

Is a variety originating in Ontario in 1873. Plant vigorous and productive.

It seems worthy of a thorough trial as a market berry. Ripe June 14th. Staminate.

Woodruff's No. 1

Is a seedling produced by C. H. Woodruff of Ann Arbor, Michigan, in 1872 or 1873. Plant vigorous and productive; fruit large, long conical, pointed; dark crimson, ripening the tips perfectly. A seedling of No. 2; ripens June 13th. Staminate.

Woodruff's No. 2

Originated also with Mr. Woodruff, from Jucunda, on Agriculturist, in 1869. Fruit medium in size, truncate conical to oblong ovate, and like No. 1, ripens first at the tip. Ripe June 15th. Pistillate.

Early Adella and Seedling Eliza

Have not so far proved promising as compared with many others of similar season. The former is pistillate, and the latter staminate. Both ripen June 15th.

Iowa Prolific

Is a seedling of J. A. Fowler of Waterloo, Iowa, originating in 1879. It is a rather small, firm, light-colored, acid berry, but we fear it will not do for the market, since it lacks both color and size. Ripe June 15th. Pistillate.

Red Jacket

Is large to very large, broadly conical, dark red or scarlet, acid. Worthy of trial as a market berry. Fruit average large, firm. Ripe June 13th. Staminate.

Burgess

Was sent us in 1879 by J. D. Baldwin of Ann Arbor, Michigan, who, as we understand, supposed it to have originated in Rhode Island. It ripened, this season, June 10th. The fruit is medium to small, dark red, soft. Staminate. Does not promise to be valuable.

Prouty

Seems not to have, so far, become popular. This year it has shown itself vigorous and productive; the fruit large to very large, glossy scarlet, rather soft, but rich, mild, and excellent. Ripe June 14th. Staminate.

Arnold's No. 2

Was received from B. Hathaway of Little Prairie Ronde, Michigan, without history. We suppose it to be one of the seedlings of that noted experimenter, Rev. Chas. Arnold of Paris, Ontario. Fruit large, pointed, conical, often cocks-combed; light dull red, rather soft, juicy, mild acid. Needs further trial. Ripe June 14th. Staminate.

President Lincoln

Suffered badly from the winter. Still the fruit was of large size, roundish to conical, generally irregular; dark crimson or scarlet; moderately firm, mild acid. If productive enough it must prove desirable for near marketing. Ripe June 17th. Staminate.

Photo,

Although not properly new, seems to be little known in this State. Under very adverse circumstances it has this season proved very productive, and the fruit very large, light crimson, firm, rather acid. Ripe June 16th. Pistillate.

Windsor Chief,

Grown in rows adjacent to Champion, has demonstrated the correctness of the well-nigh universal verdict that, both in plant and fruit, it is identical with Champion. The most critical comparison shows not a shade of difference. Both are very productive. Ripe June 14th. Pistillate.

Miner's Great Prolific

Has shown itself this season one of the finest of near market sorts. The plant is hardy, vigorous, and very productive; the fruits very large, elongated conical, sometimes cockscombed; dark crimson, rather soft; acid, but lacks richness. Both plant and fruit have many qualities in common with Cumberland Triumph. Ripe June 15th. Staminate.

Excelsior

Is a vigorous but not very productive plant and the fruit large, ovate conical, often slightly necked. Color dark scarlet; firmness medium, flavor a rich, mild acid; ripens slowly at the tips, June 13th. Staminate.

Centennial favorite, pistillate, Caroline, pistillate, and Belle, staminate,

Seem to have suffered more than most others from the severity of last winter, hence no proper conclusion can be based upon their this year's performance.

Lennig's White,

Though an old fruit, is one of the very finest of strawberries, when we get it, which is so very rarely that it is hardly worth the space it requires. Ripe June 17th. Staminate.

Laurel Leaf

Is a tall, rather vigorous, productive plant. Fruit, medium to large, roundish conical; color, light crimson; flesh rather soft, sprightly, acid. June 17th. Staminate.

Marvin

Maintains its character as the latest and largest of strawberries, although both it and Shirts seem to have suffered more than many, if not most others, from the winter. The tendency to sun-burning of the foliage during hot weather has not been noticeably troublesome here. It is worthy of extensive trial for late marketing.

RASPBERRIES.—IDÆUS OR STRIGOSUS, AND HYBRIDS.

Reliance

Is claimed to be a seedling of the Philadelphia, produced by O. L. Felton, of Merchantville, New Jersey. The plant is vigorous and hardy, with but few spines; a profuse bearer. Fruit large, round, dark red or crimson, firm, juicy, sprightly, sweet; valuable.

Cuthbert

Has now been grown for the market for several years at Ann Arbor, where it takes a popular position, as it also does at the East, where it has been longer known. It is an accidental seedling, which sprung up in the garden of a gentleman near New York. It is doubtless abundantly hardy, as far as the lake shore is concerned, and possibly may be so for the interior of the State. It is a vigorous grower, and a profuse bearer. Fruit large, roundish, conical, bright red, with slight, whitish bloom; firm in texture, and of sprightly, rich, pleasant flavor—a combination of unusually valuable qualities, whether for family or market purposes.

Reeder

Is the name given by W. A. Brown, of Stevensville, Berrien county, to a raspberry received from him on the 11th of July last, supposed to be an accidental seedling of that vicinity, originating about 1878 or 1880. It is represented to be perfectly hardy, having withstood the last trying winter without protection, and perfectly uninjured. It is a vigorous but rather slender grower, with dark brown shoots and few spines. It bears profusely. The fruit is of medium size, roundish, rather dark red; ripens in succession; bloom slight; texture firm; flavor mild; "very good." Mr. Brown is growing it for the Chicago market, and finds it a profitable variety.

Caroline

Is a seedling originating with S. R. Carpenter, of New Rochelle, New York, and it is thought to be a cross of Golden Cap upon Brinkle's Orange. It is said to combine the hardiness of *Occidentalis* with the superior quality of the Antwerp Mother. It suckers freely, like the Antwerp, and is susceptible also of being propagated from the tips. Canes very strong, branching, light red in the sun. It bears abundantly; it is soft in texture; the fruit is large, oblate, orange yellow, or salmon; bloom slight; quality "very good." In use a long time.

RASPBERRIES—*Occidentalis* AND HYBRIDS.*Gregg*

Was noticed in our last report as the coming Black Cap; that it has, in the main, realized the anticipations then expressed will, we think, be freely conceded. The plant is hardy, very vigorous, and an abundant bearer. The fruit may fairly be said to be the largest of the Black Caps. Form roundish, flattened; color, black; bloom slight, whitish; texture firm; flavor rich, sprightly. It will probably become a leading market variety.

Shaffer

Was received last spring from C. A. Green, of Clifton, New York. Its habit of growth, and the rooting of the tips, locate it unmistakably with the *Occidentalis*; while the color, flavor, and texture are, as obviously, borrowed from *Strigosus*. It is, doubtless, as hardy as the Black Caps, while in vigor it bids fair even to excel them. Little can yet be said of its productiveness. The fruit is large, roundish, irregular, dark purplish red; bloom very slight; texture rather firm; flavor rich, acid, sprightly. Fruit on this year's cane ripe August 15. We regard it as promising for home use, and possibly, if

productive, for market. It produces no suckers, but roots very freely and strongly from the tips.

PEACHES.

Downing,

Is one of the very early peaches shown by Mr. Engle, of Penn., at the centennial exhibition, at Philadelphia, in 1876, and reported to be considerable earlier than Amsden and Alexander. Specimens were received from Mr. Evart H. Scott, of Ann Arbor, grown upon trees planted the previous year. The fruit reached us on August 3d, fully ripe and in good condition. This indicates that (as had been our previous experience) it is not likely to prove earlier than Amsden, which was shipped from here in considerable quantity during the last week of July. It is a strikingly beautiful, bright red, pale fleshed peach of the type of Hale's early, but rather smaller, and with a similar adherence of the flesh. Like all of its type it must be considered as a semi-cling.

A Dark Red and Yellow Seedling Peach

Was sent us on Oct. 3d which had been picked at maturity Sept. 12th and preserved in a refrigerator till sent. A press of other matters delayed its examination till Oct. 5th, when it was found to be slightly decayed and the flavor obviously affected. The trees had not been under cultivation for seven years, otherwise fruit would doubtless have been large. Color dark red on yellow ground, with dense pubescence; flavor probably mild, vinous, or sweet; a good market peach if sufficiently productive: freestone. The specimen came from S. W. Dorr, of Manchester, Washtenaw county.

A Bright Yellow Seedling Peach

Was also received at the same time from Mr. Dorr, said to have sprung from seed in 1863. These were also picked from the tree on Sept. 12th and preserved in a refrigerator. They were also examined on October 5th; yet in good condition; said to come also from trees seven years without cultivation. Fruit medium; would probably have been large if cultivated; color lemon yellow, with sometimes a marbled, crimson cheek; pubescence slight; flesh bright yellow to the pit; tender, melting, very juicy, mild, vinous, rich; freestone.

A Pale Fleshed Seedling Peach,

Originated by Geo. F. Harmon, of Macon, Lenawee county, was also sent with the foregoing by Mr. Dorr. Said to be a chance seedling and first fruited in 1879. The fruit was very large, round, sometimes slightly pointed; creamy white, streaked and marbled with bright and dark red; pubescence very slight; flesh white with a faint yellow tinge; bright red at the pit; tender, melting, fibrous, very juicy, mild, vinous, rich; season October 1st; freestone.

Judging from the fruit alone, we regard this as highly promising for all purposes, coming as it does when good peaches are becoming scarce.

GRAPES.

The Seedling Varieties of Mr. C. Engle

Are still on trial on his grounds, and he yet regards it as premature to make definite statements respecting any of them.

White Ann Arbor,

One of Mr. C. H. Woodruff's seedlings, has fruited again this year, and specimens were shown at the recent session of the American Pomological Society at Boston; but unfortunately they had been picked two or more weeks before the time of exhibition, and as they had apparently been kept in an open, dry atmosphere, they were in very bad condition for exhibition. They however gave indications of fair quality, and the color is very attractive. The originator represents it to be hardy, vigorous, very early and of superior quality.

Harrison,

Which we understand to be the variety shown at Boston as Woodruff's No. 2, is a promising black grape of the character of Concord, but larger in both berry and bunch, and a week earlier as stated by the originator.

A Seedling Black Grape

Was received on August 22d from H. J. Ray, Watervliet, Berrien county, which was then over-ripe and somewhat shriveled. Mr. Ray stated that those sent were the least mature ones, and that they had been ripe since the 12th of August. The berries, although shriveled, still adhered to the bunch, which is rather small, shouldered, roundish; berries large, round, black, with thin, bluish bloom; flavor mild, sprightly; texture pulpy; aroma foxy. Valuable, if at all, on account of its extreme earliness, which is quite in advance of Hartford Prolific. We understand that this is its first year in fruit. Much must therefore depend upon its future behavior, so far as its prospective value is concerned.

NATIVE PERSIMMONS.

The native persimmon is said to be indigenous as far north as central Ohio and Illinois, and although not found in Michigan, a comparison of climates might warrant the supposition that it would be able to endure our winters, at least near the southern waters of Lake Michigan. Actual experiment has in fact, in some degree, determined the correctness of this supposition, since seedling persimmons have come safely through the past two winters here without shelter or protection of any kind.

JAPANESE PERSIMMONS.

When the first plants of the Japanese persimmon were offered for sale in this country they were claimed to be fully as hardy as the native variety, and with such conviction they were more or less freely experimented with at the North, and even to some extent in this State, only to end, however, in disappointment. Under these circumstances it seemed desirable to provide for the gratification of a probable curiosity respecting them, and with this purpose we procured specimens of three named varieties from which outlines and descriptions have been made. These specimens were grown at Augusta, Georgia, by P. J. Berckmans, and were by him exhibited at Boston.

Mikado,

The earliest of these, was so over-mature that no outline could be taken, and we can describe it most understandingly by saying that it is in form much like a minie ball, greenish yellow in color with a very large calyx consisting of four large, broad, greenish segments; texture soft, buttery; flavor mild, sub-

acid; seeds large, embedded in the pulp without carpels, in number six. The specimens were doubtless picked when immature, hence but little can be inferred as to their quality when properly matured. We understand that even in Japan they are cultivated for culinary purposes and drying rather than for use in the fresh state.

Seedless

Is another variety of this fruit very much of the size, form, and color of a rather small, regularly shaped yellow tomato. It has a hard, glossy skin and a firm yellowish, fibrous pulp, in which are imbedded six large dark brown semi-abortive seeds. These had obviously been picked in an unripe condition, and when tested on October 6, were too utterly astringent for even comfortable tasting.

Hyakumi

Is a third variety of this fruit of similar form, color, size and texture with the foregoing, though milder or sweeter in flavor, and with seeds perfectly developed.

POMEGRANATE.

Is another semi-tropical fruit obtained from the Boston exhibit of Mr. Berckmans, nearly globular in form, with a thick, strong, woody exterior, three or four inches in diameter, and a stiff upright calyx half an inch in diameter and of similar depth; in color whitish yellow shaded with a delicate pink, the whole enclosing a mass of small white seeds, each separately embedded in a small sack or agglomeration of sprightly, vinous, watery pulp of piquant but pleasant flavor. It is not to be supposed that under all the circumstances the specimens could afford any proper indication of the quality of the fruit when properly matured.

APPLES.

Peach of Montreal

Is described from a specimen for which we are indebted to Mr. Chas. Gibbs, of Abbottsford, Province of Quebec, who had at Boston a beautiful exhibit of some of the apples of that northern region. The tree is said to be hardy in that climate and may be adapted to the extreme north—possibly even to the upper peninsula of Michigan. Fruit medium to small, round slightly approaching conical, whitish yellow with faint purplish red in the sun; flesh whitish, tender, breaking, juicy, mild, sub-acid; season September and October.

Flameuse Sucréé

Is another comparatively unknown and exceedingly beautiful and excellent apple from the same source. It is small to medium in size, oblate in form, covered with bright red, obscurely striped with darker red with a slight bloom; flesh snowy white, mostly tinged with red; texture tender, melting, fine-grained; juicy, aromatic, mild, sub-acid, almost sweet; season October and November.

Decarie

Comes from the same source with the two preceding, with the same reputation for hardiness in that climate. Fruit of medium size or above, roundish, inclined to oblate, irregular; color brilliant red on yellowish ground faintly

striped and splashed with darker red; flesh white stained with red, firm-breaking yet tender, juicy, sprightly, sub-acid; a market apple if productive; season October and November.

Winter St. Lawrence

Comes also from Mr. Gibb, and is by him reputed hardy. It is rather large in size, round or nearly so; yellowish green and dull red, conspicuously striped with darker red; flesh white, firm, breaking, juicy, aromatic, sweet or very nearly so; season October to February.

Strawberry of Montreal

Comes also from the same source and is valued there for its hardness. The fruit is of medium size or above, roundish approaching conical; yellow sparsely striped with dark red; flesh whitish, tender, breaking, moderately juicy, mild sub-acid; season September.

Apple from Chas. Alvord,

Lamont, Ottawa county, may prove to be Bonum, to which it is at least similar in all respects. Fruit oblate, roundish with a long, slender stem set in a broad, deep, open, russeted cavity; color brilliant red obscurely splashed and striped with darker red; flesh whitish tinged with bright red, crisp, breaking, a little coarse, juicy, mild, sprightly sub-acid: season October; one of the most beautiful of apples; almost precisely like red Canada in size, form and color before maturity; a fruit of excellent quality.

All of which is respectfully submitted,

T. T. LYON,

Chairman Committee on New Fruits.

FRUITS EXHIBITED AT THIS MEETING.

The committees on fruits at this annual meeting at South Haven respectfully submit the following award of premiums:

APPLES.

Market.—First premium, F. H. Parker, Eaton Rapids: Baldwin, Red Canada, Northern Spy; second premium, J. N. Stearns, Kalamazoo: Baldwin, Jonathan, Red Canada.

Cooking.—First premium, J. N. Stearns, Kalamazoo: Rhode Island Greening, Northern Spy, Baldwin; second premium, Emmons Buell, Kalamazoo: Northern Spy, Greening, Wagener.

Dessert.—First premium, D. C. Loveday, South Haven: Jonathan, Norton's Melon, Red Canada; second premium, Emmons Buell, Kalamazoo: Jonathan, Red Canada, Northern Spy.

Finest Plate.—First premium, Emmons Buell, Kalamazoo: King of Tompkins County; second premium, J. M. Blowers, Lawrence: Red Canada.

PEARS.

Finest Plate.—First premium, Henry King, South Haven.

There were also exhibited for premiums in

Market Varieties—Specimens from J. M. Blowers, S. G. Sheffer, C. A. Dutton, and Emmons Buell.

Cooking.—Specimens from F. H. Parker.

Dessert.—Specimens from J. N. Stearns, F. H. Parker, S. G. Sheffer, and G. W. Phelps, which were all very fine and worthy of notice.

There was exhibited an exceedingly creditable showing of fruits not entered for premiums from the following gentlemen: E. Le Valley, 5 varieties of apples; Geo. W. Phelps, 11 varieties of apples; in this collection was an extra fine plate of Red Canada that deserves especial mention. C. A. Dutton, 3 varieties of apples, 1 variety of grapes; A. F. Gaylor, 3 varieties of apples; L. H. Bailey, 25 varieties of apples, a fine collection; H. W. Doney, 2 varieties of apples, 1 variety of pears; E. Graham, 4 varieties of apples; E. H. Scott, 6 varieties of apples; Wm. Rowe, of Grand Rapids, 1 plate of Prentiss grape; N. H. Bitely, 1 plate of Yellow Newtown Pippin, very fine; N. Fitch, 8 varieties of apples; W. H. Hurlbut, 2 varieties of apples; Geo. Phelps, of Okemos, Ingham county, sends two plates of Red Canada, one grafted on Spy stock, the other on Early Harvest. There is a noticeable difference in the two plates. Those on Spy stock are juicy and crisp, while those on Early Harvest are tough and fibrous and considerably earlier. Prof. Beal has on exhibition from the Agricultural College a specimen of Rhode Island Greening with Russet stripes. The theory is held by a large number that this freak is brought about by the pollen from the Russet fertilizing another variety. Prof. Beal shows two specimen of Northern Spy, the blossoms of which he fertilized with the pollen from the Golden Russet with no effect whatever. He also exhibits fruit of the *Monstera Deliciosa*, a hot-house plant, the fruit of which is edible, having somewhat the flavor between the pineapple and the banana; also a plate of *Arisæma Dracontium*, or dragon-root, and a plate of barberry berries. Specimens of *Monstera Deliciosa* and dragon-root were exhibited by the commissioners at the Boston meeting of the American Pomological Society, and attracted a great deal of attention. There is also on exhibition some evaporated fruit sent by Mr. John Williams, of Kalamazoo, the work of his evaporator, consisting of peaches, apples, black raspberries, and the cores and skins of apples, all of which are very finely done. Before closing their report, your committee would like to suggest that at future exhibitions before the society some system be followed in the arrangement of fruits. It seems to us that a superintendent should be appointed by the local society where the meeting is held, to have especial charge of the entering and arranging of fruits. Also that placards be put up on different portions of the tables allotted for that purpose, with notices of market, cooking, dessert, or whatever else this society may decide upon as best to give premiums upon; that the fruit not designed for premiums should be arranged by itself. The exhibitors would then know exactly where to place the different classes. This plan would very materially facilitate the work of the fruit committee. Another point we would like to call attention to, which has often been brought before this society, viz.: The rubbing or polishing of fruits. We are decidedly against it. We would also suggest that fruit for premiums should not have the name of exhibitors attached until after the awards are made. In closing, we would say that the exhibition of apples is exceedingly fine, and is a decided credit to the society. All of which is respectfully submitted.

EVART H. SCOTT,
E. M. POTTER,
JAMES F. TAYLOR,
G. H. LA FLEUR,
A. C. GLIDDEN,

Committee.

Report was accepted and adopted.

SOCIETIES REPRESENTED.

Your committee, to whom was referred the matter of delegates from local horticultural societies and delegates from abroad, would respectfully report the following societies and their special representatives:

Ingham County Horticultural Society—Prof. W. J. Beal, Prof. A. J. Cook.
 Washtenaw Pomological Society—E. H. Scott, J. J. Parshall, S. Parker.
 Lawton Pomological Society—N. H. Bitely, C. D. Lawton, A. C. Glidden, C. Engle.
 Saugatuck Pomological Society—James F. Taylor, John Sailor, Wm. Corner.
 Allegan Pomological Society—George H. Lafleur.
 Jackson Horticultural Society—W. K. Gibson, R. T. McNaughton, A. J. Gould, H. W. Doney.
 Oceana County Pomological Society—C. A. Sessions.
 Ionia County Society—E. Le Valley.
 Berrien County Horticultural Society—W. A. Brown, S. H. Comings.
 Grand River Valley Horticultural Society—S. M. Pearsall, P. W. Johnson, E. Graham, W. K. Munson, W. N. Rowe, Wm. Rowe, Chas. Alford, Chas. W. Garfield.
 South Haven Pomological Society—J. Lannin, A. D. Healy, J. W. Humphrey, Henry King, A. S. Dyckman, H. J. Edgell, L. H. Bailey, A. G. Gulley, Harvey Linderman, Martin Bixby, O. Beebe, C. T. Bryant, D. C. Loveday, C. J. Monroe, Geo. L. Seaver, H. W. Hurlbut.

Your committee also wish to mention the names of J. S. Woodward and S. D. Willard of New York, and H. P. Hanford of Indiana, who by their participation in the discussions added much to the interest of the convention. Your committee would also add that a large number of other prominent and enthusiastic horticulturists were in attendance, and that the annual meeting of 1881 has been in every respect a marked success.

Dec. 7, 1881.

N. H. BITELY,
 ALVIN CHAPMAN,
 A. C. TOWNE,
Committee,

Evening Session.

Mr. Tracy, from the committee on

NEW VEGETABLES,

submitted the following report:

The committee on vegetables would report the following as the result of this year's experience with new or little known varieties:

BEANS.

White Valentine,—Very similar to the Red Valentine except in color, the beans of the new variety being clear white, and we have found the vines a little more tender and liable to rust.

Crystal Pod Wax,—Very distinct, the vines half-running, very productive. Pods medium length, round, curved, of a greenish white color, not wax-like. The pods are very brittle when young and never become stringy, but are quite pithy when old. The best variety we have for pickling, and a good string bean.

Ivory Pod Wax,—Vines somewhat similar to the last, pods clear wax white, the handsomest pods of any sort grown. Quality good.

Boston Dwarf Wax (Gregory),—We have found this all that was claimed for it; larger, more productive, and handsomer pods than the Common Black Wax.

Drew's Improved Lima,—Not new, but so desirable as to be worthy of mention. It is earlier, hardier, and of as good quality as the old Lima, and should supersede that variety.

BEETS.

Dark Red Egyptian,—We have found nothing which would equal this variety for early use.

CABBAGE.

Henderson's Early Summer,—Although very similar to Newark Flat Dutch, this seems to be a little earlier and of more uniform character. As usually grown it is flatter than shown in most illustrations of the variety.

CAULIFLOWER.

Erfurt Extra Early Dwarf,—This proves to be the best variety for amateur use, being earlier and sure to head before excessive dry weather.

CELERY.

Golden Heart,—Not very distinct unless it be in blanching quicker and better than most varieties; quality good.

White Walnut,—With us the best flavored white celery we have; stalks short, crisp, tender, and blanching well.

CORN.

Early Marblehead,—The earliest sweet corn we have, being of short, quick growth; ears of good size and quality.

MUSK MELON.

Surprise,—A handsome melon of the best quality and very productive, but not always uniform in shape or color.

WATER MELON.

Cuban Queen,—Very similar, if not identical with the *Excelsior*.

Peerless,—We have found this the most satisfactory sort for cultivation in this State.

PEAS.

Bliss American Wonder,—The most distinct and valuable variety of recent introduction. Vines very dwarf; is remarkably productive, of a peculiar branching habit. Peas of the best quality. This is quite distinct from the *Premium Sun*, which is occasionally sent out under this name.

POTATOES.

White Star,—We have found this the best of the new varieties for general use. It does well in all soils and is of good quality; will doubtless fill the place among late potatoes that the *Early Rose* does among the early varieties.

SQUASH.

Perfect Sun,—This prolongs the season of the summer squashes into mid-winter. It has the flavor and general qualities of the best summer varieties, and keeps as well as the winter sorts.

Essex Hybrid,—Similar to the *Turban*, but keeps better.

TOMATOES.

Livingston's Perfection,—Very similar to the Paragon, but possibly cracking less, and a very little earlier.

TURNIPS.

Munich Extra Early Purple Top,—By far the earliest variety grown, but it must be used when young as it becomes very bitter when full grown.

WILL W. TRACY,

Chairman of Com. on New Vegetables.

The remaining exercises of the evening were placed in charge of Secretary Garfield, who called out gentlemen at will, giving them topics, and prefacing each speaker's remarks with appropriate introductions. The following is a concise statement of the proceedings:

The Fruit Grower a Gentleman—Rev. J. F. Taylor, Saugatuck.

Make Your Home Beautiful—A. D. Healy, South Haven.

Rural Brevities—R. C. Barnard, Chicago.

Interior Horticulture—E. Le Valley, Ionia.

Let us be Honest—A. G. Gulley, South Haven.

Flowers and Little People—Prof. W. J. Beal, Lansing.

Horticultural Patriotism—A. S. Dyckman, South Haven.

Vandalism—J. G. Ramsdell, South Haven.

Mutual Congratulations—E. M. Taylor, South Haven.

Shall we Have a Little Wine or a Bunch of Grapes—J. S. Woodward, Lockport, N. Y.

A Contrast (poetical)—Mr. Sheffer, South Haven.

Love Your Plants—W. W. Tracy, Detroit.

Our Summer Socials—J. Lannin, South Haven.

Family Horticulture—W. K. Gibson, Jackson.

The speeches were limited to four minutes each, and were interspersed with excellent music furnished by Miss Dyckman, Miss Smith, Miss Bishop, Mr. M. V. Selkirk, Mr. F. Dewey, Mr. O. Trice, and Prof. Philley.

A special vote of thanks was tendered the musicians at the close of these exercises.

Mr. Lannin asked that Mr. W. H. Hurlbut be called out to give his views of the yellows law.

Mr. Hurlbut arose and in a ten minutes' speech gave a very carefully prepared criticism of the law, which evidently was founded upon a thorough study of the sections in the latest enactment.

Prof. Charles D. Lawton, chairman of the committee on resolutions, submitted the following report and

RESOLUTIONS:

MR. PRESIDENT AND MEMBERS OF THE STATE HORTICULTURAL SOCIETY:

At perhaps no meeting held by the Michigan Horticultural Society have so many elements combined to render its deliberations pleasant and profitable, and so much to secure its permanency and future prosperity, as have characterized its present session.

Meeting here upon the shores of the great lake that secures to our State its primary advantage as a fruit growing region, in a locality which enjoys in the fullest measure the modifying influence that constitutes the basis of our success

in producing the most luscious and profitable of our fruits; in a community that has so vigorously and intelligently availed itself of the advantages which nature so bountifully affords, that its fame—spread beyond its limits in such manner—led us, in gathering here upon this favored spot, to anticipate a hearty welcome and unusual success, but we acknowledge at this the close of our proceedings that the result has surpassed our most sanguine expectations. One and all, we have been met and most heartily welcomed into pleasant homes, no less comfortable than those to which we now return.

Every want that thoughtful kindness could anticipate and provide for has been met. The most ample provision has been made to secure convenience and success at our meetings.

Fruits, flowers, and vegetables in large quantity, and of rare beauty and excellence, have been exhibited for our admiration, encouragement, and instruction; therefore,

Resolved, That we tender our thanks to the generous people of South Haven for the kind entertainment accorded to us at their homes and elsewhere; for the use of the commodious hall in which our meetings have been held, and for all arrangements which they have provided for the convenience of the society;

Resolved, That we tender our most hearty and sincere thanks to all who have contributed to the large exhibit of fruit, so remarkable for its variety, beauty, and excellence; to those whom we are indebted for the collection of plants and flowers that graced the rostrum, and in the midst of winter has surrounded us with the profusion and charms of summer; to those whose admirable specimens have made up the no less remarkable and suggestive exhibit of vegetables, and to all who have assisted in decorating the hall in which we have met and who have promoted our convenience and comfort;

Resolved, That we acknowledge our obligations to those who have contributed papers upon the various topics held under discussion, or who by lectures have added so much to the interest and value of our discussions. And in this connection, while disclaiming every intention to make any invidious distinctions, we express especial obligations to Prof. Burrill, of Illinois, for his valuable paper on vegetable fungi, and to Profs. Beal and Cook of the Michigan Agricultural College for their interesting and instructive lectures upon topics intimately associated which this society is organized to subserve, and to several gentlemen from other States who in our discussions have given us the results of their observations and experience;

Resolved, That we return thanks to the press of South Haven, the "Western Rural," and to other papers that have published notices of our meeting and have furnished representatives to report our proceedings;

Resolved, That we express our obligations to D. M. Ferry & Co., of Detroit, for their intelligent liberality in seconding the efforts of this society to secure the ornamentation of school grounds throughout the State by a gratuitous distribution of flower seeds, which they have generously made under the direction of our secretary and Prof. Tracy. They have thus enabled us to initiate our theories into practice;

Resolved, That we return thanks to the Michigan Central, Michigan Lake Shore, and to other railroad companies that have afforded to us a commutation of rates;

Resolved, That the thanks of the society are due to its officers for their efficient and successful efforts in providing for this meeting, and for the ability and courtesy in conducting its proceedings; and to the outgoing members of the executive board we return especial thanks, and extend to them the assurance of our grateful appreciation of their faithful and effective services.

In conclusion we realize that the reputation of our venerable president as a pomologist of acknowledged ability, and his earnest and unselfish labors to promote the best interests of this society, have contributed greatly to securing to it its present enviable position, and that in the more onerous and perplexing office of secretary, and in the less conspicuous, though scarcely less important, office of treasurer we have been equally fortunate.

The Michigan Horticultural Society is a success, its meetings are well

attended, the discussions interesting and profitable, its annual reports are among the best esteemed volumes in horticultural literature, and felicitating ourselves upon this most gratifying consummation we tender thanks to all persons and to all influences that have contributed thereto.

CHARLES D. LAWTON,
C. A. SESSIONS,
E. LE VALLEY,

Committee.

The resolutions were adopted by a rising vote, after which the convention closed by uniting in singing "Praise God from whom all blessings flow."

THE SECRETARY'S PORTFOLIO.

INTRODUCTORY NOTE.

In the preparation of this department of our volume for 1881 I desire to acknowledge my indebtedness to a large number of appreciative friends who have, by kind words concerning previous numbers of the Portfolio, induced me to continue the work. I have not reached the ideal I have long had in view, and this because of a faulty method of work which seems impossible to overcome with the multitude of duties that devolve upon the Secretary of the Michigan Horticultural Society. If the Portfolio could be made the only work of the year it might more nearly approximate the finished document contemplated in the original conception of the work.

I would like to save in jottings the many good things dropped in conversation with successful growers who never write for the press and rarely write me letters. Some of the most valuable suggestions are secured in this way, and my purpose has been to frame a Portfolio largely from this kind of material. But although several times I have gathered the matter for a work of this kind the year gets too near its close before an attempt can be made to put it in shape for the press, and annually thus far necessity has compelled me to take the alternative of a more limited field.

The newspapers have been my most valued contributors, and I take pleasure in announcing the names of those from which I have gathered crumbs for the Portfolio of 1881.* New York Tribune, Kalamazoo Gazette, MICHIGAN FARMER, RURAL NEW YORKER, The Garden, American Naturalist, WESTERN RURAL, GARDENERS' MONTHLY, Germantown Telegraph, New York Times, AMERICAN RURAL HOME, Geneva Continent, VICK'S MAGAZINE, INDIANA FARMER, KENTUCKY LIVE STOCK RECORD, POST AND TRIBUNE, FARMER AND FRUIT GROWER, COUNTRY GENTLEMAN, HUSBANDMAN, VICK'S FLORAL GUIDE, GREEN'S FRUIT GROWER, New York Sun, Boston Furniture Exchange, Rural World, Boston Journal, Seed Time and Harvest, GRANGE VISITOR, Scribner's Monthly, PRACTICAL FARMER, OHIO FARMER, AMERICAN AGRICULTURIST, PRAIRIE FARMER, Gardener's Chronicle, Hartford Post, Iowa College Quar-

* Those printed in small Capitals have been sent me during the year free of expense.

terly, THE INDUSTRIALIST, Boston Post, FRUIT RECORDER, Scientific American and BENTON HARBOR PALLADIUM.

The following is a list of persons who have contributed to the Portfolio for the past year: Chas. E. Brown, Yarmouth, Nova Scotia; Prof. W. J. Beal; Rev. Charles Arnold, Paris, Canada; Parker Earle, Cobden, Illinois; Hon. Marshall P. Wilder, H. E. Bidwell, Dr. Jno. A. Warder, Dr. Phene, Joseph Lannin; B. G. Smith, Cambridge, Mass.; A. J. Caywood, New York; Dr. Hoskins, Vermont; N. Ohmer, Ohio; Prof. J. L. Budd, Iowa; Prof. W. W. Tracy; Prof. G. C. Caldwell, New York; William Falconer, Boston, Mass.; Samuel Parsons, Flushing; Chas. E. Parnell, New York; Prof. A. J. Cook; Prof. James Law, N. Y.; Sir John Lubbock; William Saunders, Washington, D. C.; W. C. Barry, Rochester, N. Y.; Prof. W. R. Lazenby, Columbus, Ohio; Geo. W. Campbell, Ohio; W. A. Buckhout; Peter Henderson, N. Y.; James Vick, Rochester; Granville Cowing, Indiana; O. B. Galusha, Ill.; L. A. Foote; Cassius M. Clay, Ky.; Chas. A. Green, Clifton, N. Y.; P. T. Quinn, New Jersey; S. B. Peck; Prof. S. A. Knapp, Iowa; Josiah Hoopes, Penn.; President T. T. Lyon, A. M. Purdy, President Albaugh; Prof. J. Henry Comstock, N. Y.; Matthew Crawford, Ohio; J. W. Pierce, Mass.; H. Ives, New York; J. M. Smith, Green Bay, Wis.; Thomas Meehan; Prof. C. E. Bessey, Iowa; Prof. Emil Baur, Ann Arbor; E. M. Potter, Kalamazoo; Prof. C. D. Lawton; Rev. S. B. Smith, Ohio; Prof. S. A. Forbes, Ill.; S. L. Fuller, Grand Rapids; E. W. Shambarger, Ohio; I. H. Butterfield, Port Huron; and S. R. Fuller, Eaton Rapids.

For purposes of reference and general convenience, I present the following analysis of the contents of the Portfolio:

A—SCIENTIFIC AND EXPERIMENTAL.	2. House plants.
B—THE NURSERY.	3. Use of flowers.
C—FRUIT-GROWING.	E—LANDSCAPE GARDENING.
1. Training, pruning, and thinning.	1. Arrangement of grounds.
2. Mulching.	2. Ornamental trees, shrubs, and vines.
3. Fertilizers.	F—ARBORICULTURE.
4. Birds, insects, and diseases.	1. Roadside planting.
5. Storing, marketing and, preserving.	2. Timber planting.
6. Varieties.	G—VEGETABLE GARDEN.
7. Small fruits.	H—SCHOOL HORTICULTURE.
8. Profits, real and prospective.	I—MISCELLANEOUS.
D—FLORICULTURE.	
1. The flower garden.	

SECRETARY.

SCIENTIFIC AND EXPERIMENTAL.

NEW FRUITS FROM SEED.

The venerable Marshall P. Wilder discourses upon the above topic in the Rural New Yorker, from which we extract the following:

The widespread interest now manifested in the production of new varieties of small fruits from seed, induces me to comply with your request for an article on that subject. This is the most reliable method for obtaining new varieties suited to our various soils and climates, or as substitutes for those which may decline in the future. The acquisitions which have already been obtained give promise of still richer rewards to him who will work with nature in compelling her to yield to his demands for still better results. She has placed in our hands the requisites for this purpose, and we have only to conform to her laws and we shall be sure of progress.

The ease with which new varieties may be obtained by crossing our best sorts of fruits is now pretty well understood, and there is no better illustration of what can be accomplished than what has been done in the production of the numerous native fruits which have been secured since the establishment of the American Pomological Society. The importance of raising new varieties from seed is no longer of questionable utility. The fact that good seed of good varieties will produce good offspring is a fundamental law, proofs of which are seen in a multitude of instances from the results of artificial impregnation. Feeble parents produce weak children—a principle as well adapted to vegetable as to animal life. We have learned many of the laws which govern this most interesting department of science, and the more we work with nature in efforts for the improvement of our fruits the more we shall admire this most perfect and beautiful law for the improvement of men, animals and plants.

RAISIN GRAPES.

The remark occasionally is made in fruit-growers' gatherings that there ought to be a way out of an overcrowded grape market in the making of raisins. The Rural New Yorker comments upon this subject and says the raisin grapes all belong to *Vitis vinifera* or the foreign class, and all the varieties become hot-house grapes upon our slope of the continent. They are of little value for general out-door culture here. They differ from our native grapes in being larger, more meaty and of firmer pulp, which adheres more to the skin and less to the seeds than in our grapes. There is no good raisin grape among our native classes or their varieties. Some of our specialists are working in this direction, but the meaty characteristics required for a satisfactory raisin grape not being found in any of our sorts, it will require many years of special development to produce such a variety.

CULTIVATION AND CHEMICAL COMPOSITION OF FRUITS.

Whatever may be the effect of the temperature of the season and of the amount and distribution of the sunlight on the quality of the fruit, we must make the best of it, for we cannot change the weather, but cultivation of fruit generally improves its quality, at least in regard to its proportion of sugar and acid, by increasing the one and lessening the other, although the wild fruit may excel in delicacy of aroma. Some wild berries have, however, shown quite as favorable a proportion of sugar and acid as has been found in the best cultivated varieties that have been analyzed. That the character of the manuring has something to do with the change in the quality of the fruit is shown by some experiments by Dr. Gœssman at the Massachusetts Agricultural College. By manuring the wild grape liberally with potash and phosphoric acid he changed the ratio of sugar to acid to that of the Concord grape. That the potash may take some special part in the modification of the ratio is indicated by the fact that the cultivated berry contains over twice as large a proportion of this substance in its ash as is found in the ash of the more sour wild fruit. Putting all these facts together it seems reasonable to hope that by judicious use of concentrated fertilizers sweeter small fruits might be produced at the pleasure of the gardener. This is a promising and inviting field for experimentation, which has been but little occupied, and satisfactory experiments with small fruits can be conducted on a less extensive scale and at less expense than with field crops.—*Prof. G. C. Caldwell.*

THE DIFFUSION OF SEEDS.

Sir John Lubbock is responsible for a concise statement of the relation of the properties of some fruits to the dispersion of their seeds: In a very large number of cases the diffusion of seeds is effected by animals. To this class belong the fruits and berries. In them an outer fleshy portion becomes pulpy, and generally sweet, inclosing the seeds. It is remarkable that such fruits, in order doubtless, to attract animals, are like flowers, brightly colored—as for instance the cherry, currant, apple, peach, plum, strawberry, raspberry and many others. This color, moreover, is not present in the unripe fruit, but is rapidly developed at maturity. In such cases the actual seed is generally protected by a dense, sometimes almost stony covering, so that it escapes digestion, while its germination is perhaps hastened by the heat of the animal's body. It may be said that the skin of apple and pear pips is comparatively soft, but then they are imbedded in a stringy core which is seldom eaten. These colored fruits form a considerable part of the food of monkeys in the tropical regions of the earth, and we can I think, hardly doubt that these animals are guided by the colors, just as we are in selecting the ripe fruit.

In these instances of colored fruits the fleshy, edible part more or less surrounds the true seeds, in others the actual seeds themselves become edible. In the former the edible part serves as a temptation to animals; in the latter it is stored up for the use of the plant itself. When, therefore, the seeds themselves are edible they are generally protected by more or less hard or bitter envelopes, for instance the horse chestnut, beech, Spanish chestnut, walnut, etc. That these seeds are used as food by squirrels and other animals is, how-

ever, by no means necessarily an evil to the plant, for the result is that they are often carried some distance and then dropped, or stored up and forgotten, so that in this way they get carried away from the parent tree.

IMMATURE WOOD AND ACTION OF FROST.

Mr. William Saunders, superintendent of the agricultural grounds at Washington, gave an extended paper on the action of frost on plants, from which we cull a few sentences, some of which may not agree with the opinions of our horticulturists. He says:

You can't tell beforehand what plants or trees are hardy. Australian plants which will endure a cold of 15° below zero in their native habitats are destroyed here when the thermometer reaches the freezing point. The arid climate of Australia thoroughly ripens the wood, which is thus rendered capable of enduring the severe cold.

It is evident that so far as concerns soil and culture, the greatest safeguard against injury to the plants from cold is that of having properly ripened or matured growths. How much of the disappointment in fruit culture is the result of immature growths it would be difficult to determine. I have long considered this to be the cause of the disease known as yellows in the peach tree. This disease is most prevalent in localities where growth is prolonged until it is suddenly arrested by a killing frost; and I am not aware of its existence in climates where the tree becomes deciduous in the absence of frost.

It is within the province of the cultivator to assist nature in the requisites for perfect maturation of growth. The fruit grower will be careful to avoid setting his trees in wet soil, or low, rich lands. He will also prudently abstain from the use of stimulating manures, which would have a tendency to encourage late growth in autumn; he will abstain from all cultural operations on the soil when growth should be checked rather than encouraged, and use every available means to secure an early cessation of wood growth.

Many of our beautiful evergreen trees from the northwestern and California coasts, as also various Asiatic conifers, have a great tendency to commence a second active growth during the moist, genial weather which frequently occurs here during the early fall months. This growth never ripens, and in consequence is destroyed by the first frost, greatly to the injury of the plant. The mammoth tree of California, and the Japan cedar may be cited as typical trees of this class. These fall growths may be checked by pruning the roots of the trees during September, which will ensure matured wood; the young branches will become solid and firm, instead of being unripe and filled with watery fluid, and are thus prepared to stand the winter without injury.

With regard to the general subject of protecting the plants, some persons contend that a fruit tree or plant, to be valuable, or fitted for general culture, must be able to take care of itself. This should be looked upon as a lame excuse for indolence and neglect. It is the province of man to assist nature in producing such results as he finds most desirable for his purposes; and if he removes plants from their natural conditions, and then abandons them, so to speak, he must expect to realize the usual consequences of neglect.

PRESERVING FRUIT.

California fruit-growers have made a discovery, it appears, in keeping fruit fresh for a long time. It is done merely by packing it in carbonized wheat bran. The discoverer of this method claims that by it peaches, grapes, and similar perishable fruits may be so well preserved as to be had in perfect condition in midwinter. Another advantage is that fruits so packed may be shipped by slow freight, and consequently at lower rates than by fast freight.

PRESERVATION OF APPLES.

A set of experiments made recently in Germany, by Sorauer, are interesting as bearing upon the question whether winter apples can best be kept in a dry or a damp cellar. The result of these trials clearly corroborates the conclusions set forth by Dr. Hoskins in your issue of November 6th. Sorauer promises that while there is no longer any doubt in men's minds that light and warmth had better be excluded in order that apples may be kept fresh and be hindered from becoming over-ripe, there is still a wide diversity of opinion as to whether damp or dry air is most favorable for the preservation of the fruit. To test the question, he experimented with several kinds of apples, particularly the "Winter Golden Pearmain." Three separate lots of apples having been weighed out, one lot was spread on shelves in an ordinary fruit cellar, another lot was kept in air from which moisture had been pretty thoroughly removed by chemicals, and the third lot in air that was completely saturated with moisture. On re-weighing the several lots after the lapse of some time, it was found that the apples kept in the air of the cellar had lost three and a half per cent of their weight; those kept in dry air almost eight per cent; while those kept in air saturated with moisture had lost but little more than one-half per cent. It could not be perceived that any advantage was gained by using the dry air. On the contrary, the apples kept in the dry air shriveled more than the others, and manifestly ripened more rapidly, so that in the later months of the experiment they were less sweet than the others, and a larger proportion of them decayed. Not a few of them became rotten-ripe, and this in spite of the fact that, as was naturally to be expected, rather less mouldiness appeared, as time went on, upon the fruit kept in the dry air than upon that in the air which was saturated with moisture. The importance of hindering the fruit from coming too quickly to full maturity was further illustrated in these experiments by the fact that the first apples to decay were those which were ripest, that is to say, most mature, at the beginning of the experiments.—*Prof. Storer in Rural New Yorker.*

CUT AWAY DEAD BRANCHES.

Dead branches are usually looked upon as simply unsightly, doing no injury to the tree upon which they remain; but the Gardeners' Monthly urges their removal because of the draught upon the tree for moisture. It says: Our readers must remember that only recently has it been clearly demonstrated

that a dead branch on a tree makes almost as great a strain on the main plant for moisture as does a living one. It is one of the most important discoveries of modern botanical science to the practical horticulturist, as by this knowledge he can save many a valuable tree. When one has been transplanted some roots get injured, and the supply of moisture in the best cases is more or less deficient. Any dead branch, or any weak one, should therefore be at once cut away.

TREES IN CITIES.

An interesting paper has been recently read by Dr. Phene at Edinburgh on the benefits to be derived from planting trees in cities. Among the beneficial results to be attained are, he stated, the relief to the optic nerve through the eye resting on objects of a green color. Just that which is effected by the use of green or blue glasses in strengthening and sustaining the power of sight is attained, or, at any rate, much aided, by the presence of green in nature; and in streets the only method to procure this result is by planting trees. It was pointed out by the author that wherever opportunity exists nature provides green and blue (the latter being the same color minus the presence of yellow), and that as the absence of color produces snow blindness, and in tropical calms, where the ocean presents only a white reflected light from a uniform glassy surface, reduced optical power soon follows a long continuance of the absence of blue color, which becomes immediately apparent on motion of the waves.

So in the streets to occupants of houses having a northern aspect, the glare of the reflected light is injurious; but the effect would be much modified by the coolness to the eye produced by the green of trees. In ancient surgery, persons having weak or declining sight were advised to look at the emerald. In the old style of building, the streets being narrow were both cooler from the sun not being able to penetrate them with direct rays, and less subject to noxious exhalations from the scouring and purifying effects of the searching air to which the narrow streets were subject, so that while there was no space for trees there was also less necessity. Wide streets, on the contrary, are hotter, and require the shade of trees to cool them; and, as in the case of London, which had so far done without trees in its streets, it was pointed out that not only are modern streets compulsorily wide, but that the enormous increase in metropolitan buildings renders every sanitary question one of importance; and the chemical property of trees as shown by experiment gives them an important standing, irrespective of ornament or the pleasure they produce. Some of Dr. Phene's experiments on this subject have extended over a period of thirty years, and he it was who first tried the planting of trees in the streets of London. Since the reading of a former paper by him at Manchester, wherein the importance of the subject was pointed out, a number of streets in wealthy localities have been planted, and even Trafalgar Square, in the heart of the metropolis.

HARDINESS A RELATIVE TERM.

Professor J. L. Budd of the Iowa Agricultural College, in commenting upon an item which indicated that the Chinese *Wistaria* was not quite hardy in the vicinity of New York city, says:

In our trying climate I have grown it in nursery rows and on trellis for a number of years and have not known it seriously injured. During the past month I have noticed several fine, strong plants on trellis, in the central portion of Iowa, on which scarcely a terminal branch was injured during our past terrible winter. On one vine, on the grounds of Captain C. L. Watrous, of Des Moines, I noticed a number of very large and well filled pods yet clinging to the vine in June. I mention this to give an opportunity for saying that the term hardy may have a varied meaning. The hardiness of a plant depends often on its habit of determinate growth and the perfect ripening in autumn of its wood cells. Plants native to the hot, dry portions of northern Europe and Asia may thrive perfectly in the hot, dry summer air of Iowa, and the advent of severe frosts in autumn finds them prepared for zero weather. On the other hand, in the moister and cooler air of New York or Michigan the leaves of such plants may less perfectly do their work of storing the cell structure, causing them to be ranked as half-hardy or even tender.

I had an opportunity to take lessons in this direction last week in Michigan. Around Lansing and on the grounds of the Michigan Agricultural College I was surprised to find such Chinese plants as *Diervilla Japonica*, *Forsythia*, *Spiræa prunifolia*, *Spiræa callosa*, *Hydrangea paniculata*, *Lonicera confusa*, *Aralia cordata*, and *Prunus triloba* far more seriously injured by the past severe winter than in central Iowa. On the contrary plants indigenous to moister climates, such as cotoneaster, cystisus, hibiscus and apple, pear, plum and cherry trees from the south of Europe endured the winter far better in Michigan than on our prairies.

 NAMES IN HORTICULTURE.

Among the originators and cultivators of fruits there exists a somewhat common practice of attaching to the names of their new productions the word *seedling*. Thus we have the Albany Seedling, or even Wilson's Albany Seedling, Hovey's Seedling, Dearborn's Seedling. Others again load down their introductions with such superfluous words as favorite, king, queen, chief, and numerous others, which fail to convey to the mind any special idea beyond the assurance that the person bestowing the name either was thoroughly convinced of its high value or otherwise had a motive for enforcing such assumption upon others.

The only results necessarily growing out of this redundancy of words would seem to be that to use the name the speaker must lumber his sentences with useless phraseology, while in letter, book, and catalogue the tiresome repetition must be continued *ad infinitum*, *ad nauseam*.

To the use of subsidiary names, to express some valuable or distinguishing quality of the fruit or plant, or a fact in its history, there would seem to be less objection, although even such characterizing words should doubtless be used sparingly; especially is this true of those which, from excessive use or

other cause may have ceased to convey the meaning originally intended, of which we may mention Pippin, Pearmain, and may we not add also Beauty, Rareripe, and several others?

Such redundancy of verbiage in names is by no means peculiar to the nomenclature of fruits. In fact it is even more noticeable in the names of plants and flowers—as, among roses, *Souvenir de Madame Pernet*, *Mademoiselle Leonie Gressen*, *Truffaut's Peony Flowered Perfection Aster*, and many others.

But while perhaps admitting the magnitude of the evil, we may possibly be asked how are we to apply the remedy? We answer, popular practice has long since indicated the manner of relief, by a persistent lopping off of the more intolerable excrescences—such as *Duchess*, instead of *Duchesse d'Angouleme*; *Louise Bonne*, for *Louise Bonne de Jersey*; *Wilson*, for *Wilson's Albany*; *Hardy Hydrangea*, for *Hydrangea Paniculata Grandiflora*. But this is but a halting, purposeless step in the needful direction. What is specially needed is, that societies and even individuals occupying commanding positions in connection with matters of this character shall unite to assert the right to consider, not the name merely of every such candidate for the favor of the public, but its right even to possess a name; and to modify or wholly change such name at their discretion. True, such fiat, exercised in derogation of the supposed right of every person to attach a name to his own production, may be thought presuming. We doubt not, however, that such power, discreetly used, would be overwhelmingly sustained by the great mass of those interested in the subject; and the more fully if, at the outset, our leading societies shall agree in the framing of a set of rules covering the subject of names and naming, and providing such restrictions or limitations as shall tend to remedy the difficulties to be avoided, in which should doubtless be included provisions discouraging, as far as possible, the naming and dissemination of plants and fruits of inferior quality. It can hardly be expected that any such code of rules, however wisely drawn, can be so far effective as to wholly prevent the putting forth of unworthy or even worthless articles; but they would doubtless become, to some extent, at least among the well informed, a test or touch-stone to which new and untried candidates for public favor would be brought before venturing to bestow money or labor upon them. Such a set of rules, going before the public with the highest sanctions, if directly commended to the notice of societies of more local character, would doubtless sooner or later come to be generally indorsed and adopted, and thus be commended to horticulturists as a whole, with sanctions giving them almost if not altogether the force of law.

What we would propose in the way of a realization of these ideas is that such organizations as the American Pomological Society, the Massachusetts Horticultural Society, those of Pennsylvania, Cincinnati, and the Mississippi Valley, working either as associates or independently, address themselves to this problem, with the purpose to put in force some adequate measures to relieve our horticulture of the difficulties complained of, either by means of the process suggested or something better.—*T. T. Lyon in Ohio Farmer.*

THE COMMON NAMES OF OUR PLANTS.

An effort is now making to collect and arrange the common names now borne by the plants of the United States, somewhat as has been done for Eng-

lish plants by Prior in his "Popular Names of British Plants," and Messrs. Britten and Holland, in the "Dictionary of English Plant Names." Whatever may be said against common names on account of their frequently objectionable form, their common application to several entirely different plants, besides other objectionable features, not to mention their little value to the practical botanist, it yet remains that plants are known to a very large portion of our people by common names only. We must confess to a rather kindly feeling for these popular names, in spite of their many faults and sometimes exasperating inconsistency and inconsistency, and so we hail with delight the announcement made by W. R. Gerard, one of the editors of the *Torrey Bulletin*, of his intention to undertake to record the names under which the same plants are known in different parts of the country. As this is a movement in the right direction, undertaken by one eminently qualified to complete it, we have no hesitation in urging readers of the *Naturalist* to render aid "by collecting lists of the popular names by which our plants are known in their neighborhoods," and sending them to Mr. Gerard (9 Waverly Place, New York City), accompanied of course by the scientific equivalents. It is known that many of the so-called common names given in the books are merely book-names, having no usage except in botanical classes in schools, and with those whose knowledge of plants is derived mainly from books; it is desirable that such be carefully distinguished from those in use by people who have no knowledge of the botany of the books. The names given to plants by the Indians are also of interest and should be preserved.—*Prof. C. E. Bessey, in American Naturalist.*

ENGLISH NAMES FOR PLANTS.

William Falconer, of Cambridge Botanic Gardens, pleads for the common names to plants, and in the following note shows his sympathy with ordinary nomenclature:

The English names that seem to me the most appropriate are those that have an obvious and descriptive meaning, as the pond lily, monk's hood, buttercup, blood-root, twin-leaf, sweet-pea, snow-drop, golden rod, evening primrose, fox-glove, cockscomb, and the like. But, after all, perhaps the prettiest names are the poetical ones, as the roses and lilies, daisies, pinks, and pansies. Then there are many pretty imaginative ones, as lady's-delight, wandering Jew, mother-of-thousands, bachelor's buttons, mourning bride, love-in-a-mist, love-lies-bleeding, Venus's looking-glass, babies' breath, and Star of Bethlehem.

Are we to relinquish these happy names, the names our children speak, the names our fore-fathers as children used, in favor of a harsh and formal botanical lore, and call an iron weed, *Vernonia Novboracensis*; a sun-flower, *Helianthus annuus*; a snap-dragon, *Antirrhinum majus*, and a sweet William, *Dianthus barbatus*? Who speaks of *Quercus*, *Acer*, *Fagus*, *Betula*, when they merely mean to mention the oak, the maple, the beech, or the birch?

A recognized botanical name is indispensable for every species among plants, and there are times when it must be used; but in every-day general use, when practicable, let us give high preference to the good old English names.

BEGINNING BOTANY.

Prof. Beal chats with the readers of the *Botanical Gazette* about beginning botany, as follows:

I set a student on the very start to studying some natural object, as a plant, a seed, a flower, a vine. He is asked to state to the class on the following day what he has discovered. One of the first points is to teach him to see and to become reliable and independent. To acquire this habit he is set to looking. To help him he is often asked to compare two branches of different trees, or two flowers of different species or genera, or two seeds or fruits.

I require students to write out more or less their observations. For this work credit is given, as well as for class recitations. This is not only done in the botany class, but our professor of the English language finds such topics among the best he can select for the practice of young students. Many of the essays required are accompanied by drawings which help to explain certain points. As an example of this work, I send a short paper prepared by a member of the Freshman class. It must be remembered that he is a beginner; that he used no books, but went to the plants to get his facts. He had been studying plants for a few weeks. He had been referred to an elementary book for some names. He had received some hints on some points from his teacher while in the class-room. Of course he picked up more or less from his classmates during recitations, in which they spoke of kindred topics:

THE FERTILIZATION OF THE TRUMPET-CREEPER, BY GEORGE SPRANG.

In the bud the calyx of the Trumpet-Creeper is valvate and encloses the other organs of the flower; the corolla is deeply imbricated, and covers the stamens and pistil.

The anthers of the young flower are very large and of a bright yellow; they are composed of two mealy sacks, which are slightly attached together, and fall back and nearly cover the filament.

As the flower grows and become larger, the anthers become smaller, until they are only about one-third of their original size.

In the bud the pistil is already quite tall, and has to take a stooping position, but when the flower grows and opens, the pistil takes an upright position, and always keeps above and out of the reach of the stamens.

Most flowers require crossing, and the arrangement of most of them is such as to prevent self-fertilization and to insure crossing.

The above example is the most common mode by which self-fertilization is prevented, but this plant has other and more striking illustrations of this fact.

The stigma is two-lobed, and is so sensitive that if anything touches it it immediately closes, hence, when the humming bird, the principal means by which this plant is fertilized, hovers over the flower and sticks its long proboscis down into the tube, its head touches these lobes, and they close almost immediately and remain so for a short time.

The anther cells are now open and ready to shed pollen, and as the bird puts its head further down into the tube, it hits these cells and the pollen is dusted upon it, and flying back it hits the pistil again, but the stigma is closed and none of the pollen can get in.

But when it goes into the next flower the stigma is open, and the pollen is shed upon its lips, sometimes so much as to be plainly seen by the naked eye.

This process is repeated till the bird, tired of the meagre amount of honey it gets for its labors, flies to some other plant, hoping for better success.

This plant has an enemy in the black ant, which does not enter the flower at the mouth, but eats through the calyx and corolla and sucks the honey which is laid up for the attraction of the birds. Even if the ant did enter at the top and get pollen upon it, it would immediately fall off from its smooth body and legs, and thus use up the pollen which would be of no use to the plant in its fertilization.

But the plant's bright and gaudy corolla attracts the birds, and even if one does not enter more than two or three flowers, yet it enters enough to scatter the pollen on some pistil and fertilize it.

SCIENCE OF SHADING THE SOIL.

Professor S. A. Knapp, of the Iowa Agricultural College, gives this summary of the science of mulching:

“The value of covering the soil has been known so long and so commonly as to become a proverb, ‘Snow is the poor man’s manure.’ Science and experiment have shown what is beneficial in winter is even more advantageous in summer, and that few things can be more harmful than to denude the soil and allow it thus to remain for a length of time. They have demonstrated that the soil is increased in fertility by covering much more than the amount of material placed on the ground as a mulch. 1. A large amount of atmospheric ammonia deposited by the rains is retained. 2. A certain proportion of water in the soil is necessary to the best conditions for chemical action, to make the largest amount of plant food available and to enable the fibrous roots of plants to feed to the best advantage; mulching retards evaporation. 3. Our torrid suns acting upon the black prairie soil produce an amount of heat injurious to the fibrous roots of many plants; mulching cools and equalizes the temperature near the surface. 4. Sudden extremes of temperature affect plants, as animals, unfavorably; mulching equalizes condition, retards the action of frosting and allows the plant to adapt itself to the change. 5. Mechanically it breaks the force of the rains and prevents them from compacting the soil. Other advantages might be named.”

THE NURSERY.

PROPAGATING VIRGINIA CREEPER.

Josiah Hoopes gives the following bit of counsel: The best way to raise a stock of *Ampelopsis quinquefolia* quickly is to collect the seeds and sow at once in a sheltered spot, covering slightly with light sandy soil and protecting the surface of the bed with any coarse litter. If sown in an ordinary cold frame and protected with broad shutters, as many nurserymen do, the evil effects of too much dampness will be guarded against. Another plan to raise young plants is by means of hardwood cuttings in the open ground. Sections of the present season’s growth should be cut into lengths of say six inches with a bud near the top, and when available close to the bottom, always selecting sound and well matured wood. These should be placed in a sloping trench with the tops immediately above the surface of the soil, and as the latter is filled in be very careful to tramp it firm, as more depends upon this little feature of the process than anything else. After smoothing off the surface of the bed cover it with a thin coating of long, strawy manure or other suitable mulch, and early in the spring this should be partially removed to allow the young plants to grow properly. Plants raised by either of these methods will be found

vastly superior to those dug up by the roadside or in the forests, as the latter with their large coarse roots are impatient of removal, and even if not killed by the change of location will remain in a quiescent state frequently for two or three years.

TRAINING, PRUNING, THINNING, ETC.

TRAINING VINES OVERHEAD.

Mr. A. J. Caywood, the well-known vine grower of New York, gives the following method of training the grape, with reasons therefor:

“The trellis is made in the following manner: Pieces of boards six inches or more wide and three to four feet long are nailed across the tops of all the posts, representing a cross; three or four wires are drawn across the boards; if three wires are used, boards three feet long are sufficient, with one wire drawn in the center over the posts, and one at each end. These boards are nailed on the posts five and a half or six feet from the ground, the vine is then taken up to the wires without any branches, where it is divided into three or four arms, one for each wire, and all should be started and grown in one direction. If young shoots grow off the side and hang down, they are easily thrown over the top. The posts may be set close by the vines or in the center between the vines, which gives ample opportunity to work the vineyard both ways with a horse; will save \$10 per acre in hoeing under the wires on the old system. The birds cannot injure the fruit without resting on their wings while doing so, as the thick mass of foliage overhead prevents them from entering above. The clusters all hanging in open air under the wires are perfect in shape, not being tangled among the wood or bloom brushed off by the foliage, and thus suspended in a free circulation of air and covered above from the dew are not so likely to rot, and are perfectly screened from hail storms, the mass of foliage sometimes being a foot thick. The fruit being shaded from the sun colors perfectly, sweetens and ripens early. No grapes will ripen handsomely or perfectly in the sun. On this system the vine produces its fruit on the extremities, where it is always finer than that which is produced on arms nearer the roots; they are neglected, the sap being determined to the end of the vine. If a narrow roof of boards prevents grapes from rotting, six or ten inches of foliage over the clusters will hold all the dew. It is claimed that it is dew, not rain, which rots grapes. If vines are planted 10x10 feet (and experience has proved that more can be netted from vines at this distance than when planted closer), with three wires one foot apart, there would be seven feet left between the arbors for light and air. If the ends of the vines, which might occasionally grow off this arbor, should hang down and the operator be too careless to throw them over the trellis, the clusters would be yet hanging in open air, and not tangled in the vines, as they are under the present side system. If some should think that

five or six feet of vine between the ground and the wire would be too much exposed to the sun (and I do not know that five feet would be injured any more than two or three feet, which is always exposed under any system), then the vines may be planted close to the post on the north side, posts being set twenty-five feet apart, and a three inch strip of thin board tied on the south side of the center vine. If in certain localities it is necessary to bury vines in winter, this plan facilitates the work, as they will bend much easier, there being not so much stiffness or branches in the way. If bagging is found necessary, it can be done in half the time now required, as the clusters hang separate and below the wires. If necessary to use netting, one width cut lengthwise covers the whole under side of the arbor. Another advantage of this system: The early frosts injure all the leaves on the old plan; on the above plan the top leaves are injured and they protect the under ones for a much longer time."

EXPERIENCE WITH GRAPES.

Joseph Lannin, President of the South Haven Pomological Society, gives the Michigan Farmer his experience in growing grapes concisely as follows: Six years ago I planted 2,000 vines, 1,000 each of Concord and Delaware, paying three cents per root for the Concord and seven cents for the Delaware. The ground on which the roots were planted is a clay subsoil, with a sandy loam surface and slopes gently to the south. I believe the vineyard received good treatment in the way of cultivation and pruning. The vines are tied to stakes about three feet from the ground. Now, the result: During the past three years I sold a large crop of Concord's each year, they paying principal, interest, and for the labor, while in '79 I sold only twenty peck baskets of the Delaware, and last season only forty eight-pound baskets. It is true the Delaware sold for nearly double the price of the Concord when put up in the same manner, but the difference is altogether in favor of the Concord. My Delawares were slightly affected with mildew last summer, and the vines now have a sickly appearance, indicating very clearly that they will bear no fruit this season. I am trimming them back very close, and shall certainly pull them out of the ground if they fail in 1882. Had I known as much six years ago about Delawares as I do now, I would not have planted them.

OVER-CROPPING ORCHARDS.

H. E. Bidwell, of Plymouth, in our State, remarks in Country Gentleman: One can see the premature old age in nearly all the bearing orchards in our land, and a vigorous pruning will not cover it up. We try to grow a crop of trees and a grain crop at the same time. One grows at the expense of the other, and both suffer. It brings the trees into early bearing, and this satisfies us; if not, we get impatient in waiting for fruit and follow the practice of others and seed the orchard to grass. We smile the following spring in beholding the trees one mass of bloom, and are farther pleased to see later in the season the trees bending under a load of ripening fruit. We call it productiveness, but it is more often premature death, and it is no wonder that many trees die

the first cold winter. Many failed to grow all over the States this spring. Many limbs and branches are dying this summer from last season's heavy crop, which impaired the vitality of the trees.

On apple trees no fruit is usually borne the following season after a heavy crop. Their once healthy foliage partakes of a sickly hue; even the beautiful flowers lose their pinkish color, and the once upright elastic limbs are drooping and stiffened with age. The rosy apples—crisp, juicy and delicious—are dull, colored with mildew and insipid, and are poor, sickly fruit. Our orchards and markets are full of it. Over-cropping and over-bearing are the causes of it.

GIRDLING PRODUCES FRUITFULNESS.

E. W. Shambarger, of Mansfield, O., writes that he is interested in articles which have appeared in the Portfolio upon the topic above and would like more testimony. He says:

In Mansfield during 1880, 5,000 bushels of apples would bring 25c per bushel, or \$1,250. Take out cost of cultivation, interest on land, expense of picking, marketing, etc., say 15c per bushel, \$750, and the net proceeds would be \$500. Now contrast the condition of things in 1881. Five thousand bushels at \$1 per bushel would bring \$5,000; less cost, (15c per bushel), \$750, would leave a net income of \$4,250; that is, the crop of 5,000 bushels in 1881 would equal 42,500 bushels in 1880. Or to put it another way there is eight and one-half times as much profit in apples the "off year" as in the year of abundance.

The usual recommendation to change the bearing year is to remove the blossoms or fruit early in the season. This is only a negative manner of procedure, and is only partially effective even on young trees 10 to 12 years old; at least this has been the case with me. It simply prevents a crop of fruit the present year. More vigorous action seems necessary in most cases to destroy active developed habits. My trees that I deprived of blossoms and young fruit last year produced no fruit or blossoms this year, and are vying with my neighbors' trees in producing fruit buds for a prospective crop of apples next year. This isn't a satisfactory state of things. We need a positive mode of procedure compelling the trees to form fruit buds when we want them formed, if we can do so and not injure the vitality of the tree. And now I come to the point of my inquiry upon which I wish further information in case you should find it convenient to give corroborative evidence upon testimony you have already furnished in previous volumes. You have given experiments which show that girdling will produce fruitfulness. Now will it lower the vitality of the tree? How dangerous is the process?

In this same line of thought we append the following statement from the Hartford Post:

Some years ago one of our citizens bought and set out some thrifty young apple trees. On one of them he neglected to remove the wooden label which was attached to one of the limbs by a copper wire. Two years later he found that the copper wire was entirely imbedded and out of sight in the bark of the tree, and that year the limb was so heavily loaded with apples that he was obliged to prop it up, while there was not a blossom or apple on any other

limb. Last year one of our neighbors, when his apple trees were in full blossom, carefully girdled some limbs on several trees, and the blossoms produced no fruit on the limbs thus treated; but this year those limbs have blossomed full, and no blossoms on the limbs that bore last year.

THINNING FRUIT.

Patrick Barry, in his annual message to the Western New York Horticultural Society, remarks at some length upon the value of thinning fruit on the tree. We gather as follows from his statements:

I think the time has come when this operation can no longer be profitably neglected. Fruit is becoming so abundant that a common or inferior quality will not sell, or, at any rate, will not command a paying price. When one-half or three-fourths of the apple crop is fit only for the cider-mill or evaporator, and will not sell for more than five or ten cents per bushel, the orchard becomes a very poor investment. The time has come when fine fruits only will pay; the growing of poor fruits is already overdone; the growing of fine fruits will, I am pretty sure, never be overdone.

Let me, then, urge upon orchardists the necessity of thinning as well as of good culture. But when we advise thinning, we are promptly told it will not pay; the labor costs too much; it is not practicable on a large scale, etc., etc. The fact seems to be overlooked that it is no more labor to thin the fruits than it is to gather a crop of poor, unmarketable fruits. Thinning at the proper time not only enables the tree to bring the remaining crop to perfection, but gives a quality of fruit that will find ready sale and a fair price any season, and besides, it saves the tree from exhaustion.

SHADING THE SOIL.

Mr. Daniel Smith, of Newburg, N. Y., says the following sensible things about mulching:

“My own observation satisfies me that we are too much disposed in the cultivation of plants to leave the soil exposed to the burning rays of the sun. So also with the fruit and ornamental shrubbery. The consequence is the moisture is so evaporated as to retard the growth if not entirely destroy the plant. We have found by actual experiment that some of our flowering plants that will not flourish in soils exposed to the sun succeed admirably when planted in the lawn with the grassy sod growing around and among them. The best Japan lilies I have seen in this vicinity were grown in this manner. Nearly or quite all of the varieties of our beautiful Japan lilies fail to succeed in our cultivated grounds unless the surface is kept cool by mulching. The same may be said of most of our garden as well as our field plants. Strawberries, for instance are particularly benefited by this treatment, and by proper attention to it newly-set plants may be saved, as well as fine crops insured from established plants.”

FERTILIZERS.

LIQUID MANURE.

It was a question with me for a long time how to dispose of the suds and slops from the house so as to keep them out of sight and have no unpleasant smell about the premises. After trying several plans, I adopted the following, which fills the bill:

I took a large dry goods box and put a partition in it, leaving the small end wide enough to admit a pail. In the partition I left several seams to let the water pass through. I then nailed a strip along the top of the partition, and to this the covers were hinged. At a convenient distance from the kitchen I dug a hole a little larger than the box and within six inches of being as deep. I put in an inch or two of clay and wet it up like mortar, then put in the box with the large part next the house. The space all around was filled with wet clay and well tramped. A wheelbarrow load of manure was then put in the large end, and it was ready for all kinds of slops. When I want to water my plants, I find the best kind of liquid manure in the small end of the box, and it is replenished every day from the house. No unsightly pile of filth is decomposing in the sun, and no unpleasant smell is ever noticed. Last spring I planted a canna near the box, on the side toward the house, and it grew to an immense size, hiding the box from view. We never discover any smell about the box except when the covers are lifted; but as I was afraid there might be, I put in a pound or more of copperas occasionally. Several times during the season I clean out the box and supply fresh manure. We never put in salt, lime, or ashes.

MATTHEW CRAWFORD.

POULTRY GUANO APPRECIATED.

I am often surprised that farmers pay so little attention to poultry, and still more that they should be so careless about saving the droppings from the roost. I have for many years been in the habit of getting all I could of this valuable manure; last season I succeeded in collecting about fourteen tons, almost entirely pure. My method with it is as follows: It is carefully gathered up and stored in barrels or boxes, put in a dry place and left there until we are nearly ready to use it. When thrown from the boxes or barrels it is in an almost solid or compact mass. We take some of our dry and fine street manure (or fine, dry earth will answer) and mix about three parts of it to one of the poultry guano, and work the whole over until it is both fine and nearly dry; after this working there is nothing disagreeable about it, and I never heard one of the hands object to handling it. When thus prepared, it is an exceedingly valuable fertilizer; I have never known it to fail upon any crop. The largest yield of potatoes I ever saw (640 bushels per acre) was fertilized with a single handful of this compost upon each hill, after coming through the ground.—*J. M. Smith in N. Y. Tribune.*

SPECIAL FERTILIZERS FOR SPECIAL CROPS.

In my long experience I have yet to see fruit, flower, or vegetable crop that was not benefited, and nearly in the same degree, by a judicious application of pure bone-dust; and I would here suggest to the advocates of special fertilizers, that in their experiments they try equal weights of pure bone-dust, to the half of the crops of wheat, potatoes, cabbage, or strawberries, being experimented on by the "specials," and note the results. I do not mean to be understood that these so-called special fertilizers do not answer the purpose of the crop to which they are applied; but what I protest against is the hair-splitting distinctions claimed for them, confusing and troublesome to the cultivator, if of no practical value. American commercial florists have, for the past quarter of a century, utterly discarded the various formulas for preparation of different soils for the various families of plants cultivated, so dogmatically insisted upon even yet by most European gardeners, and instead of a dozen different mold heaps, usually one only is used, composed of three parts rotted sods, and one of rotted stable manure; yet who will say that our results have not been as good in consequence? I believe the same fate is soon to overtake the "specials" in fertilizers. They may hold their own, perhaps, for a time among a few amateur cultivators of 7x7 garden patches—men usually glib with the pen, and who get in an ecstasy over their success with a dozen tomatos, or a score of strawberry plants—but few of the hard-listed gardeners or farmers, who live by the soil, are likely to become converts. My business, as a seedsmen, brings me in contact with many hundreds of farmers and gardeners each season, but I have known of few who think it necessary to use special fertilizers for special crops.—*Peter Henderson.*

BIRDS, INSECTS, AND DISEASES.

BIRDS AND CANKER WORMS.

Prof. Forbes, who has for some years been doing such admirable work in gathering testimony in regard to the habits of our birds as affecting horticulture, kindly sent his third bulletin for reference to the annual meeting of our society, in South Haven. The following letter was also sent, which we gladly insert entire in the Portfolio:

ILLINOIS STATE LABORATORY OF NATURAL HISTORY, }
 NORMAL, ILLINOIS, December 4, 1881. }

Secretary Garfield:

DEAR SIR:—In addition to the observations on the horticultural relations of birds, reported in the papers from our third bulletin, of which I send you a copy, it may possibly interest you to know the result of a study I have lately

made of the uses of birds in an orchard which was suffering from the canker worm; and I therefore give you a summary of the facts noted there. Birds were found extraordinarily abundant there, both in species and individuals, although the period of migration had passed. During a single day thirty-one species were observed in this orchard of sixteen acres, and fifty-five birds, representing twenty-five of the species, were shot for an examination of the contents of their stomachs. A careful study of these showed that fifteen of the species and thirty-five of the birds were eating the canker worms, and that these made about forty-five per cent of the food of the whole group of birds shot. The most useful bird was the "cedar bird," about thirty of which had apparently taken up their residence in the orchard and were feeding entirely on the worms. The number in each stomach, determined by actual count, ranged from seventy to a hundred and one, and it was usually nearly a hundred. These thirty birds were therefore eating the pests at the rate of at least three thousand a day, or ninety thousand for the month during which the caterpillar is exposed to their attacks.

Another valuable species was the black-throated bunting (*Spiza Americana*). This confined itself less strictly to the worms for food than the foregoing, but was much more abundant and was nesting in the orchard. Eleven birds were examined, and eight of them were found to have eaten canker worms, which made about half the total food of the whole number. Besides the above, the indigo bird ate them in the ratio of seventy-eight per cent; the chickadee, seventy-five per cent; the black-billed cuckoo, seventy-five; the summer warbler and the rose breasted grosbeak, each sixty-six; the bluebird, sixty; the kingbird, forty-three; the robin, forty; the warbling vireo, thirty-five; the red-headed woodpecker, thirty-two; and the brown thrush, twenty-three per cent.

Of the species which were not found eating the worms at all, none but the catbird and the wood pewee were represented by more than a single specimen, so that it is very probable that more species would have been proved to be destructive to the caterpillars if a greater number had been shot.

The benefits due to the thrush family and the bluebird were materially diminished by their attack on the predacious beetles, which made about sixteen per cent of their food; and these beetles, as I found by examining the contents of the alimentary canals of several representatives of eight species taken in the orchard, were making about one-sixth of their food from the worms.

A comparison of the food ratios of the birds shot in this orchard with those of other birds of the same species, taken in the same month (May), in a miscellaneous variety of situations, showed that the birds in the orchard were eating caterpillars much more freely than was their ordinary habit. For example, caterpillars were found to make but *thirteen* per cent of the *ordinary* food of certain of the thrushes, while they made *forty* per cent of the food of the same species in the orchard.

The ordinary May food of the bluebird contained but twelve per cent of caterpillars, while the single one shot in the orchard had taken sixty per cent of its food from them. These insects are usually eaten in May by the black-throated bunting in the ratio of about twenty per cent, while they made seventy per cent of the food of those shot among the canker worms.

This is evidence that, however well-marked the distinctive preferences of the various species may be, they are not inflexible, but yield to the temptation of an unusual and easily-obtainable supply of some one kind of food. It is evidently to this fact that the usefulness of birds is due in checking any uprising of insects beyond the ordinary limits of the species.

A FRIEND TO SAP-SUCKERS.

Cassius M. Clay, of White Hall, Ky., in a short article for the *Indiana Farmer* says a good word for the sap-sucker :

So small an animal as the sap-sucker becomes of vast importance in preserving fruit and other trees in our pecuniary interests. For long years I have been trying to prove that the sap-sucker sucks no sap, but is the deadliest foe of the vermin which destroy our trees. In my article in your paper on birds I gave some of the proofs of my theory. I now offer additional evidence. On a sugar maple near my door, to which I alluded before, I found the white-breasted sap-sucker apparently pecking the bark. I went to the place and found ten holes in a section of a circle as usual. Twice more I saw the same bird in the same place, but the holes were not increased in number, but only widened by the bill of the bird. Now if the holes had been made by the bird new ones would have been made also, or indefinitely increased in size to get at the tender bark; neither fact occurred. Again, the water maple about this time emits sap profusely when the albumen is cut. But here no water ran out. The reason is that the borer had already hardened the wood by exposure since last fall, and the entrance of the bird's bill touched no new wood, and consequently no water flowed. Here then are proofs positive that the sap-sucker was simply feeding upon the embryo borers, and not upon the tender bark or sap.

 THE SAP-SUCKER AGAIN.

Dr. Hoskins, of Vermont, evidently uses his eyes to some purpose, and from his observations makes the following very sensible remarks upon the sap-sucker :

The so-called "sap-sucker" pecks holes in the bark of living trees only. These holes are made around the trunk or a large branch. They are about a quarter of an inch in diameter, and the same or a little greater distance apart, and the rows, one under another to the number of six or more, are about one inch apart. The holes never extend into the wood, and are excavated laterally, so that the cavity is widest at the bottom. The great number of species of trees, both evergreen and deciduous, upon which these attacks are made, renders it highly improbable that the bird is after an insect or worm of any kind. We know of no insect that deposits or inserts eggs in so many species or in such circles and ranks as are represented by the "sap-sucker's" holes, nor do we ever note ravages such as worms hatched from eggs so deposited might be expected to make. On the contrary this bird invariably attacks what appears to be perfectly sound and healthy bark. Great injury is inflicted by these attacks, both upon orchard and forest trees. The white birch is frequently killed, and an apple tree badly pecked ceases to bear for several years.

What the purpose of this bird in making these excavations in the green bark of trees may be, has been a matter of doubt and discussion among observers. The systematic ornithologists have confined their attention mostly to peculiarities of structure with the view to classification, and very few of them are able to give information of value to farmers about practical questions affecting the character of species in regard to their helpfulness or harmfulness upon the farm. The general assumption has been that all birds are useful, which is

about as nearly right as similar claims set up in favor of quadrupeds would be. Generally a tirade of abuse meets any farmer who undertakes to protect himself against birds, or even writes disrespectfully of the doings of the feathered race. "Fool" and "brute" are the best epithets he is likely to escape with. Nevertheless we are obliged to exterminate rats, mice, squirrels, foxes, wolves and bears, and fruit-growers find that none of these do more damage to property than birds of various species.

The "sap-sucker" is an unmistakable nuisance. Yet there is good reason to think he is not rightly named. There is no evidence that he sucks the sap of the trees whose bark he perforates. I have held the opinion that he lives upon the inner bark, which I have never found upon the ground beneath the trees where I have seen him at work, but which is found in his crop. Recently several observers (Rev. Henry Fairbanks of St. Johnsbury, Vt., being one of them) have advanced the opinion, based upon observation, that these holes are made for the purpose of attracting insects upon which the bird feeds. This would seem to argue an incredible amount of intelligence, yet it is stated as an actual fact of observation by Mr. F. and other observers that the "sap-sucker" really makes his rounds from one freshly pecked tree to another to secure the insects which are attracted by the juices exuding from the wounds he has made.

FACTS ABOUT THE WRENS.

A correspondent of the American Naturalist tells some pleasant facts about wrens which we gladly reproduce in the Portfolio:

The observations I have been able to make during a residence of several years on a farm have convinced me that the common house wren is really one of our most valuable birds, not, perhaps, from what they have done, but from the possibilities wrapped up in their diminutive bodies. They are quite as social as the purple martin or the bluebird, and greatly surpass either of these in the rapidity with which they increase. I began several years ago to provide them with nesting places in the vicinity of my buildings. Sometimes I fastened the skull of a horse or ox, or a small box, in a tree-top. But latterly I have made it a practice every spring to obtain thirty or forty cigar boxes for this purpose. If the box is long and large, I put a partition across the middle, and make a hole through into each apartment. It is very seldom that these boxes are not occupied by one of these little families. In most instances two broods are annually reared in each nesting-place. One of my boxes last season turned out three broods of young wrens—six little, hungry birds each time, or eighteen in all! I think a cigar box never before did better duty. The lamented Robert Kennicott stated that a single pair of wrens carried to their young about a thousand insects in a single day! Like all young, rapidly-growing birds, they are known to be voracious eaters, living entirely upon insects. The point upon which most stress may be laid is this: That providing them with nesting-places in our gardens, orchards, or grounds, and not allowing them to be caught by cats or scared away by mischievous boys, we may have scores, if not hundreds, of them about us during most of the time in which insects are destructive. They undoubtedly return to the same localities year after year. Last season I had up about thirty of these nesting-

boxes, and all but two or three, which were not favorably located, were occupied. My crop of wrens could scarcely have been less than one hundred and fifty, and the old birds filled the air with music when they were not on duty in building their nests or feeding their young. The coming spring I intend to put up at least a hundred of those nesting-boxes in my orchards and groves, and I have no doubt I shall be repaid a hundred thousand fold for the little labor it costs. As long as they come back so regularly every year, and in constantly increasing numbers, and serve me so well, I shall do all in my power to protect and encourage them. And I am of the opinion that when one species of social, useful birds can be made to congregate in such unusual numbers, others will come also. But the hardiness, sociability, love of the locality where it is reared, and wonderful fecundity of the little house wren, render it, in my judgment, one of the most valuable of our insectivorous birds.

THE ONION MAGGOT.

Miss Eleanor A. Ormerod, of England, in treating of the onion maggot (*Anthourgia ceparum*), in her valuable report for 1880, states that "the most successful remedy for the attack, when found to be established, appears to be the use of paraffin oil." In one locality where this pest was doing considerable damage, it was found that after mixing "a good glassful" of paraffin oil with about six gallons of water, and carefully throwing a spray of the mixture over the onion bed two or three times, the attack was terminated. Another observer used the paraffin in proportion of one pint to two gallons of water; but states that the paraffin should be used carefully in dry weather, lest it should burn the plants. The paraffin is also applied by saturating sand with the oil and sowing the sand among the onions, and afterward watering it by means of a can with a rose. Limewater was found to be less effectual than paraffin, but destroyed the insects after a time. In one instance a good crop of onions was secured by taking care to pull and burn the infested plants with the infesting larvae, as soon as they could be detected by the turning yellow of the leaves. And still another observer states that he has no trouble with the maggot, as "on its first appearance I water freely with soapsuds two or three times, which usually destroys it and nourishes the onions."—*Professor J. H. Comstock.*

TO DESTROY MEALY BUGS.

I have tried various means to destroy mealy bugs and other pests of a like nature, from cold water forcibly applied to expensive insecticides, and have found nothing so efficacious as hot water and soft soap. The water is boiled, a very liberal quantity of soap, having previously been dissolved into a thin paste, is added, and the plants syringed with the mixture. I have cleared two collections of camelias of the woolly scale by this means and sponging the leaves. *Stephanotis* may be made clean by weekly syringings, more quickly so if the plant is kept rather cool. The flowers are in no way harmed by the mixture. *Crotons*, *dracenas*, palms, and other foliage plants subject to scale and thrips, may be kept clean and in good health by periodical syringings. I

would not recommend its application to tender foliaged plants, ferns, orchids, etc., though it has occasionally been tried by myself for destroying thrips on azaleas, after the season's growth had been made, without hurting the plants; and in a case of bug on grape vine, when such a deadly insecticide as kerosene failed, applied during the resting season, two syringings of strong soapy water, at from 150° to 180°, applied a fortnight before the grapes flowered, kept the vines clean for the season. I consider its use dangerous in such cases, and would on no account recommend its use without much caution on the part of the operator.—*Cor. Gardeners' Chronicle.*

PAPER BAGS FOR GRAPES.

Charles A. Green states that he has discovered that by the use of strong manila bags grapes may be kept on the vines in splendid condition long after the season for grapes out-of-doors has gone by. Passing through his vines on October 31, three weeks after the frosts compelled him to gather the crop, and after the leaves had all fallen, he found a few clusters protected by bags that had been overlooked, beneath the leaves. The Brighton opened as fresh, bright, and beautiful as he had ever seen it, with bloom undisturbed, the color a dark rich maroon. He never ate such rare specimens of this fine grape, and yet the freezing had been severe. They were the nearest approach to a raisin he ever saw on vines. The juices near the skin had condensed and there was a temptation to chew the skin to secure the rare flavor.

George W. Campbell says that further experiments with paper bags of thin manila on grapes during growth and ripening, show that they preserve against bird and rot. The bunches should be previously thinned out, to make the bagging easy. The grapes ripen perfectly.

Shelah, in New York Tribune, says: We did not gather the last "bag" of Concord's till the first week of November, three weeks after the foliage had been totally killed. They were exceedingly rich and piquant, and although the disturbance caused several berries to drop off, the bag retained them, and hereafter we shall gather our Concord's in the bag, as we want them, up to mid-November if hard freezing defers so long. As to the bags preventing rot we can only say from here that we have as yet found only one or two Ionas affected on one bunch in a rather open bag; but there was not much rot this year outside of bags. The bags left open at bottom are not so good; insects get in, and detached grapes roll out. Our bags look as if they might serve another season; we had no very heavy rain storms to strain them.

But there is another unmentioned merit of these paper bags too good to be passed over. They are a great aid to the keeping of grapes in the house. For years we tried one after another of the published methods of keeping grapes, with vexatious ill success. They moulded alike in a cave, in a dry bank, and in the cellar, while in dry rooms they shriveled, and if packed in cotton, so many were apt to be detached and become nauseous that we lost hope of enjoyment from stored grapes. The only ones that kept well were some of Rogers' red sorts under glass, cold, left hanging on the vines. But now bunches of many sorts, laid in the bags, on a large scaffold in a cool room of still air, keep admirably; and we have never yet taken out a pin to open one of the bags without a treble delight over their beauty of bloom and fullness, their exquisite

piquancy of flavor, and the renewed hope of having all this enjoyment close under hand for months of future years.

C. B. C., of Vineland, New Jersey, contributes to the Country Gentleman on the same topic: Hundreds of thousands of bags were applied here last season, and the net conclusion seems to be that it is not best to enclose the cluster while in blossom, but promptly as soon as out of bloom,—say when the grapes are as large as small shot,—and continue to bag till about the size of buckshot or small peas. I put on 10,000 bags while the grapes were the above size last spring, with entire success. The clusters were perfect, bloom especially beautiful, and flavor vastly improved. Later in the season, when the grapes were larger, and some nearly full size, though perfectly green, I put on 10,000 more bags. The weather was cool for several days at the time, and everything looked favorable; but the bagging was too late, and the grapes nearly all rotted as badly as the year previous, when no bags were used. The bagging was all done on the same vineyard, side and side.

With respect to paper, oiled or waxed paper does not pay, and will not stick with paste. I have used manila paper, fifteen pounds to the ream, also twenty and twenty-five pounds, and even forty or fifty pounds to the ream, and find the lighter paper the best, not only because cheaper, but fruit ripens better in paper of fifteen or twenty pounds, than in forty-pound paper. As a poor material is often incorporated in manila paper, twenty pounds to the ream is the safest to buy, and will make about 4,000 bags to the ream. It is worth from \$1.75 to \$2 in New York, cut into proper shape by the book-binder, at ten cents per ream. A man will paste from 300 to 400 per hour, and for field purposes the whole expense is light. Boys and girls will pin on 1,000 to 1,200 per day. A single pin to a bag is used. The leaf opposite the cluster, if desired, can be removed without injury, and the mouth of the bag can be doubled over, if more convenient to pin. If pinned fast in almost any way it answers the purpose, as it is not found necessary to have them air tight. The lighter is proved to resist storm and wind about as well as the heavier, because the foliage soon covers the bags to a great extent, and protects them.

BEEES AND GRAPES.

The question of whether bees puncture grapes seems to be an open one yet. During the past year a number of observers have recorded their opinions in public prints. We desire only to make a note or two from points made by correspondents of the Rural New Yorker. One in Canada says:

I have in my garden 12 different varieties of Rogers' best numbers, all bearing and young ones. One vine (the number I cannot tell) is, or rather the fruit is, very much like the Delaware, only the berry is larger and the bunch longer and not so compact, but it is very sweet, nothing acid about it whatever. Towards the end of the season I noticed that many of the bunches had been about half eaten by something, only the skin of the berries remaining. At first I supposed the injury to be done by the birds, but on closer examination I found swarms of bees about the grapes and noticed that they made a puncture in the berry, and afterwards the wasp finished it by eating everything inside except the skin and seeds. The skin then dried hard and the bunch became almost unfit to eat. On this particular vine I can safely say that more

than half the grapes were destroyed in this way. For the three years I have had these grapes this is the first time I have known bees to attack them. I may also add the other kinds, such as the large and small blue sorts, in fact all the other varieties were left untouched. I do not believe there is any remedy for their destruction. But as to all appearances the bees have had their first taste of grapes in this part of the country, next year they will perhaps come in swarms, so that the people here will have very few grapes to pick after the bees shall have taken all that may be good, to make honey for other people.

An Ohio man in commenting on the above says:

Now it so happens that the honey bee could not well make a "puncture" except with its sting, and I am sure that if this observer had really seen a bee puncturing grapes with its sting he would have noted that fact and given it some prominence. There are many people who, having seen bees at work upon their grapes, have naturally inferred that they were the sole cause of all the mischief done, and a few, therefore, considering them a pest, have undertaken to poison them, a proceeding of doubtful justification even if it could be clearly shown that they do sometimes attack and destroy sound grapes.

The past season bees worked upon my grapes when I took occasion to examine their work very closely to see if they made use of their mandibles to gnaw into the sound grapes, but no such use of them was detected. Their tongues were, however, used freely in licking up the juices of the ruptured fruit. They would run over and about the clusters as if in search of some opening, nor would they relax their activity until an unsound grape was found, when immediately the tongue was presented for use. I doubt very much if they ever make use of their mandibles in the act of gathering any kind of sweets. It is well known that the cat bird, blue jay and brown thrush are very destructive to grapes, and since they often live several years,—unlike the honey bee whose life is only for a few months at best,—they may profit from previous experience. It might be well, therefore, for persons complaining of their grapes being "punctured" to keep a sharp lookout for birds.

The rupturing of my grapes the past season may be readily and truly, as I believe, attributed to the continued very warm weather, frequent rains, and very damp atmosphere while the grapes were ripening and afterwards. These were conditions favorable to a rapid growth of vegetation and to an active absorption of fluids both from the earth and air. Too rapid a growth of the grapes or a superabundance of their juices occurring before or after ripening, was the direct cause of their rupturing. I had also an early apple tree that was loaded with small but mild-flavored apples. They ripened about the middle of August, and the weather being as above described for several weeks they nearly all cracked open, when the tree became full of bees and wasps every day as long as the apples lasted. It is therefore apparent that bees will work upon unsound grapes and apples, but the very interesting question whether they ever injure or destroy sound, ripe fruit of any kind does not as yet appear to be established by any decisive evidence.

GRAZING ORCHARDS.

Mr. G. Cowing, of Muncie, Indiana, believes in pasturing orchards to diminish the progeny of the codling moth. He gives the following illustration:

There are two apple orchards in my neighborhood, in one of which no stock of any kind is ever allowed to run. In the other, horses and calves constantly graze in warm weather. In the latter the fruit is invariably smooth and perfect; in the orchard from which stock is excluded, a worm hole can be found in almost every apple. My family supply of apples since last fall has been derived from these orchards, and the great difference in the quality of the fruit was palpable when first contrasted. In the orchard which was grazed, the first generation of insect enemies in wind-fall fruit was destroyed by the stock. In the other, the propagation of the codling moth met with no interruption.

ROSE SLUGS.

All at once in early summer the rose bushes lose their color, and on closer examination it is found that that little pest, the rose slug, is doing the damage. There are numerous effective remedies, which should be familiar to everyone. The one which is most certain in its effects is whale oil soap suds, made in the proportions of one pound of soap to eight gallons of water. The objections to this remedy are that it has a disagreeable odor, and is liable to discolor the opening buds. Dusting freely with powdered white hellebore has also been tried with very good success, and it may be used in water by dissolving a tablespoonful of the powder in two gallons of boiling water. The pyrethrum powders have as yet been used only to a limited extent, but with the prospect that thoroughly applied they would prove effectual. Lime has long been used with satisfactory results, especially if applied when the dew is on the plants.

HOW ABOUT THE ANTS?

There is a chance for our horticulturists to learn something about ants. It is commonly supposed that they are all noxious insects, and any effort at their destruction is commendable; but some intelligent foreigners hold to a different opinion, as witness the following from the Geneva Continent: Many of our leading orchardists in northern Italy and southern Germany are enthusiastic cultivators of the common black ant, which industrious insect they hold in high esteem as the fruit-grower's best friend. They establish ant-hills in their orchards, and leave the police-service of their fruit trees entirely to the tiny sable colonists, which pass all their time in climbing up the stems of the fruit trees, cleansing their boughs and leaves of malefactors, mature as well as embryotic, and descending, laden with spoils, to mother earth where they comfortably consume or prudently store away their booty. They capture the eggs of caterpillars, grubs, and canker worms; they "requisition" all the countless varieties of leaf-lice that strip trees of their young foliage; they break up the crystalids awaiting transformation, and carry them off in minute morsels; they never meddle with sound fruit, but only invade such apples, pears, and plums as have already been penetrated by the worms, which they remorselessly pursue to their fastnesses within the very heart of the fruit. Nowhere are apple and pear trees so free from blight and destructive insects as in the immediate neighborhood of a large ant-hill five or six years old. The favorite

food of ants would appear to be the larvæ and pupæ of those creatures which spend the whole of their brief existences in devouring the tender shoots and juvenile leaves of fruit trees. But nothing in the way of creeping or stationary preyers upon vegetation comes amiss to the indefatigable and insatiable ant, whose animosity against the minuter insect tribes is so inveterate that "his great revenge hath stomach for them all."

PHYLLOXERA IN FRANCE.

Over 400 members attended the congress on the phylloxera, which was held at Bordeaux, under governmental patronage, and the question, one of the intensest importance to large classes in France, was thoroughly discussed. The loss by this unmasterable vine destroyer is estimated at six hundred millions of francs per annum, and great numbers of families have been ruined by its prevalence. Of the three methods of treatment—destruction of the insect by submerging the ground, or by using sulpho-carbonates, on the one hand, and replantation with American phylloxera-proof roots, to be then grafted with the French sorts found best for each locality—the latter was preferred. Although an enormous undertaking, far exceeding all the great internal improvements in France, and involving the means of livelihood of over two millions of families, it was voted the surest and best, the other methods requiring annual repetition, and being often unsuccessful. There is a fourth way, not talked of at all, yet one could wish to see it applied to the failing vineyards there, and to our tobacco fields here. It is the substituted culture of grass or grain, or other products promotive of human health, strength, and permanent enjoyment!—*N. Y. Tribune.*

POISONS IN THE ORCHARD.

Iowa Agricultural College Quarterly contains the following:

Two or three weeks since, we spent a few hours in the immense orchards of A. R. Whitney, of Lee county, Illinois. He has recently had his orchards scourged with the canker worm. After trying various remedies, the pests were wholly eradicated by sprinkling the foliage, by means of a force pump, with water poisoned with London purple. At once on entering the grounds, the unusual health, size, and perfection of each individual leaf attracted our attention. We had recently been over several large orchards in DuPage county, and in the Fox river section, where a perfect leaf was difficult to find. Insect enemies during the past dry seasons have increased to such an extent as to seriously injure the vitality of the trees by injury to the foliage. While Mr. Whitney had aimed mainly to destroy the canker worms, he had evidently about eradicated all the pests injurious to the leaf. This is a subject worthy the attention of our orchardists. Only a day or two prior to this visit to the orchard of Mr. W., at the nurserymen's convention in Chicago, Mr. Woodward, of New York, made the statement that some of his neighbors had destroyed the codling moth by sprinkling the trees with a solution of London purple at the time when the apples were just forming, and while the embryo fruit was yet in an upright position. It is true that this statement was

received by experienced members with many grains of allowance, yet we have since learned that all orchards treated at this time with the poison were not only ridded of the codling moth, but of noxious insects preying on the foliage. We predict that the use of arsenic water and London purple will become more general for fighting our insect foes in the very near future in agriculture and all divisions of horticulture.

CARBOLIC ACID AS AN INSECTICIDE.

Prof. A. J. Cook read an article before the American Association for the Advancement of Science, from which the following extracts are taken: Bisulphide of carbon I found too expensive to use in sufficient quantity to destroy the radish maggot (*Anthomyia raphani*) so I cast about for something else and prepared the following: To two quarts of soft soap I added two gallons of water. This was then heated to a boiling temperature, when one pint of carbo-lic acid (in a crude state) was added. This mixture is then set away in a barrel or other vessel and is ready for use as occasion may require. I mixed one part of this liquid to fifty parts of water, to be used on the radish plants. It was used by three parties in three places. Mr. Lee used it in the college garden; a student—Mr. E. Hale—used it on a bed specially prepared, and I used it in my own garden. Mr. Lee sprinkled it on the plants and poured it into a trench made close beside the row of plants. Mr. Hale and myself sprinkled it directly on the plants. Messrs. Lee and Hale made but one application, and found that it kept the insects at bay for about two weeks. Even this proved of no little service. I made the application once every week, and the radishes were almost entirely free from the maggots. My bed was seventy or eighty rods from the other beds; but I caught the flies about my garden, and plants near by, not treated, were badly injured by the maggots. Two cautions should be urged; first, sprinkle the plants as soon as they are up, and thereafter every week or ten days; secondly, the mixture, if sprinkled directly upon the plants, must not be so concentrated as to injure the plants. My experiments this season make me feel certain that this will prove a valuable remedy, and if cheaper, it may even replace the explosive bisulphide of carbon in fighting the cabbage maggot and the squash *Ægerian*.

About my house at the Michigan Agricultural College I have planted a little apple orchard of eight trees. The trunks and larger branches of these trees have been thoroughly washed twice each spring, the last week of May and the last week of June, with soft soap. A neighbor but a stone's throw distant set out some fine primates about the same time that I set out my trees. He does not believe in the use of soft soap, practically at least, and his trees are sorely disfigured and greatly injured by the *Saperda candida* and the *S. cretata*, while my trees are smooth and admired by all. I have some pear trees in the same orchard which were not treated with the soap, one of which has been much injured by the borers.

This year I used the undiluted carbo-lic mixture instead of the soft soap. I fully believe this to be an improvement on the soap alone, as in some cases, if but one or even two applications of the soap are made, the effect is not so long continued as to entirely prevent the borers from egg laying. The carbo-lic acid will tend to extend the period so that I believe two applications will in every case repel the beetles.

GAS-LIME AND CODLING MOTH.

Professor W. R. Lazenby experimented at Cornell University with the use of gas-lime as a remedy for the codling moth, and reports concerning his work:

Last year, just about the time the blossoms were falling I spread some fresh gas-lime under two apple trees. The lime covered an area a little greater than the spread of the branches, and was about two or three inches deep. The 10th of June another application was made the same as before. The result was quite marked. Not ten per cent of the apples upon the trees so treated were affected by the moth; while at least eighty per cent of the fruit upon the adjoining trees was injured. It must be borne in mind however, that this fact does not prove that fresh gas-lime will effectually drive away the codling moth. If all the trees in the orchard had been treated in the same way, the moth might have worked as much injury as ever. Experiments of a somewhat similar character with lime have been repeated by Dr. Hall and others, but it has been found that where all the trees are sprinkled the moth is not repelled; in other words it accommodates itself to its surroundings. As a rule we have a great deal more to hope from those remedial agents which kill the insect in some form or other, than from these which repel or keep the moths from the fruits.



STORING, MARKETING, AND PRESERVING.



GATHERING AND STORING APPLES.

The following notes were made by Rev. S. B. Smith of Bethel, Ohio, who owns a large orchard near Grand Rapids, Michigan:

Getting the idea from Mr. Welch, who is a large orchardist in Wayne county, Michigan, I gathered my apples in the orchard near Grand Rapids carefully into barrels by hand picking, leaving under the trees what we purposed to make into vinegar, as culls. Those in barrels were drawn immediately to the cellar and stored. The cellar was under a bank barn. The stone walls were two feet thick, and lined with two thicknesses of inch boards nailed to studding from four to six inches wide. On the side where there was no earth the space was filled with sawdust. The windows had double glass, that is, set on both sides of the sash. The cellar was thirty-two feet wide by forty-four feet long; it was divided into three divisions by partitions; in each of these, bins were made from twelve to fourteen feet long, and four feet wide. Those farthest from the door were filled with the longest keepers. The barrels were brought from the wagon by two men and emptied carefully into the bin, putting up boards as it was filled. When so full that barrels could not be emptied into it baskets were used. When full, another bin was made against the first, so that one side of the first bin made a side also for the second, and so on till that

apartment was full. In like manner each of the other apartments was filled. The whole cellar was so filled that it was as solidly stored with fruit as if there had been no bins, they serving only for convenience of storing and packing.

The gathering commenced the last week in September, 1880. In cool days and nights the doors and windows were left open; in warm days, when the external air was warmer than the cellar, they were closed. Windows where the sun could shine in were kept shaded. When freezing weather came on the cellar was closed up; the window and doorways were filled in with hay or straw, as the doors were not double. A thermometer was kept in the cellar to ascertain the temperature. The cellar was not opened until the apples were marketed in the spring. When the apples were packed, it was noted that they kept equally well at the top, center and bottom of the bins. The quantity wholly decayed was about one barrel out of 150. There were 5,000 bushels of apples in that cellar.

This method has these advantages: They are removed from the vicissitudes of the weather as soon as gathered; they require less handling, and hence less expense in gathering. Being handled less they are less likely to be bruised. They can be kept in a more even temperature.

I know of no disadvantages that can overcome these advantages. If this is not the best method of gathering and storing, the statement I make of my experience may bring out the better experience of others.

PICKING AND STORING APPLES.

A correspondent of the Husbandman gives the following good suggestions on the above topic:

First provide a stock of boxes, which if cared for will serve for a lifetime. Mine are two feet and four inches long, the stuff for sides and ends cut 11 inches wide, and for bottoms 12 inches wide, all one-half inch light pine, only the end boards, which are three-quarters of an inch thick. Nailed on each end is a two-inch cleat, also of half-inch stuff, raised a quarter of an inch above the top of the box, which serves to hold upon when carrying, and also to keep the boxes in place when nested together. The boxes are mechanically alike and the fruit in them is as effectually protected from atmospheric influence as it would be headed up in barrels. Such boxes hold a large bushel and weigh perhaps twice as much as a five-peck basket. They are filled in the orchard, placed one upon another in the wagon till a load is made up, and put in the cellar without emptying from baskets or bags or bruising in other ways, and piled in tiers the whole length, if you desire to utilize all the room possible, the longest keeping fruit being placed in position to be last reached. In that condition they are left untouched till wanted, the small quantity in each box not generating moisture to cause decay, and when wanted are in shape to be easily and pleasantly reached. Labels may be attached to the exposed end of each box if desired. Men who have given this method years of trial say that their fruit keeps much better than when put in a position to pick over; that more fruit can be stored in a given amount of cellar room than in any other way; that such boxes exactly supply a long felt want, and will certainly be rated by anybody who uses them a few times as worth much more than cost, which in my own case was a little over 20 cents each. But cheaper material

than clear soft pine may be used, but at the expense, probably, of lightness. Basswood does very well, and even hemlock may be made to answer.

KEEPING OF FRUIT IN A REFRIGERATOR.

The keeping of fruit, especially of small and perishable fruit, for several days and weeks during a glut, is a very important object for fruit growers and lovers of fruit. The writer had a very pleasant visit from Mr. J. D. Baldwin, of Ann Arbor, and Dr. Conkling, of Manchester, on the 9th of July, and was presented with strawberries kept by Dr. Conkling for twenty days in his refrigerator. The berries were of the green prolific variety, and although they had been one day exposed were perfect in size, in color, and flavor. The Doctor has made further experiments in a cooling room where a cold dry air is kept up. His Early York Peaches, which were kept thirty days in said room, were exhibited at the county fair at Ann Arbor in good condition, without having undergone any particular change. They were fully ripe and very mellow when picked from the tree, and not suitable for shipment. The next experiment was with later peaches put in the above room the 3d of October. They were in good condition for shipment, and the variety was a seedling from Old Mixon. Sixty days after picking some samples were sent to the December meeting of our county pomological society, and had every appearance of perfect fruit.—*Emil Baur, Ann Arbor, Michigan.*

APPLES FOR EUROPE.

In 1848, just thirty-two years ago, when ocean voyages were longer than they are now, I took barrels of Northern Spy and Melon apples to show our friends in Europe. These varieties were then but recently introduced, and comparatively rare. I distributed them among the leading pomologists in England, France and Belgium, and all declared that they were the finest apples they had ever seen. The late Mr. Rivers insisted on my sending a basket of them to the queen, which I did.

They were sent to New York by rail; made a long ocean voyage, thirteen or fourteen days; sent by rail from Liverpool to London; then packed in baskets and sent by express to different places in France and Belgium, and in every case were received in perfect order. I brought some back with me quite sound in March, although I was twenty-one days on the water. This shows how easy it is to transport apples long distances, if of fine quality and well packed.

The shipment of American apples is destined to be immense. But if our growers and shippers desire to secure the best results for themselves and the consumers, they will at once determine upon a thorough system of selecting and packing. This applies with equal force to our home markets. Winter pears sent to New York this winter, about the holidays, well selected and nicely packed in half-bushel boxes, sold readily at \$3 and \$4 a box. With less care and taste in selecting and packing, such pears might not have sold for more than three or four dollars per barrel.—*P. Barry, Rochester. N. Y.*

AMERICAN APPLES IN ENGLAND.

It will be a good plan for our apple-growers to ponder over the following item, written by a correspondent of the English Garden :

“In Convent Garden I hear a very good account of Canadian apples, and was surprised to learn they were beating the American produce out of the field. There seems some reason for this, as the Canadian apples are better packed ; the American barrels are usually “topped up,” in market parlance—a layer or two of good fruit at the top, and then fruit of a poor quality below. On the other hand, the Canadian fruit is generally fairly good throughout, the barrels are well packed, and considerably larger than those of the Americans. A very excellent apple, which has been coming in large quantities, is what is called the Golden Russet ; it has a high and rich flavor. In some sales lately, Canadians, when compared with Americans, were in the proportion of over six to one. This must be very encouraging to the Canadians, and should teach the Americans to pack honestly if they wish to keep their trade.”

AMERICAN APPLES ABROAD.

We have in many places alluded to the shame attending the “slipshod” methods of packing American apples for European markets. An English paper that happened to fall into our hands contains the following suggestive paragraph :

There are few greater treats in early spring than the magnificent apples imported from America, on the dessert tables in England, but many, however, arrive in bad condition, with more or less bruising and fermentation, to the injury of the name of American orchardists and shippers. The following mode of packing is therefore recommended : Wrap every specimen in three coats of soft tissue paper which has been soaked in a solution of salicylic acid and dried. The alcoholic solution of this acid is recommended, made with the strongest spirit, and then diluted with as much water as it will bear without precipitating the acid. The cost of this preparation, it is asserted, would be a mere trifle compared with the splendid condition of the fruit when entering the London market.

GATHERING PEARS.

A correspondent of the New York Tribune says: Nine-tenths of the people who grow them don't know when to gather pears. Nearly all should be picked from three to 15 days before ripe, according to the variety, and then kept in a cool, shady place. I have one kind (name unknown) three inches in diameter, or nine inches round in the largest part, and three inches long from stem to calyx, straight through the center. It is bright pink on one side and pale bright yellow on the other,—a very handsome fruit. It began to ripen this season August 10, and all had to be picked by the 25th. If suffered to become mellow on the tree it almost invariably rotted inside, leaving a hard dry crust with a tough skin about half an inch thick all round, tart, indigestible and unfit to eat. But picked as soon as well colored and kept from

one to two weeks in a cool, dry place, the skin becomes as thin and soft as paper, and the flesh is sound, tender, very juicy and of the finest flavor, some slightly sub-acid, others slightly sweet.

RIPENING PEARS.

Mr. J. W. Pierce closes a valuable essay before the Massachusetts Horticultural Society with the following paragraph on ripening pears:

The *summa summarum* of this whole matter is, if we wish to keep pears and retard their ripening, we must keep them in a still, dry air, at a temperature as near 40 degrees as it is possible. But when it is desirable to ripen them put them in a dark, warm place, with a moderate degree of moisture in the air, and keep them covered to exclude the light and retain the heat and gases which are generated. In warm weather use papers for a covering and in cold weather use woolen blankets.

KEEPING THE BEURRE D' ANJOU.

That veteran pomologist, Marshall P. Wilder, tells how he keeps Anjou pears:

The fruit is gathered about the middle of October very carefully and placed in bushel boxes. These are piled one above the other and protected from frost and rain by boards or shutters, where they remain until cold compels their removal to the fruit cellar. The boxes are then taken into a well drained cellar and piled seven high with slats between the boxes. Here they remain with no other care than opening the window on cool nights so as to keep the ripening process dormant, whenever the cellar seems to need it. About the middle of November we find some of the fruit begins to ripen. Then we commence at one end of the row and select these for market, and so from time to time we go over them, retaining the hard and green specimens to the last. In this way we have the Beurre d' Anjou from November to March, or should they be desired in October they may be ripened in a warm room.

VARIETIES.

THE FAMEUSE AND SHIAWASSEE BEAUTY.

The editor of the American Rural Home is a great lover of the Snow apple, and says of it:

We have grown this apple many years, an orchard we owned having contained some twenty trees. In bearing years we had a large surplus, as the tree is quite productive, and on non-bearing years we had a liberal family supply. During the season, which with us extended from about the first of October to the

middle of December, it was a family favorite. Its great beauty first gratifies the eye. It is medium in size, nearly round, with a deep, rich crimson hue, covered with a slight bloom, on the sunny side, and a bright red on the shady side. When you cut into it, you found it almost as handsome on the inside; a flesh fine-grained and almost as white as snow. And when you tasted it you were not disappointed; a soft, brittle, juicy pulp, slightly acid, and of a delicate, delicious flavor. You could eat more of them without any unpleasant sensation in the stomach than of any other apple with which we are acquainted, so light and easy of digestion is its pulp. If carefully assorted and barreled tight, they would keep in good condition until the holidays, but if put in open bins would become tough and spongy before the first of December, and when they reached that condition their excellence was gone.

But with all these excellencies he regrets that the variety has one serious fault; the fruit is subject to an attack from black fungus, which oftentimes is fatal to the entire crop. We have an apple in Michigan that certainly would be perfection in his eye (and mouth), for it has every good quality of the Snow, and is not troubled with fungoid attacks, and is a better keeper than the Snow. This is the Shiawassee Beauty, and Michigan may well be proud of originating the variety.

THE MELON APPLE.

Mr. W. C. Barry is an enthusiastic admirer of the Melon apple, and from a report upon new and choice fruits made by him we condense some items concerning this fruit:

It originated in the orchard of Mr. Chapin of East Bloomfield, and for some time its cultivation was confined to the orchards in that vicinity. Mr. Reuben Norton of East Bloomfield, first brought it to the notice of Ellwanger & Barry, and recommended it by saying, of all the apples he grew (and he had a fine collection), this was always the first to be consumed by his family and friends. The attention of the public was first drawn to it by Ellwanger & Barry, through the Albany Cultivator. As the tree is rather a delicate grower, nurserymen cannot propagate it advantageously, and on this account the stock has always been very limited. The only way to obtain good, standard trees is to top-graft it on some strong-growing sorts, which of course render the trees more expensive; but the apple is so valuable that no one should object to pay an extra price for the tree.

The fruit may be described briefly, as follows: Size, medium to large; form round, slightly flattened at the ends; skin, pale whitish-yellow in the shade nearly covered with light red, and frequently striped with carmine; flesh white, exceedingly tender, juicy, melting, agreeably perfumed, and having a mild sub-acid flavor. As a dessert apple it has no superior, if any equal. The fruit however, is so tender that it will not bear much handling or long carriage, and the tree is not vigorous enough to render it a profitable variety for orchard culture. But it is such a desirable fruit for family use that it ought to be included in every garden collection.

The public are beginning to appreciate choice fruits, and orchardists will find it profitable to top-graft this kind upon a vigorous growing variety. I am certain it will sell readily at a good price as soon as its merits are known. Is it not surprising that a fruit possessing so many good qualities should be so rarely

seen? To show how scarce this apple is, I doubt if a barrel of them could be found in Rochester to-day. Yet it is unquestionably the finest of all winter dessert apples, and ought to be found in the market.

SHIAWASSEE BEAUTY.

President Lyon in the Rural New Yorker gives his view of the Shiawassee Beauty:

More than a quarter of a century since a seedling of Central Michigan, originating in all probability from the Fameuse, and named, from its place of origin, Shiawassee Beauty, was brought to public notice. Possessing the white, delicate flesh, juiciness, and refreshing flavor of its supposed parent, of similar size and appearance, and of the same season, when specimens were sent to Mr. Charles Downing, it was long before he became satisfied to consider it as distinct, for very similar are it and the Fameuse in quality. Experience, however, shows obvious differences. The Shiawassee Beauty is more distinctly oblate in form, with a brilliant blush, such as is only occasionally seen upon the Fameuse, while the distinct stripes of the latter are never seen upon the former. The similarity in flavor, texture, juiciness, and color of flesh is so marked that, with the skin removed, it is scarcely possible to distinguish the one from the other. So far, then, there would be little choice between the two.

The advantages that give the Shiawassee Beauty the preference, in my estimation, are, that the flavor is somewhat richer; that the fruit is much less liable to scab and crack; while I have never known it to perceptibly suffer in quality from overbearing. The size will also average larger than Fameuse. The tree is slightly more upright in habit, equally vigorous, and, so far as I have been able to learn, full as hardy. It has been widely tested in Michigan, and proves universally successful. I have heard little of its success in other States, although many years since cions were widely disseminated. I can imagine no good reason why it should fail in any locality to which the Fameuse is adapted. One reason why it is not generally known may be that no person seems to have made a specialty of its growth and dissemination, and since the texture is rather delicate for rough handling, and it is, therefore, only adapted to near-by marketing, it has never attracted the attention of commercial planters.

RUSSIAN APPLES.

It is really refreshing to run across an item that contains so much within so little space as we find in this one from the well known horticulturist, Mr. G. Cowing:

Tree peddlers still perambulate this region for the purpose of selling Russian apple trees which, according to the representations, bear fruit every year without regard to the weather, and in every other respect are infinitely better than any ordinary varieties. Now the truth is, of all the varieties ever brought from Russia to this country, only two or three varieties—all early—have proved sufficiently valuable to warrant their general introduction into our orchards, and these in no respect are superior to many of our native varieties.

It is probable that we have not a first-class winter apple of Russian origin. Several years ago the Department of Agriculture received a large lot of apple grafts from Russia, which were distributed throughout the country. If any of those grafts have produced fruit of extraordinary merit the fact has not been generally published. Russian apples, tree roses, high bush strawberries, Utah hybrid cherries and cottonwood sprouts (only \$3 apiece), labeled Souvenir du Congress pear, belong to a class of fruits and flowers which yield more pleasure in pursuit than in possession, and the traffic in such trash will cease when planters generally read some first class journal devoted to agriculture and horticulture and the valuable annual reports of our State Horticultural Society.

A GREAT PEAR TREE.

We have frequently in the meetings of the State Horticultural Society referred to the old pear trees of Monroe. A correspondent of the Indiana Farmer calls attention to one of these in a communication to that paper in the following terms:

I call it the largest in the world. When my father returned home from the war of 1812 I recollect hearing him frequently telling of the big pear trees at Monroe, Mich., on the river Raisin, near Lake Erie. In the last few years I chanced to be in Monroe, and meeting my old and esteemed friends, Dr. Warder and Mr. Botherne, of horticultural fame, at the horticultural congress, I asked them to go and see the largest pear tree in the world of which we have evidence up to this time. We went and found the tree. It measured at that time, five feet from the ground, 13 feet in circumference. We did not measure the height but the Doctor thought it was 65 to 70 feet high. The tree was still vigorous and had been planted no doubt long previous to 1800. This tree had been planted by the old French settlers in an early day. But what we all wondered at was that the old citizens of that ancient village took no interest in them. This one was surrounded by a fence and the lot fenced in a school-house, and under the shade of that immense tree was a playground for over 100 children. The owner of the tree told me it never failed to bear, nor had he ever seen any blight on the tree. Its annual crop was about 50 bushels of pears. They were generally beaten off the tree by men with a club, while others held a tarpaulin under the limbs and caught the pears. They were shipped and sold in the Detroit market for about \$1 per bushel. There were many other of those large pear trees there, but no other so large as this.

THE LINDLEY GRAPE.

I have before me a slip cut from Green's Fruit Grower, speaking in the highest terms of this fruit, giving not only the writer's opinion, but quoting in its praise from several prominent vintners and pomologists to the effect that it is one of the best, if not *the* best, of Rogers's hybrids. As to the quality of the grape when you get it fairly in your hand, I can speak only in its praise; but I have six other varieties of Rogers's, any one of which I prefer to the Lindley, not so much on account of flavor or hardiness, in both of which the Salem excels it, but any one of the six has been with me more productive and of more

agreeable habit of growth of vine and fruit. The Lindley is long-jointed, with stems very long and large, and bunches long and loose. The canes want all the room you can give them, and do not branch much or turn out much fruit. In the amount of fruit, the Merrimac, Wilder, and Aminia excell it among the blacks, and Massasoit, Requa, Salem, and No. 5 among the reds, and, furthermore, as to flavor, I have more than once placed samples of these eight varieties of Rogers's before a family of old and young persons, and in all cases the Salem got the most votes, and generally the Requa the next highest number. Still there is little difference in quality or beauty between the Massasoit, Requa, and Lindley; either of them brings me in our home market more than three times the price of the Concord, and there being but few of these large red grapes in our market, the only question is who shall have them.—*S. B. Peck, Muskegon, Mich.*

THE IONA GRAPE.

Probably no grape was ever disseminated with more *éclat* than this, nor has any one with the history of which I have been conversant created more disappointment. Some of the reasons for this disappointment I shall attempt herein to give—and, first, the claims set up for it were extravagant, as well as the prices asked for it. It was never well adapted to general field culture, being too tender and too uncertain about bearing. It only bears fair crops in special local climates, special soils, and under special treatment. It partakes too much of the fitfulness of its immediate progenitor, the Diana, and does not possess the hardiness of its grandparent, the Catawba. It is true that occasionally under ordinary treatment it will bear a tremendous crop, but then it will be sure not to ripen perfectly. This shortcoming it takes honestly from the Diana. The advice an experimenter gave to his neighbor was appropriate: "If you are not a good nurse you had better let it alone." When all things are right with it, it will yield a fruit in no way inferior to the claims set up for it by its originator and his coadjutors, and any man who does not admire its appearance and its flavor, may be set down as possessing no taste for beauty, or as having a depraved palate.

The causes of failure have generally been from expecting too much; sometimes from giving it too strong a soil, too much manure, not protecting it in winter, and allowing it to bear too much fruit. On all these points it is very sensitive. I speak from the standpoint of the Michigan fruit belt, the eastern shore of Lake Michigan, in the latitude of Milwaukee, and where the Catawba never ripens, the Isabella and Diana seldom, but where the Delaware, Concord, Clinton, some of Rogers's, and Eumelan prosper—soil a lightish sand, but evidently abounding in potash and lime. I should advise to prune early in the fall, lay the vines down as flat as possible, lay a light covering of brush over them (I use branches of asparagus), and lay pieces of wood as weights to keep all in their places. I do not believe in covering with earth. The two past winters mine have been left on the trellis. In the fall of 1880 I had a big crop, but they were not well colored. The crop of 1881 was small; many of the canes were killed down, but the few I had were perfect, so much so that on the twelfth of September I sent a sample, with samples of nine other kinds, to the meeting of the American Pomological Society, at Boston, which exhibition is said to have done high credit to our State.—*S. B. Peck, Muskegon, Mich.*

SALEM GRAPE.

Emil Baur, corresponding secretary of the Washtenaw County Pomological Society, as the result of his experience, speaks very highly of the Salem. In a letter he says: "I find no grape of better keeping qualities and of finer flavor than the Salem, on account of its thick skin and sugary contents. It does not color the lips and the vines are immense bearers if given the proper protection in winter. Unless in a very exceptional location it must be covered in winter."

THE SALEM GRAPE AND ITS NUMBERS.

Very often in pomological gatherings discussions arise in connection with the numbering of some of Mr. Rogers's hybrids. Mr. George W. Campbell, secretary of the Ohio Horticultural Society, settles this matter for the Salem. He says: "The Salem grape was first sent out by Mr. Rogers as No. 22, and I received it from him so labeled; but afterwards, for some reason unknown to me, he changed the number to 53, and subsequently gave it the name of Salem. So Rogers' Hybrid 22, 53 and Salem all represent the same variety."

WINDSOR CHIEF VS. CHAMPION.

The Windsor Chief is a Michigan berry and numbers of growers believe it identical with the Champion, but so prominent a grower as A. M. Purdy takes the opposite view. He remarks:

How any experienced strawberry grower can pronounce these sorts the same is beyond our comprehension. We have them growing side by side on same soil, and we venture nothing in saying that the first named, with us, bears on an average four large berries to the last named one; that the first averages much larger and yields by far the heaviest crop. In fact, in our thirty years' experience we have not grown a variety (and we have grown at least 200 sorts) that will yield such a large crop of uniform large strawberries the season through as the Windsor Chief. The Crescents are earlier and will yield as many in bulk, but they do not run as large and are not such a beautiful sort. Quite a number of parties in New Jersey and near New York City have been sending out the Champion for the Windsor, and therefore hundreds of growers will not have the genuine Windsor Chief. Other growers who had the Champion by the scores of thousands, reading that Mr. So-and-so and Mr. So-and-so pronounced them the same as Windsor Chief, have sent them out broadcast as Windsor, and hence the country is full of Champions for Windsor, and many that have bought Windsor as they suppose, have the Champion. The Windsor plant is the rankest grower, has the darkest foliage, and the berry has certain characteristics of its parent plants (the Charles Downing and Champion) to show that it is a cross of the two. It is very similar in shape to the Charles Downing, having the same bright scarlet gloss and even, uniform shape.

ORIGIN OF BIDWELL STRAWBERRY.

Mr. B. Hathaway, long known in Michigan as a nurseryman and orchardist, has been for many years engaged in the process of raising strawberries from the seed. Among the many novelties produced, a few only have been thought worthy of names, and among these we may mention Pomona and Michigan, the latter having been for a time somewhat noted.

Still more recently a number of seedlings were originated, by crossing a pistillate seedling of his from the old Virginia Scarlet with pollen from some of our more modern varieties. While these were in fruit (as I understand for the first time) they attracted the attention of Mr. Bidwell, then of this place (South Haven), who purchased one plant each, of ten varieties, Mr. Hathaway reserving the right to retain plants for his own use. One of these was the variety in question.

Mr. Bidwell transferred the purchased plants to this place, where they were allowed to pass as his own originations. This variety was exhibited by him at the June meeting of the Michigan State Pomological Society, held at this place in 1877, and was by him named "Centennial."

One of the examining committee on that occasion, who had received plants from Mr. Hathaway for trial, recognized this as one of them, and so stated to the Society. But the matter was not followed up at the time, and the variety was locally disseminated under that name.

The South Haven Pomological Society subsequently, under the apprehension that Mr. B. was the actual originator, re-christened it "Bidwell," to avoid complication with an earlier origination so named.

It was only after the variety began to attract attention abroad that upon the appeal of Mr. Charles Downing and E. P. Roe, I applied to Mr. Hathaway and received from him the history of its origin and transfer to Mr. B., as above stated.—*T. T. Lyon in Gardeners' Monthly.*

 THE MANCHESTER.

It is the New York Times that speaks in glowing terms of a new strawberry this time, and Manchester is the name. We quote as follows:

"The Manchester is a new seedling accidentally produced by a Mr. Batty of Manchester, New Jersey. This berry is said by some good judges to be really extraordinary. It is growing upon almost pure sand and produces abundantly large, handsome, conical, scarlet berries, red-fleshed, firm, juicy, and of a sprightly and rich flavor. The keeping qualities are also highly spoken of. The varieties of this fruit that will do well upon sandy soil are few in number, and a good, well-flavored berry, firm enough to ship and keep for three days, and of attractive appearance, as well as good enough for private gardens and farms, and that will succeed upon light, dry soils, will soon become a very popular one. For a berry that will do well upon almost pure sand and with but poor cultivation will be something remarkable on better soils and with good treatment. And this is what is claimed for the Manchester."

THE GREGG RASPBERRY.

In 1875, President Ohmer first saw the Gregg, at Indianapolis, Indiana. He was so favorably impressed he at once journeyed to Amara, Indiana, where Mr. J. H. Gregg, the originator, lived. The Gregg Brothers were lawyers. He was informed at the office that J. H. Gregg was at the farm, seven miles away, and that a terribly rough and hilly road led to it. Nothing daunted, he set forth and after much hardship reached the Gregg farm, and was soon trotted out to see the original patch of Greggs, then ten years old, which would make it sixteen years since it was discovered growing wild; showing how long it takes for a new variety of peculiar valuable characteristics to become well known. The visitor must have been sadly shocked when his eye fell on the renowned Gregg plantation, for I am advised that at the time of his visit the weeds were standing in it higher than a man's head and so thick that the plants could scarcely be found, and no cultivator had moved therein for years, but he chooses to be silent on that point. The wild ravine in which the original raspberry was planted by some wandering bird was shown. From this beginning all the Gregg raspberries that now delight the fruit growers of the continent sprang. Charles Downing says the Gregg is one of the largest, if not the largest of the blackcap family, hardy, strong, and branching, flesh firm, ripening evenly, making the picking season short. We have grown it for years, have many acres planted and do not hesitate to pronounce it the largest of all blackcaps and the most productive, excepting only the Tyler, which ripens nearly three weeks earlier. The Gregg ripens all its berries in so short a space of time, and is so firm, they may be left on the bushes until nearly all may be gathered at one picking, which is a fact of the greatest importance.—*Green's Fruit Grower.*

THE CUTHBERT AT PORT HURON.

The Cuthbert raspberry is recommended for its hardiness. About Ann Arbor it has been raised for a number of years with no drawbacks on account of tenderness; and now comes the following communication from I. H. Butterfield of Port Huron.—*Secretary Garfield:*

It may be of interest to state that the Cuthbert raspberry canes near here and two miles from the lake kept green to the tips through last winter. Lowest temperature 14° below zero.—*I. H. B.*

THE TURNER RASPBERRY.

I will give you some facts from a ten years' experience in growing the Turner for market. It has been grown here for about that time, and by a large number of producers, most of the crop each year being marketed in Chicago, 325 miles distant by rail. The quantity shipped has amounted some days to 25,000 boxes (pints); and that the planting constantly increased for years, is good evidence that this berry bears transportation well enough to sell at remunerative prices.

There are many instances of much longer transportation. I have myself repeatedly sent it to New Orleans, 600 miles, and to St. Paul, 800 miles, and

into the State of New York, a still greater distance; and I may add that my experience in having it delivered in marketable condition to these distant points has been uniformly good. To accomplish this result, the berries must be picked daily, and while they are yet a light red and quite firm, and be handled in very shallow packages. If the Turner is allowed to hang long enough to get very mellow and sweet, it will certainly become too soft for long or even short conveyance. In fact, any raspberry must be a hard, dry, and worthless affair that will bear any considerable handling or transportation after it has become fully ripe.

The Turner is thought by many to surpass all other raspberries in excellence of flavor. I have myself tasted nothing equal to it for sweetness. It is among raspberries what the Seckel and Dana's Hovey are among pears. Its merits as a plant are greater than any other before the public, everything considered. It is "iron clad" as to cold. It is an exceedingly robust grower, and, what is of great convenience in cultivation, pruning, and harvesting, its canes are perfectly smooth. It bears freely and reliably, but I think not such enormous crops as some others. It appears to succeed in all climates, and in all soils that are moderately rich. It bears neglect, but responds generously to liberal culture.

In conclusion, let me say that I am not a nurseryman, and grow no plants of any kind for sale.—*Parker Earle in Country Gentleman.*

SMALL FRUITS.

PROFIT IN SMALL FRUITS.

There is a constant cry of danger that we are overdoing small fruit culture. Parker Earle, president of the Mississippi Valley Horticultural Society, comments upon this matter in the *Farmer and Fruit Grower*. He thinks there is promise of future profits under conditions which he names. He says:

The first condition of success we would name is that any party going into small fruit culture, or any other branch of the fruit business, must make that particular thing his leading business. He must become a specialist. He must become a constant student of all the surroundings and contingencies of his business. He must understand the conditions of its healthful growth, and be prepared to overcome the many difficulties which will beset him. We do not believe that any man who is doing a half-dozen other things of equal or superior importance will be likely to find much money in small fruit growing. His other duties will claim his attention at some critical time, and great losses will occur. It is coming to be better understood among agriculturists what sagacious business men have already understood, that the greatest achievements are made by the specialists in whatever line of work. The great stockmen of this country are stockmen. They give all their energy to the stock business. They master its obstacles and then are alert to embrace its opportunities. It is so

with the grain growers. It is so with the orchardists who accomplish much good. And we think there is still a chance for the small fruit grower who will take hold of the business with good judgment and with all his energy.

Another very important condition of success in this culture is that all small fruits must be grown very near the shipping station for the intended market. We think sufficient consideration has not been given to this point in our section of country, particularly in the growing of strawberries and raspberries. In our county, for instance, farmers have been planting these berries who live eight or ten or even a dozen miles from their shipping station. There can be nothing but loss on the average in such an operation. No variety of berry was ever grown that is firm enough if reasonably well ripened, to bear a jolting ride of ten miles over our notoriously rough roads and be in fit condition for a long railroad carriage. Even with the easiest spring wagons this would be too much; and with the fruit carried in the common farm wagon with no springs save a little straw in the bottom, the condition of its arrival must of necessity be bad. We have all seen the dripping and gory looking berry cases unloaded at our stations and loaded on top of our own sound fruit to its certain damage. These distant growers make no money themselves in this way and hinder growers who take every possible pains with their fruit from making as much as they deserve.

We decidedly advise that no small fruits be planted more than a half-hour's drive from the shipping point. Within such a distance and with easy wagons and good roads the fruit can be picked on the day of its shipment and be put on board the cars in fresh and sound condition. Good berries, well grown, well handled, kept perfectly clean, and marketed in this prompt way, ought to, and generally will, pay a fair profit. There is not too much good, high-grade fruit grown of any kind. There is not enough of such for the constant demand. But there certainly is a surplus of the poor article.

ABRIDGED HISTORY OF THE STRAWBERRY.

A few years ago, in one of our volumes, we gave a legend purporting to give the origin of the strawberry, which was quoted very largely. We now take pleasure in placing in our Portfolio, from the able pen of Rev. Charles Arnold, of Ontario, Canada, an abridged history of this fruit for above 400 years:

Shakspeare informs us that the Bishop of Ely's garden in Holborn was distinguished for the excellent strawberries it produced, even as far back as the reign of Richard the Third (1483). And judging from the remarks of an old writer in 1578, it would appear that the only strawberries known at that time were the Wood strawberry, and, perhaps, the White Alpine. He says: "Strawberries grow in shadowy woods and deep trenches, and banks by highway sides. They be also much planted in gardens. The fruit is green at first, but red when it is ripe. Sometimes also you shall find them very white when they be ripe; in taste and *savour* very pleasant." Another old writer in 1597 speaks of the "Red and White Wood, and the Green Fruited; the two last not to be found save only in gardens." Johnson, in his edition of the work containing the last statement, published in 1663, does not mention any other variety. Another writer in 1656 mentions the Virginia Scarlet (or Canada) and the Bohemian. This last variety is supposed to be the Hautbois,

and he says, "This variety hath been with us but of late days, and is the goodliest and the greatest."

It would seem that up to this time no attempts had been made to grow new varieties from seed or from crossing the different kinds. And no mention is made up to this period, so far as I have been able to read, of strawberries being imperfect in their flowers, except when attempts were made to grow them under glass. Then some gardeners used to complain bitterly of their strawberries "running blind," as they called it.

The first improvement made by growing strawberries from seed was about the year 1660, a variety called at first the Clapperon, and grown by a person by the name of Fressant, a Frenchman. This variety was obtained from the seed of the Wood strawberry.

But little attention seems to have been paid to growing improved varieties by hybridizing until the time of Andrew Knight, about the beginning of the present century. In order to show what confused ideas occupied some men's minds with regard to strawberry blossoms, and to show also what progress has been made in the last forty years in growing new varieties with perfect flowers from hybridized seed, I will give a quotation from the English Gardeners' Chronicle of 1843. The writer says: "We have observed in almost every variety of strawberry that we have seen in cultivation, that some of its plants occur occasionally bearing all male blossoms, and others none but female blossoms." "By far the greater number of plants in each variety have separate male and female flowers on the same plant." I will simply remark, with regard to the last quotation, that no such imperfect flowering strawberries have ever been grown by any Canadian in my time, and I question very much if any person has ever seen in America perfect female and male flowers growing separately on the same plant. But it may be just as well to remark that very few if any strawberries of English origin have ever proved perfect or satisfactory in their flowers in this country, and not until 1834, when Hovey of Boston, Massachusetts, introduced his seedling, was any real progress made in growing strawberry seedlings in America. Even this was a pistillate variety, and was very apt to be barren, or bear very imperfect fruit, unless some staminate variety was grown near by. But with a portion of the bed being planted with our wild strawberries, Hovey's seedling would produce a very fine crop of large and delicious fruit.

The great improvement of the Hovey over all others of its day caused many intelligent persons to grow seedling strawberries, with a view to getting hermaphrodite varieties (that is, strawberries bearing flowers with stamens and pistils in each flower, instead of in separate flowers), and thus prevent barrenness. It will no doubt sound strange to many readers to be told that in this year 1881 there are such things in Canada as barren strawberry beds; and yet there are a great many of these barren beds in every county in Ontario I have no doubt. The only cause of this barrenness that I know of is the imperfection of the flowers, that is, purely staminate or purely pistillate flowers.

In every old strawberry bed there will be sure to be a number of seedlings spring up, and it often happens that many of these plants bear such imperfect flowers as never to bear fruit of any kind; yet they are very prolific in runners, and these runners are frequently the largest and healthiest plants in the bed. Now it will easily be seen that to plant a new bed from runners grown in such a bed as this will be at the risk of having a barren strawberry bed. Although such plants from an old bed can frequently be got from some kind neighbor for

nothing, they may in the end prove very expensive plants, and the persons using them will be very apt to amuse themselves practicing false economy.

To attempt to enumerate all the varieties of strawberries that have been originated, named, and thought worthy of cultivation in Europe and America since the introduction of Hovey's seedling, to say nothing of the tens of thousands that have been raised and rejected after a year or two as unworthy of even a name, would fill a volume. Downing alone, in his late edition of "Fruit and Fruit Trees of America," describes some four hundred varieties. As the names of all the leading varieties in cultivation at the present day can be found in most nurserymen's catalogues, I will not name them, but will merely remark that strawberries, like many other of our best cultivated fruits, seem to arrive at a certain degree of perfection, health, vigor, and productiveness, and then to degenerate to such a degree as to become comparatively worthless in a few years; therefore a constant renewing by cross-bred seedlings seems necessary to keep up the health, vigor and fruitfulness of the species.

The progress that has been made in productiveness the last three hundred years is very difficult to ascertain, but the difference in the size of the fruit and value of the seed is very remarkable. In 1593 Thomas Hyll writes: "Strawberries be much eaten at all men's tables in the summer with wine and sugar, and they will grow in gardens until the bigness of a mulberry." The English mulberry is about three-quarters of an inch in diameter, and some of our newest and best varieties of strawberries will grow from one inch and a half to two inches and a half in diameter. There can be no doubt therefore, that we have made great improvement in the size of the fruit in three hundred years.

But if, as an old writer says in 1578, strawberries were "in savour (or fragrance) very pleasant," and we should judge alone from the fragrance of that very popular variety of late years, the Wilson's Albany, most persons would incline to the belief that we had retrograded on this point. We are thankful, however, that many of the newer varieties have a delicious fragrance as well as taste.

In regard to seed, the Alpine strawberry is said to have been introduced into France and England about the year 1764, and Mr. Duchesne, writing in 1766, says: "The King of England was understood to have received the first seed from Turin." It was such a rarity that a pinch of the seed sold for a guinea.'

RASPBERRY COMPARISON.

Secretary Galusha, of the Illinois Horticultural Society, is a good observer, and grows a large number of varieties of small fruits; hence the following note from his experience, at least for his locality, is valuable. In Michigan the probability is that most growers would mark the Cuthbert higher on the other points than quality. He says:

I have been myself daily picking among the following named red raspberries during the last week, comparing points, which count in estimating the value of varieties, and hand you herewith, in a tabulated form, the results. My land is a sandy loam, and that occupied by the raspberries is about uniform in quality, about right to produce forty bushels of dent corn per acre:

In this scale of points I give ten, not as perfection, but as the highest yet reached by any variety; as, for, instance, Thwack is the hardiest, Reliance

most productive, while Turner is generally conceded a standard in respect to flavor of the berry:

NAME OF BERRY.	Hardness.	Productiveness.	Firmness of fruit.	Size of fruit.	Attractiveness in boxes (color).	Quality.	Total.
Thwack.....	10	8	10	8	10	8	54
Reliance.....	9	10	9	10	8	8	54
Turner.....	8	8	8	8	9	10	51
Cuthbert, or "Queen of the Market".....	8	9	7	9	7	8	48
Winant.....	9	9	8	8	9	9	52

There are some characteristics of the above named varieties not noted in the table which should have an influence in determining upon a selection. The Turner is a few days earlier in ripening than either of the others. It is followed in two or three days by Thwack and Winant, then comes Reliance, and latest the Cuthbert. The Reliance continues in bearing a little longer than any other sort of red raspberries. The crop of Reliance is but two-thirds ripened at this date (July 18), whereas Turners gave their last picking for the season two days since.

All these varieties sprout from the roots plentifully, and the young plants coming up between the rows must be mercilessly destroyed or the "patch" will soon "run to waste."

Of blackcap raspberries the Gregg still takes the lead, though the canes were sadly damaged last winter,—a rare exception to its hitherto uniform hardness.

RASPBERRY TRAINING.

The Farmer and Fruit Grower says: "We have a splendid piece of black raspberries,—the Mammoth Cluster. We nipped the canes off last summer when only two feet high, and kept nipping off the branches and tops until they had the forms of little trees. They went through the hard winter finely, were not killed, and now are one mass of green, and all of blossoms. Some of our neighbors' raspberry canes are all killed to the ground, whole fields of them. They were left to grow away up tall, without pinching, and the cold weather finished them. It is best to prune or pinch in summer. We believe in pinching and plenty of it. It saves staking and tying and makes lots of fruit. We stake no raspberries and they stand up straight as oaks."

STRAWBERRY METHODS.

In a discussion at an Illinois Horticultural meeting Parker Earle, in answer to questions, said he cultivates the matted row system for which Capt. Jack and Charles Downing do well; has tried some hill culture for which Triumph and Wilson succeed; costs him \$50 per acre cultivation. In picking puts a foreman to about thirty hands; used to assort and face up berries after pick-

ing; now makes the pickers do their work well, for which he pays two cents a quart; uses the 24-quart case, with shallow quart boxes; shipping to distant markets has the berries picked before fully ripe—in fact partly colored only—for which Cumberland Triumph and Wilson are well adapted; has found that strawberries may be successfully shipped in refrigerator cars; thinks the defect of too much moisture might be remedied. In managing the pickers uses checks; has picking cases holding six quarts for each. Mulches always, uses straw mostly and between the rows only, thus saving the labor of uncovering in the spring; recommends sorghum bagasse as the best mulching material.

ORNAMENTAL AS WELL AS USEFUL.

Charles A. Green says: Bore 50 holes in a barrel with an inch augur, and sink the bottom of the barrel an inch or two in the ground. Fill the barrel with rich loam to the level of the first row of holes, then insert the strawberry plants in the holes bored, taking care that the roots are well secured. The row completed, fill up the barrel to the second row of holes and set out another row of plants, and so on till the barrel is full. For watering and fertilizing set into the top of the barrel an old tin can with a perforated bottom, filling the can with proper fertilizers. The barrel of plants can be kept irrigated by water enriched by passage through the can, or good results can be obtained by irrigating with soapy wash water without fertilizers. Fifty well nourished plants will furnish a family with many messes of berries, and three or four barrels covered with plants would be equal to a good sized strawberry bed. The plants should be set out in the fall and might be covered for protection during the winter.

THE VALUE OF HUCKLEBERRY SWAMPS.

People in this State seem to have everywhere regarded a huckleberry marsh as of no value. It was a good place to resort to in the season of picking, to procure the berries, but no one would have thought of such a swamp as possessing a money value, or as land over which any person could exercise exclusive proprietorship. Such places have always, in Michigan, been considered in popular estimation as public property, free to everybody, and no one would think of buying such a piece of land, or of estimating it as having a saleable value, unless it could be drained of water and cleared of the worthless huckleberry brush. They never stopped to consider how much greater revenue the land would afford in its native State with its annual yield of berries than could be derived from the best cleared lands in the neighborhood. A notable instance of this occurs in this county. A few years ago a Mr. Ringolds exchanged his farm of forty acres near this place for one of eighty acres northwest of Lawrence, receiving several hundred dollars to boot in the trade. The eighty-acre farm is well located, in a good neighborhood, and is good land, but unfortunately (?) it contains a huckleberry marsh of ten or fifteen acres that never failed to afford yearly a crop of fruit. Many people thought the farm would be a very good one were it not for this unsightly, worthless swamp—so much waste

land. Yet it was known that former owners had sometimes realized a few hundred dollars in a year from the sale of what portion of the berry crop they were able to secure. Nevertheless it was estimated somehow as so much waste land, and the farm was for this reason held to be greatly less valuable than the surrounding farms. Mr. Ringold, after a year's experience, learned enough to satisfy him that there was money in these berries, and instead of endeavoring to drain the swamp and reclaim it, as it is called, it were better to preserve it as it was, and put forth his efforts to exclude intruders and secure the crop to himself.

For several years he waged warfare on interlopers. Persons had been accustomed to go there year after year and pick the berries, and greatly rebelled against Ringold's efforts to prevent them from continuing to do so. But determined persistence on the part of the owner finally taught these depredators to forbear their trespassing, and the proprietor began to reap the full returns from his worthless swamp, enabling him to realize in 1880 the neat little sum of \$700, and in 1881, owing to a smaller yield of fruit, a sum slightly less in amount, but still sufficiently great to exceed in value the aggregate worth of all the other crops of his farm. And this from a swamp of ten or fifteen acres—a portion of his farm that everybody persisted in declaring to be a great drawback to it, one that detracted much from its saleable value and enabled him to secure so advantageous a trade at the time he became the possessor of it.

In point of fact it is worth more than all the rest of his farm, and will probably yield for an indefinite period its annual harvest of delicious, healthful fruit, requiring for its production no other care than the prevention of fire and no other labor than the pleasant one of gathering the fruit.

There were great numbers of such places in our State,—swamps, small and large, which originally yielded enormous quantities of huckleberries or cranberries. Many of these the short-sighted owners, ignoring their value in their native State, have labored to convert or reclaim into arable land. In some instances really good land has been the result, but generally there has been just enough done to produce a sort of a negative result,—enough to destroy the berries, but not enough to create good land in its stead,—and in few instances has the land been made into a condition to yield anything like as valuable crops as the fruit which it afforded when taken from the hands of nature.

Why should a cranberry marsh or a huckleberry swamp be considered worthless, and a strawberry plantation or a vineyard be esteemed valuable simply because one is found in a state of nature, and the other results largely from the skill and energy of man, and yet both may be made equally profitable.

C. D. LAWTON.

Lawton, Van Buren Co., Michigan.

FRUIT GROWING A SMALL BUSINESS.

A farmer not more than ten miles from our grounds turns up his nose at "fruit growing," and says "it's small business," and "hard on horses and wagons." Let us see about this "small business." We have about the same amount of land that this farmer possesses. He employs on an average through the entire year one unmarried man and one girl, thus giving means for support to two persons besides his own family. We employ on an average twelve men,

heads of families, and as many more single men and women, most for eight months, in fact, the average number that we give employment to, including pickers, from April 1st to December 1st, is thirty-five to forty persons, thus giving means for support to at least seventy-five to one hundred persons besides our own family. He pays to help say \$400 per year. We pay at least \$6,000 per year. He sells from his farm, say \$1,500 to \$1,800 yearly, gross. We, \$15,000 to \$18,000 (which includes our plant trade). He plows, harrows, sows, reaps, draws into the barn, threshes, cleans, and draws to market the product of an acre, say an average of fifteen bushels of wheat, for which he obtains gross, say \$20. We plow, harvest, plant, cultivate, hoe, gather and market from an acre an average of fifty bushels of fruit, for which we obtain gross, say \$150, saying nothing of the plants sold from the same. He and his help work from five o'clock in the morning till dark; our help work from 7 A. M., to 6 P. M. He tugs, lifts, and sweats. We don't. "Small business," isn't it, reader?—*A. M. Purdy, Palmyra, New York.*

PROFITS—REAL AND PROSPECTIVE.

GROWING APPLES FOR THE NORTHWEST.

The following letter from Samuel L. Fuller of Grand Rapids is full of meaning to Michigan orchardists who complain that there is a dark future for fruit growers in our State:

Secretary Garfield:

MY DEAR SIR.—I have traveled during the past summer over the "New Northwest," so far as passing north from Grand Rapids to Mackinaw and Sault Ste. Marie, west to Duluth via the iron and copper mines; thence farther west to and up the Yellowstone, returning to Fargo and thence north to Winnipeg, and west in Manitoba to Post on La Prairie, and from Winnipeg south to St. Paul and Milwaukee and home.

After leaving the southern peninsula of Michigan there is no evidence that either apples, peaches, or pears can be grown, if you except the crab apple. There is talk of the ironclad apples that are to be the apples of the future,—yet to be produced, or imported from the cold regions of Russia or other parts of the eastern continent. I traveled with an intelligent nurseryman who was selling trees; he only recommended crabs for apples. In addition to the crab apple trees he was selling bushes and vines of small fruits. I met others who spoke confidently of what they were to grow, and who were investing in different kinds of trees, including our usual varieties. I found that the real knowledge of such persons was what the tree peddler had told them, and I found that the peddler had told them what they wanted to hear. One man in particular expected to get fruit from his Northern Spy trees in three years from the setting out.

After satisfying myself from a cross-examination of those with whom I chanced to meet that if any apples save the crabs could be raised, it was yet to be proved, I requested a friend at Red Wing, a few miles south of St. Paul on the Mississippi River to introduce me to some man familiar with fruit growing upon whose statement I could rely. He kindly took me to Judge Wilder, a gentleman whose former residence was Painesville, Ohio, and who while residing in Red Wing and only occupying a city lot had given time and attention to the raising of fruit as his grounds plainly showed. He invited me to his house and showed me his grounds. He had several different varieties of grapes in bearing and the fruit was very fine. The small vineyard showed the most careful training. The fruit was all close to the ground on the horizontal branches, the main stalk of each vine being about three inches high, and the main branches trained horizontally from that to facilitate the covering in winter. The vines were several years old and received the best of care. The "interview" in regard to apples was very like this: "Judge Wilder, I have sought an introduction for the purpose of getting some reliable information in regard to growing apples in the Northwest, and particularly in Minnesota."

"Well, sir, I know about Minnesota and the raising of fruit in this State, and it is a total failure."

The Judge was so emphatic in his declaration and seemed to cut off all argument so squarely I thought to temper matters somewhat by saying: "Judge, I meet in my travels men who say that they can raise the Ben Davis and certain other kinds of hardy apples successfully."

"Well, sir, if to raise apples two or three years, five at the outside, and then have the tree die is raising apples, then they can. That, to my mind, does not mean raising apples; the truth is that in from two to five years the trees will crack from the the limbs to the root, the bark will roll away and the tree die. Sometimes there will be one crack and sometimes three—the trees die."

I told the Judge that I desired to tell the Horticultural Society of Michigan what he said, and to this he consented.

In Oconomowoc, in Wisconsin, I met a friend, Dr. L. W. Weeks, one of the pioneers of that country, who I knew had set out one of the first apple orchards in Milwaukee and who had given attention to the cultivation of fruit. I recited the conversation with Judge Wilder and he said: "You may say about the same thing of Wisconsin; raising fruit is not a success." I am more particular in giving my authority because I know it is reliable, and I found that the information I gathered from parties interested was so universally shaded for the benefit of their State that it was quite a new sensation to meet a few men whose statements were strictly true.

All this to show that there is an immense territory west and northwest of us to be supplied with fruit. I wish to impress upon the people of Michigan that there is a market for good fruit at their doors; that the cry, "apples are worth nothing," and "apples are not worth gathering," and all this depreciation of the fruit business is from "want of thought." While our farmers are talking disparagingly of their fruit interests they ought to know that in the fruit region of New York State, through Niagara, Monroe and adjoining counties, nothing is more apparent than the increase of apple and pear orchards. They have learned that it is easier to gather a dollar's worth of apples than to raise a dollar's worth of wheat. The net profit on apples at 25 cents per bushel is greater than on wheat at a dollar per bushel. Here we are in a natural fruit country. West and northwest is a natural wheat

and grain country. I do not say we cannot raise wheat, but I do say we cannot compete successfully with the "New Northwest." In the growth of fruit where are our competitors? You will find them by studying the isothermal lines of the country, and you will find that the growth of "Michigan apples" is confined to Michigan.

I would have those who are raising apples know that the value of their crop depends on the gathering and shipping. I would have them know that apples bruised have lost much of their value. One might as well ship wet wheat as bruised apples. I would have them know that apples can be kept till they mature; that farmers have facilities for wintering apples as well as stock; that apples can be saved by utilizing those of the second and third qualities by drying or making into cider or jelly, or feeding to stock. I would have them know that it is no evidence of brains to gather apples carefully and then take them to market by putting them into a flour bag, shoulder the bag and throw them into the lumber wagon and use them for a seat upon which to ride to town. I would have them know that for sound apples there is a market growing up in this new Northwest that not only warrants the gathering of the fruit from the present orchards, but justifies the caring for their orchards with reference to their profits and the setting out of more trees. These remarks apply to the peach and pear as well as to the apple.

In regard to plums I am not sure what I learned in regard to them. My impression is they are more hardy and withstand the colder climate better. But one need not look abroad for a plum market so long as not one person in a hundred will fight the curculio to save his fruit. The good God seems to have given us the fruit, let us pray for the brains necessary to utilize it.

Upon this same topic we take the following from the Indiana Farmer:

If any one will take the trouble to look into the facts about the comparative price of the different kinds of fruit grown in this country, they will see how foolish is the idea that the country is in danger of being overstocked. The price of apples, peaches, pears, strawberries, grapes, etc., is on the increase and for forty years, dividing that time into four periods of ten years each, statistics show that on an average the price of fruit has constantly increased. In strawberries and other small fruits this has been very marked. Production has grown rapidly in that time, but prices have constantly advanced. Occasionally we have a year of great abundance of apples, and prices are low. But farmers generally do not seem to have realized yet that the surplus in apples may be very profitably utilized in fattening both hogs and cattle. The best of meat may be made with a little corn and plenty of apple food. In older countries it is well known that this kind of feed cooked and mixed with ground grain is very healthful for all kinds of stock, and it is doubted that hogs would have the disease known as cholera if fed this kind of ration frequently. So we see that in years of abundance the surplus fruit, when the price is low, may be profitably fed to stock, and thus we may realize a good price for it. There is no danger of planting too many orchards, or of getting too much fruit.

APPLES AND HEALTH.

From the earliest ages apples have been in use for the table as a dessert. The historian Pliny tells us that the Romans cultivated twenty-two varieties of

the apple. In these later days we probably possess over two thousand. As an article of food they rank with the potato, and on account of the variety of ways in which they may be served, they are far preferable to the taste of many persons; and if families would only substitute ripe, luscious apples for pies, cakes, candies, and preserved fruits, there would be much less sickness among the children, and the saving in this one item alone would purchase many barrels of apples. They have an excellent effect upon the whole physical system, feeding the brain as well as adding to the flesh, and keeping the blood pure; also preventing constipation and correcting a tendency to acidity, which produces rheumatism and neuralgia. They will cool off the feverish condition of the system; in fact, they are far better for these purposes than the many nostrums which are so highly praised in the advertisements, and so constantly purchased by sufferers. A ripe, raw apple is entirely digested in an hour and a half, while a boiled potato takes twice that time—*Rural World*.

FLOWER GARDEN.

SEEDS BEST SOWN IN THE AUTUMN.

Most people have observed, no doubt, that self-sown seeds, that is seeds that have dropped from the growing plants of the previous season, sometimes produce the strongest and most healthy plants that bloom the most freely. This is true of several kinds, and particularly those that suffer under exposure to our midsummer suns. The reason is, that self-sown seeds get a very healthy growth in the spring, vegetating as soon as frost is gone, and are good-sized plants by the time we usually put seeds in the ground, even if they do not start in the fall. They thus mature and flower during the cool weather of spring. The clarkias and nemophilas and annual larkspurs are noted examples. There are several varieties of hardy annuals that do well with spring sowing that will bear autumn sowing in the open ground, and reward us with early spring flowers. Sweet alyssum and white candytuft will give us abundance of white for early cutting, if sown in the autumn. In a sandy soil the portulaca may be sown in autumn with good success. Seeds of biennials and perennials, if sown early enough to produce strong little plants will flower the next summer; pansies and Chinese pinks, though they bloom the first summer if sown in the spring, will make much stronger plants and flower more freely and earlier if young plants are grown in the autumn.—*Vick's Floral Guide*.

TRAILING ARBUTUS.

Many attempts have been made to introduce that most delicate spring flowering plant, *Epigia repens*, into the garden, but we have not known a single instance where the effort has resulted in much of a success. The difficulty

usually has been that enough attention has not been given to its native conditions. An Englishman, Mr. Nelson, in Westey Garden, has evidently struck the proper method, for a writer, in speaking of his success, says:

In this garden the trailing arbutus is growing with great freedom; and looking as one might imagine it would do in its native habitat. I have used the word culture in connection with this plant, but I should hardly have done so, for the great point appears to be to award it a congenial situation, and then leave it in undisturbed repose. This, at any rate, is what Mr. Wilson has done; he has simply naturalized it in his wild garden, and his success is perfect. The position chosen for it is a damp one, a leafy screen of oak foliage warding off the hot sun, while plenty of light is admitted at this time of the year. The prostrate shoots travel onward, rooting as they go, amongst a carpet of grass, the dead leaves from the oaks being allowed to remain where they fell.

CULTIVATING WATER LILIES.

Miss Ruckman, of St. Joseph county, Indiana, writes the American Agriculturist:

We have a half hogshead in our yard, which is sunk even with the ground. In the bottom is some of the soil taken from the bottom of a little lake where the water lilies grow. We put in several roots of the lily, filled the barrel with water, and then waited results. The next July we noticed seven small buds on the surface of the water; by the 1st of August the surface of the tub was a mass of beauty, the large white lilies being an attraction for the passers-by that could not be resisted. This was three years ago; each year there have been more flowers than in the previous summer. In the fall we throw a little manure into the tank, place some boards over the top, and with this little bit of trouble increase the beauty of our experiment, which has been a success.

PERIWINKLE IN SHADY PLACES.

Last year in our Portfolio attention was called to the English ivy as a plant with which to cover bare places under trees where a turf could not be secured. We note the following item in the Germantown Telegraph, which suggests the periwinkle for same purpose:

Especially in the front yards of dwellings, both in town and country, which are much shaded, we often see the ground completely bare, not a living thing being perceptible. Sometimes there are many nearly nude, staggering limbs lying upon the ground or very near it, which are unsightly and every way worthless, that ought to be cut away. This would give room for the growing there of some plant or vine that would be adapted to it, and which would not only cover the naked spot and make it a "living green," but would be adding very much to the general appearance of the premises. The best vine for this purpose is undoubtedly the periwinkle. It will grow almost anywhere in the shade if the proper attention is given to it, but not otherwise. It is a beautiful vine and will densely cover the ground, producing nearly the whole season a very pretty blue flower. Weeds, however, are its deadly enemies.

HOUSE PLANTS.

FLOWERS IN FARM HOUSES.

It is simply a low, vulgar taste, or relic of barbarism that excludes the flower garden from too many country homes, and we are further compelled to say that in a majority of instances it is the men of the family, and not the women, who are the barbarians. Go where we will in the United States, the flower pot in the window, the vine over the door or porch, the little bed of sweet williams or humble verbena in the front yard are almost infallible signs that there is a woman about, with taste and love for the beautiful in nature; and, although circumstances may not be favorable for developing her ideas in such matters, still the taste and desire are there, and she is a better woman for entertaining them.—*New York Sun*.

A NEW WAY TO DECORATE WINDOWS.

The following is from the correspondence of an English journal:

“Some years ago, as I was passing through a room only used occasionally, I perceived an odor of fresh flowers that surprised me, as none were ever kept there; but, being in haste, it soon passed from my mind. Not long after, being in the room, I noticed the same perfume again, and this time I proceeded to investigate the matter. On raising the curtain of the east window I found that a branch of Dutch honeysuckle had found its way between the two sashes at one corner while growing in the summer, and had extended itself quite across the window; and on the branch inside were three or four clusters of well developed flowers, with the usual accompaniment of leaves, while on the main bush outside there was not yet a leaf to be seen. The flowers inside were just as beautiful and fragrant as if they had waited until the natural time of blooming. Since then I have tried the experiment purposely, and always with the same result.”

James Vick in commenting upon the above says:

A heavy covering of the ground over the roots of the plants with leaves, and sufficient protection of the stem outside would allow this method to be practiced in quite severe climates. Besides honeysuckles, other woody climbers might be employed, such as the English ivy, clematis, and jasmine. Proper apertures could also be provided for the admission of the plants into the room.

PRIMROSES.

James Vick names the Chinese primrose as one of the two flowering plants that produce the greatest number of flowers in winter, and he gives as the reason why it is not more generally cultivated that it requires several months to bring a plant to perfection from the seed. It should be sown at any time from February until the first of June, and if done at intervals the plants will bloom in succession. The best soil is made of fine loam and half as much leaf-mould,

and enough of sharp sand to make it light and porous, the whole to be thoroughly intermixed. A five or six inch pot may be nearly filled, with coarse drainage at the bottom, and a layer of fine sand at the top. After a fine watering and draining, the seed is sown and covered very thinly with sand. A pane of glass laid on the top will hold the moisture, and the pot should then have light, but not sunshine, and a temperature of about 65°. If needed, water from below. The plants will appear in two weeks, and at the third leaf remove them to other similar pots, covered as before. Avoid wetting the leaves. In a few weeks transplant again, and give air under the pane. The single varieties do best in rooms.

FORCING THE WHITE LILY.

Last January, for the purpose of testing its capacity for flowering in the house, I took from the open ground a few bulbs of *Lilium Candidum*, potted them near a window, where they soon started into vigorous growth. Early in April they unfolded their beautiful flowers, which for many days filled the room with their exquisite fragrance. They appear to be as easily managed in an ordinary room as hyacinths. Roots of lily of the valley, taken last winter from the open ground to the house, also flowered freely.

Bulbs of the white lily may be taken from the open ground in autumn, potted and placed where they are to flower, watered moderately until the flower buds begin to form, when a more liberal supply should be given until they expand. In my estimation, the odor of neither roses, violets, mignonette, nor the wild crab apple can equal the fragrance of the white lily. A favorite odor is often associated with some pleasant memory.—*Granville Cowing*.

THE OLEANDER POISONOUS.

Prof. James Law says the oleander is a dangerous plant to have about the house or yard, and gives the following incident that came under his own observations as a warning to admirers of this plant:

A fine healthy mare ate a single tuft of leaves from a branch of oleander temporarily set by the door, then went on a journey of six miles, appearing playful and well, but on returning refused her feed. Next morning she still refused to eat, and looked dull and haggard, and had partially lost control of her hind limbs. The mare died before assistance could be obtained, and on opening the body the dark, red, congested stomach showed the action of an acrid poison, and inquiry brought out the account of the cropping of the oleander, of the injurious qualities of which the owner was entirely ignorant.

He further remarks that all parts of the plant are poisonous. The flowers have produced death in those who carelessly picked and ate them. The branches divested of their bark and used as skewers have poisoned the meat roasted on them, and killed seven of the twelve people who partook of it. As in the case of other poisonous plants, the danger to animals is greatest when, as at present, vegetation is only just starting, and when the stock are tempted to bite anything green that comes within their reach. Again, there is danger at any season when the live-stock have just come off a weary, dusty journey, hungry, and with the sense of smell largely blunted or temporarily abolished.

THE CELLAR FOR PLANTS.

Many who have no greenhouse, and cannot afford the room in the dwelling for them, would gladly keep certain tender or half-hardy plants through the winter. For such purpose a cellar answers admirably. Indeed, we know of florists who have constructed cellars expressly for keeping plants through the winter. It is not expected, nor is it desirable, that plants in the cellar should grow. They are merely to be kept—put to sleep, as it were, until the return of spring makes it safe to place them out again. Plants in the cellar, while they should never be wet, ought not to get dust-dry, hence they must be looked to occasionally during the winter months.—*Practical Farmer.*

 USE OF FLOWERS.

HOW TO MAKE A BOUQUET.

The Garden, by one of its correspondents, tells how to make an artistic bouquet. Flowers are always more lovely when not in bouquets, but inasmuch as all would not agree with us, the directions there given are inserted in the Portfolio:

Take first a mass of white, it may be a truss of white geranium, a double white stock or a clematis, or for a small bouquet a bunch of the small double pyrethrum; then scarlet, which to an artist means orange, as for instance, a double scarlet geranium, Tom Thumb nasturtium, or any brilliant orange, though that color is not so abundant as it ought to be; put any of these next the white on one side of it. Then take red, a bright rose, and the brighter the red the nearer it should be to the white, so that other duller reds may be beyond it (by red is meant all colors of crimson, but red is the true designation); place these on the other side of the white. Some very dark, almost black, flower, may be also brought near the white, but only a very little of that color, and beyond the scarlet a very little bit of blue, such as that of an Emperor William pansy or a little sprig of lobelia. Beyond the red have purple and yellow brought together, and on the other side picotees, which, although rich in color, are not prominent, though any flowers that have broken colors will do; beyond these again bring in blue in some mass and your taller flowers, as penstemons (the blue kind makes an admirable background) are always to be had, dark-colored fuchsias (some flowers or leaves of a brownish hue should interpose beyond the blue), and the last to introduce should be the maiden-hair fern, which certainly makes at all times a very pretty background. Make this bouquet up in your hand, and avoid too much formality, as the colors will generally arrange themselves with sufficient effect and force, though they may intermix a little. A bouquet has generally one view, in which case it should slope gently upwards, then the white should come near the bottom. If it is to

be seen all round the white should be in the center, with the above arrangement of colors in masses round the white. When your bouquet is large enough tie it round in the middle of the stems, cut them off evenly, and drop it into a vase of water. Two principles may be followed in making up a bouquet—one harmony and contrast of color, the other force of light and shade. Whichever is chosen to begin with, pure white is absolutely necessary; even if only composed of a single white flower, it should be the largest mass of the whole.

COSTLY FLOWERS.

The cut flower business, another phase of horticulture, is perhaps greater in the United States than in any other part of the world. Certainly the use of cut flowers in New York for bouquets, baskets, and other designs, is far greater than in either London or Paris, and the taste shown in their arrangement here is vastly superior. It is estimated that \$3,000,000 were paid for cut flowers in New York in 1880, one third of which was for rose-buds. Immense glass structures are erected in the suburbs for the special purpose of growing cut flowers to supply the bouquet makers of the city. Not less than twenty acres of glass surface is devoted to the purpose of forcing roses alone, during the winter months. At some seasons the prices paid for these forced rosebuds are perfectly astounding. One grower of Madison, New Jersey, took into New York 300 buds of the crimson rose known as "General Jacqueminot," for which he received at wholesale \$300, and which, no doubt, were retailed at \$1.50 to \$2.00 each. A flower dealer in Fourteenth street, a few days before Christmas, received the only four of this same variety of rose that were offered in the city, and found a customer for them at \$60, or \$15 apiece, or eight times the value of their weight in gold.—*Peter Henderson in Scribner's Monthly.*

SMILAX.

It may interest our readers to read the following amusing incident as related in the Boston Post:

A Boston florist had failed signally in his attempt to make the vine a favorite with New York florists. At the time of the great fair in aid of the French sufferers by the Franco-Prussian war, Madame Doremus, who was one of the managers of the fair, obtained from the Boston florist a number of floral decorations and a supply of flowers for her flower tables, and among these was sent an abundance of smilax. Mlle. Christine Neilson tendered her services to Madame Doremus as an attendant to her flower tables, and was presented by the florist with flowers for her hair consisting of two rosebuds and a long spray of smilax. During the evening, and while the rush for the flower tables was at its height, a well-known gentleman found his way to the front, and began to examine the flowers.

"Yes, I'll buy a bouquet," he said, in answer to the prima donna's business-like interrogation.

"Which one will you take?"

"I will take that one in your hair, if it is for sale," said he audaciously.

"Yes, that is for sale," said Neilson, promptly.

"What is the price?"

"One hundred and fifty dollars."

"I'll take it," said he, as promptly, and he went down into his pocket and produced three crisp fifty-dollar greenbacks.

In a twinkling the prima donna snatched the two buds and spray of smilax from her hair and handed them to the gentleman with a graceful "thank you," to the intense delight of everyone who witnessed the transaction.

The story flew about the hall like wildfire, and in ten minutes all the demoiselles attending the tables were importuning the florist for a spray of "that Boston vine." The next day the New York florists sent for the Boston man in haste, and all were willing and anxious for some of the Boston vine. One wanted two hundred strings a day for a month; another a thousand strings a week for the season, and everybody wanted more or less. In a very short time the Boston florist had orders for an immense quantity. He lost no time in telegraphing to his partner in Boston, and in twenty-four hours the firm had control of nearly every smilax in Boston and vicinity. Large shipments were made to New York, and since that time smilax has been a staple article with the metropolitan florists.

LANDSCAPE GARDENING.

Mr. S. B. Peck, of Muskegon, gives in the Rural New Yorker some old truths in new dress that we take pleasure in reproducing here:

It is a principle generally assented to, that "curved lines are more beautiful than straight ones." There is also another principle, not perhaps so generally assented to, but of equal force, that "the beauty of a thing depends on its perfect adaptation to its use." In the arrangement of walks and drives these two principles are often confused, and the latter is ignored or sacrificed to the insane idea of adopting the former in cases entirely incongruous. Thus, a public building situated in the center of a large, inclosed plat, and used only for public offices, has entrances from the surrounding streets at each of its four corners, from which walks to the front and rear entrances are made in the shape of a crescent, thus increasing the distance from 10 to 15 per cent. In case of a fire, the firemen would surely cut across this arc to reach the burning building. Equally inappropriate would be grounds devoted exclusively to ornament and pleasure, like public parks, laid out in squares and parallelograms. Triangles might be in good taste, but rarely, and should be small, and there should plainly appear a reason for that particular shape at that particular place.

A walk from the street entrance to the front door of the house should be in a direct line, but branching from that walks are in good taste curving around the angles of the house to the side or back door.

In public or private parks and cemeteries the case is different. There curved walks and drives are indispensable to good taste. Let us look at the rationale of the thing. It is a waste of time to prolong the distance to a public office or to one's home, and it is not natural for business men to loiter by the way, therefore curved walks in such places are not well adapted to their uses; but if one's private grounds are sufficiently large to admit of a portion of them being devoted to ornamental trees, shrubbery, and flowers, that portion is certainly

beautified by walks in curved lines. People visit ornamental parks for purposes of pleasure and for their enjoyment of the beautiful in nature and art, but most especially for the former purpose. They visit cemeteries for the purpose of paying tribute to the memory of their departed dead. They go, in short, to spend time, to indulge their tastes. Curved walks there not only increase the distance and prolong the enjoyment, but if the objects to be viewed are arranged in proper order there is at every step a change of view, giving time to examine and individualize each tree, shrub, flower, fountain, bust or statue.

There is perhaps no one thing that shows a lack of taste more generally than the selection and arrangement of trees for ornament and shade. An almost universal error consists in having too many, a too studied regularity in their arrangement, and too little variety. When planted in the street they must of necessity be in rows, and any deviation from a straight line there is a deformity, but a change of variety and of natural form gives to each an individuality and increases the pleasure of the beholder. Straight rows of one variety are only beautiful in the distance as one object, while a diversity of form and foliage multiplies the pleasure of a close inspection.

I am often pained at the efforts to distort nature in the pruning and training of ornamental trees and shrubs. Nature has her own form for every plant, and though you may increase the fruitfulness of a tree or vine by your edged tool manipulations, as merely a thing of beauty you cannot improve upon nature's plans. Such is my own opinion of pruning and training for ornament. You may shear off the ends of the limbs of a spruce or fir, and make it look as though it had been turned in a lathe, the thick wall of its sides covering up its branches, but it will always be too sharp at the top, and I would prefer that it should stand behind the house as a specimen of what can be done in the way of outraging nature. Such a tree is to one of nature's make what a wax doll is to a real baby. It is true that accidents may happen in vegetation as well as in other matters. If a tree is near a building or too near other trees, it is liable to be misshapen, and its faults may often be corrected by pruning. A branch may be broken, the wind may sway the top, or a rampant shoot may start up; in these cases we can assist nature with the pruning knife. In passing a fine spruce tree to-day, with the leader broken off, I was reminded of an item of my own experience some twenty-five years ago, when I had such a tree that grew two or three years with a flat top of four or five branches of equal size. I fastened one of these branches in an upright position, and in two years it was larger than all the rest, and it soon made a thrifty tree of most perfect symmetry.

NEATNESS ABOUT THE HOME.

No amount of money can be expended in the ornamentation of a home and be successful without there exists about the premises an air of tidiness. The Rural New Yorker touches upon this point very pleasantly in the following editorial note:

There is an old story to the effect that once upon a time there was a man in search of a housekeeper, and as applicants for the position arrived he arranged matters so that each one as she entered, found a broom lying on the floor in her way. All the women but one stepped over the broom and passed serenely on. The one woman who stooped and picked it up secured the place of housekeeper solely from that fact. It was her only recommendation, but her

employer argued from that that the woman was observant and orderly—two qualifications that he highly appreciated. Whenever you walk over sticks and brush and rubbish in your yard, that disfigure its tidy appearance, instead of picking them up, remember that you are “stepping over the broom,” and somebody will pass judgment upon you by what you may be pleased to call very insignificant indices. But the judgment in most cases will be quite correct. If every man, woman and child about the premises were trained to pick up and remove from view all rubbish and litter that he or she comes upon in walking about a yard or lawn, there would always be an appearance of neatness and tidiness preserved at little cost or trouble.

ORNAMENTAL TREES, SHRUBS AND VINES.

FOR TREE PLANTERS.

No man of our acquaintance has so much sympathy with trees and plants as Will. W. Tracy, of Detroit. He cannot bear to have a tree misused and believes most thoroughly that to succeed with plants one must love them. He talks thus sensibly about tree planting:

There is nothing in the vegetable world which has more individual character and expression than our native trees. Every one possesses a form and expression peculiarly its own, distinct from that assumed by any other even of the same species, and it is this wonderful variability which gives such an indescribable charm to the natural landscape—a charm which rarely exists to the same degree where the trees have been transplanted. I attribute this inferiority of transplanted trees largely to the method of pruning or cutting back at the time they are set out. For the most part the trees that now ornament our village streets and country roads were hastily taken up from the neighboring fields and forests, and the greater portion of the tops were cut off until what was a tree became a simple pole or stick with a few stubs projecting like the pegs of a hat tree—a resemblance which doubtless suggested the name for this useful article of furniture. They were then drawn with exposed roots, to the desired point, where the roots were crowded into a hole, into which earth was shoveled, and straightway the men were ready to move on to the next. If the tree grew, it threw out a few leaves and shoots distributed irregularly and without form about the top, and the next season these grew vigorously into a dense ball of foliage little resembling the graceful spray of its brother left undisturbed in the fields, looking rather, as a “chemical” friend aptly said, like “gigantic green swabs,” and furnishing good models for the trees of wire and green cotton that we find in our children’s “Noah’s arks.” I admit that ultimately the tree outgrows its mutilation, but it takes long years to do it, and it rarely regains its individuality, so that transplanted trees of the same species are in a great measure counterparts one of another.

How immeasurably superior the result would be if trees were used which

had been grown for the purpose rather than those from the fields, and if such care were taken that all this cutting back would be unnecessary. This is a subject on which we need not dwell, for if we insisted upon this not one tree would be set where dozens are planted now, and we need all and more than all our people can be induced to plant. But the bad results for the first few years can be avoided, as I have found by experience, by a little attention to the cutting back—a work which seems to me so feasible that I want to urge it upon every tree planter in our land. If the tree selected has a central main stem or leader cut this back to some small branch springing from it at a slight angle as can be found, and so growing nearly erect. Cut this back to a similar branchlet growing from its upper side, and remove all other twigs or buds. If necessary cut off all the lower side branches close to the main stem, but if any can be left select those which are symmetrically disposed about the trunk and cut them back in the same way as the central one.

The simple rule is, always remove a branch altogether, or cut it back to a branchlet from it which has the same general direction and character, and remove all other branchlets or twigs. Even if the condition of the tree requires the pruning to be so severe that the branchlets left are very few and small, still, if they are well selected, it is astonishing to see how much they will do towards directing and moulding the future development of the tree, and it will be a pleasing surprise to one who has been used to trees cut back in the usual way, to see how quickly a tree pruned on this plan will assume a graceful form. Evergreens should be cut back on the same principle. Usually there will be found growing from the upper side of the branches shoots having the same direction as the branch itself, and if we cut back to one of these the mutilation will scarcely be noticeable, even the first season.

TREE PLANTING.

A correspondent of the New York Tribune makes some good points on tree planting. We abstract from his article:

I don't yield to anybody in my love for trees in their proper place; but there is no more reason why we should bower all country roads with trees than why we should cover all village greens with thickets. Sunshine is a Godsend in both places,—and, for that matter, in all places. But what I most object to in the urgency and crudity of this tree-planting crusade is its assumption that a row of trees on either side of a highway is to redeem all country roads and to complete their attractiveness. This is like saying a man will be well dressed if he only has a sleeve on each arm. He wants more, to be decently clothed; and our roadsides want something more than a gospel of trees to make them what they should be. Nor should the first teaching of country-bred children be in the line of trees, so much as in the lines of order and neatness.

* * * * *

A little while ago, in the adjoining State of Connecticut (over whose border I sometimes go on a summer's drive), the "improving" people of the legislature passed an edict that all wild tree and bush growth should be removed from the whole breadth of highways lying between the fences. The consequence has been that many a quiet country road that was charming mainly by reason of

the rich, wild growth of mingled bushes and vines and cedars which made billows of waving green on either side, are now utterly despoiled.

Have they a neater look? No, for the work, being counted unpaying work, has been done in a slipshod way, leaving stubs from six inches to two feet high, and exposing a jumble of stones and all manner of roughnesses, which the mounds of foliage had kindly concealed for years.

We must begin at the beginning in this matter, and, by proper arrangement of school-houses and school grounds in country towns, teach children once for all, what order and neatness mean; teach it so thoroughly that the barbarisms along our highways will be to them a stinging offense.

Mr. Beecher, in one of his later lay-preachments, has advocated the decoration of the interiors of our school-houses, so that they may be up to the level of best homes. This does not seem to me nearly so important as that the grounds and approaches should show such zealous care, and such charm of neatness and fitness as shall regale the eye of every passer-by and inoculate the whole township with the love of that thrift which belongs to order and comeliness.

What legislature will offer a premium,—and it should be a good one,—to the district maintaining the best appointed school-house, with the most neatly ordered and most judiciously planted grounds? A struggle for such a premium would compel new thinking and new growth in a direction surer and safer than any outlined by sticking poles of trees on either side of a highway.

FRUIT TREES FOR ORNAMENT.

“*Horticola*” in the Rural New Yorker hits on a point nicely that we have been striking at for years when he says:

Can anybody tell me why some of our best fruit trees should not be used as ornamental trees on the lawn? I mean any good and sufficient reason outside of the domain of prejudice and sentiment? For example, my friend, who is a gentleman of culture and refined taste, has bought a small place in the country, and wants fruits, flowers, vegetables, ornamental trees and shrubs, and a small lawn; that is, a real lawn, and not a sham. Apples, pears, peaches, etc., he cannot have in useful quantity unless they are used as accessories to the lawn. Then why may he not use them in this way for the purpose of ornamentation, not exclusively, but in combination with what are called ornamental trees? I have told him he may. Is it anything deeper than prejudice which prevents the judicious use of fruit trees on the lawn? I have so employed them several times where fruit could not otherwise be grown, and am by no means dissatisfied with the result. Pleasing effects can in this way be generally produced even on a limited scale. A peach, a cherry, a plum, etc., with double flowers, are ornamental trees; with single flowers they are not. But why? What can be more beautiful than an apple, a pear, or a peach tree in full bloom? Where a man has the choice of an orchard, that is the better place for his fruit trees, as he can cultivate them there as he cannot on the lawn, and secure better fruit; but by top dressing the lawn he can be pretty sure of fair crops of very good fruit. Therefore I say that, rather than be without fruit, I would plant fruit trees on my lawn.

BEST FIVE DECIDUOUS TREES.

All may not agree with Samuel Parsons in his selection of five deciduous trees for ornamental purposes, as given in Rural New Yorker, but we must admit his reasons are carefully given :

THE NORWAY MAPLE—*Acer platanoides*. That I should pass over the American elm, the sugar maple, and the white and pin oaks may surprise some ; but I choose the Norway maple because it is a richly endowed tree in all ways, both practical and ornamental. It is not only beautiful with its large, shadowy, rich green foliage piled in broad, rounded masses ; but it has excellent every-day qualities in the way of hardiness in all exposures, moderate and yet vigorous growth, and above all a regular, healthy habit that retains it many years in shapeliness and beauty with little or no pruning. One scarcely ever sees the Norway maple exhibiting its full beauty on the lawn, because it is scarcely ever allowed to grow branches from the very ground upward. People have an unfortunate fancy for trimming up lawn trees. If left to itself the Norway maple spreads out into a globe of massive green foliage of the most unique and imposing character. It is, moreover, an excellent shade tree on wide avenues, for it needs room to spread abroad its massive foliage.

WHEATLEY'S ENGLISH ELM—*Ulmus campestris Wheatleyii*. It will doubtless seem strange to many that I should pass over the American elm for an English elm, when it is well known that the English elm is not popular in America ; but remember I am selecting lawn trees and not street trees. The American elm is somewhat coarse and too spreading in habit to suit a place of only an acre in extent. As an element of landscape gardening effect, the European elm is invaluable for the picturesque way in which a mature tree piles rounded masses of foliage one upon the other. It is lofty, too, and even spirey on occasion. This Wheatley's elm, for instance, will grow six feet during the first two years after grafting, which is no bad growth for any elm. Then the American elm loses its leaves early in autumn, while Wheatley's elm holds its foliage particularly late. The foliage of the latter is rich and effective and the form erect and pyramidal. It is, indeed, in many respects, only an excellent variety of the ordinary English elm, but its excellence is so great that I believe it fully worthy of the high rank I have given it. We neglect these European elms on our lawns unjustly.

THE PURPLE BEECH—*Fagus sylvatica atro-purpurea*. All kinds of beeches are alike beautiful in foliage, branching, and trunk formation. They are slow-growing, long-lived, and richly and even exquisitely endowed in every way. Their shade is unsurpassed, and they frequently hold their foliage far into December. The purple beech, however, is shapely, pyramidal, and sometimes spreading,—an elegant and stately tree. It is unquestionably the most attractive purple-leaved tree known on our lawns. The variety, Rivers's Purple, is the richest in coloring, and in May and June the young growth, seen against the sun, fairly glows with the most splendid rosy tints.

THE WEEPING BEECH—Excellence of form rather than special beauty of foliage characterizes this tree, although the leaves of all beeches are very beautiful. The behavior of the branches of the weeping beech is literally wonderful. They curve and weep in every shape imaginable, and reach up and down and about in the most grotesque, and yet graceful manner. Always beautiful, the weeping beech is now merely pointed and drooping, and again entirely cathedral-like and spreading—altogether the most splendidly endowed ornamental tree on the lawn.

THE RED-FLOWERING HORSE-CHESTNUT. I hesitate, I acknowledge, in choosing the fifth tree. It is the last chance and there are so many one would like to select. Magnolias should not be passed over; but then they are difficult to transplant. The weeping sophora and ginkgo are most curious and interesting trees. What shall I do? At the risk of being unjust, I will name the red-flowering horse-chestnut. It is, at least, a striking, hardy tree of recognized value. A round mass of large, finely-tinted, light-green leaves is set all over in May with veritable bouquets of rose-colored flowers. The combination of foliage and bloom is unique in appearance, and loses none of its beauty as we examine it more closely. The tree itself is medium-sized vigorous-looking, though slow and regular in growth. It has always been choice and rare; but to be effective it must be grafted on a stem five to six feet high.

THE NORWAY MAPLE.

For some years the compiler of this Portfolio has watched the growth of some specimens of the Norway maple in our State, and can heartily endorse the following tribute by Prof. W. A. Buckhout in *Gardeners' Monthly*:

Each year I become more and more in love with the Norway maples for large grounds. Individual trees vary a good deal in their behavior, and in the color assumed (a fact more or less noticeable in all trees), but the general course with them is to hold the deep green of their leaves pretty late. Then comes the faint tinting of the tips of the twigs, which spreads more and more until the tree looks like a mountain top, glistening in the sunshine while everything about its base lies in shadow. More and more the gold encroaches on the green, and at length, a golden ball, it stands out a marked object in any company. With favorable weather (which we are apt to have about this time), it may hold its leaves in this condition for two weeks or more. When the heavy frosts come we find the leaves dropping rapidly as the cool morning air is heated by the ascending sun, and should a strong wind come they are caught up and scattered in long streaming lines over the turf, forming a very pretty picture to the looker-on from a little distance. Thus the beauty of its autumn foliage amply atones for a certain stiffness of outline and habit and the globular figure which this maple is so apt to assume.

HISTORY OF THE WEEPING WILLOW.

There is no doubt but that the weeping willow is a native of China or Japan. Representations of it are frequent on all Chinese porcelain. The form under culture is the female one and have all been propagated from one individual tree. It is somewhat different from the male form, which is *Salix Taponica*. In Japan it is known as "Yanagi," as I learned from the Japanese commissioners during the Centennial, and not "Angaki," as stated by Thunberg. How did it first get to Europe? Caspar Bauhin, who wrote a book about plants in 1671, refers to it as "*Salix Arabica*, with leaves like a *chenopodium*," and gives Rauwolf as the one who made him acquainted with it. Rauwolf was a celebrated Dutch traveler. The Dutch were for a long time the only Europeans allowed to trade with China. It is highly probable that the Dutch brought it to Europe and with the intimate relations with Holland which sprang up with the

advent of the Prince of Orange to England; the weeping willow made its way to the royal palace at Hampton Court. At any rate this was the first willow known in Europe, and nothing is yet positively known as to how that plant came there.

The name Babylonian willow is a poetical fiction, and comes from a mistranslation of the Bible version. The willow is wholly a native of arctic or temperate climates. There were never any willows in Babylon of any kind, and harps could not be hung on them. The nearest ally to the willow there is a poplar—*Populus Euphratica*—but it is extremely improbable that harps were hung even on these. Those the most familiar with the flora of Ancient Babylon seem to have settled down to this, that our common oleander, of which they used large quantities in their gardens, was this tree of the Babylonians on which their harps were hung. But those who know of the deadly poisonous juices of this plant will be slow to believe that there was much handling indulged in either by hanging harps on the branches or otherwise. If we take the phrase as a figurative or poetical one, expressive of the sorrow that was involved by continued captivity, and the oleander as the expression of joy and happiness, we may find some ray of explanation. At any rate the translation "willow" is an unfortunate one, as it leads to much misconception of the surroundings of the Jews in those ancient times.—*Thomas Meehan.*

CUTTING BACK EVERGREENS.

But a few years ago it was considered the ruin of an evergreen tree to cut off its leader. If by accident it was broken, the symmetry of that tree was thought to have departed forever. How things change! The beauty of many evergreens in their maturity depends upon cutting back the terminal shoots or pinching out the terminal buds. Many of our readers—possibly all of them—may be ignorant of the fact that the white pine (*Pinus strobus*), if treated in this manner from the time it is four feet high until it reaches a height of ten feet, becomes a tree of great beauty, symmetry and compactness. The firs, hemlocks, spruces, retinosporas, arbor-vitæ, are all greatly improved by being persistently cut back while young, and, notably in the case of the balsam fir and Norway spruce, their lower branches are preserved many years longer than when the tree is permitted to grow at will. Our red cedar, as it grows in the fields, soon loses its lower branches, and with them its beauty. Cutting back changes its nature. It becomes more dwarf, but more spreading and compact, and in this way is made a tree well worthy of a place in ornamental grounds.—*Rural New Yorker.*

PRESERVING CONTOUR OF EVERGREENS.

No one is more capable of talking upon the above topic than Dr. John A. Warder, so we quote from him:

As the young trees increase in size, and after they have left the nursery to occupy their permanent stations, it is necessary to have a care to the preservation of their contour. The nurseryman must not neglect this in training his trees, and the first requisite is to avoid crowding in the rows—the laterals damaged or lost by such crowding cannot be reproduced as in deciduous trees.

Each upright evergreen should be well furnished on every side, and should present a perfect cone from the surface of the ground to the apex—whether this figure be short or long, it should be complete; if otherwise, the deformity is not only irremediable, but it will progressively increase, as the lower limbs will become relatively shorter than the more thrifty ones above them. Now, as we have learned that the leader of an evergreen may be amputated without endangering the vitality of the tree, we need have no apprehensions about cutting back the ends of the lateral branches, and this must be done whenever they project beyond those below them. Cut them in severely, if necessary, so as to expose the ends of all the lower branches to the sun and dew—as this is carried on progressively from one tier of laterals to the next above it, the conical figure is insured.

In ornamental planting the beauty of an evergreen is lost, whenever the lower limbs grow shabby and have to be trimmed away, as is too often done; whereas, by carefully preserving their vitality and vigor, the best effect is possible on the plan just proposed—the branches will rest on the surface of the ground, or near it, and the graceful evergreen cone will seem to have its base resting upon the greensward, the stem being perfectly concealed from view.

To you, practical nurserymen, it might be considered almost a work of supererogation to make any reference to that valuable implement, the tree-digger, but as all nurserymen are not familiar with its merits, it is mentioned at this time, not so much to vaunt its services in digging trees, as to speak of its great value when used as a root-pruner of all trees that are likely to become overgrown in the nursery, and particularly those evergreens that are liable to make an excessive growth. This cutting of the roots checks their under vigor, multiplies their fibres, and with comparatively little labor, is equal in its ameliorating effects to another transplanting, and may save many a block of evergreens from the destructive flames of the brush heap.

THE WITCH HAZEL.

The Rural New Yorker has the following good note on a very modest shrub so common in our Michigan woods:

We do not know that the witch hazel is ever spoken of as an ornamental shrub, and yet a few days ago as we were looking at a thicket of these plants in full bloom it occurred to us it might well be used with good effect. The flowers borne on hardy shrubs, now that the leaves are falling and severe frosts have occurred, are not to be despised even though less showy than the most indifferent of those which bloom during the spring or summer. The witch hazel flower is peculiar; the four yellow petals are less than an inch in length, and less than a line in width. But three of these flowers are clustered together upon a single flower stalk, and the stalks are often close together, so that the shrub, after all, makes quite a showy appearance. The witch hazel begins to bloom just as its leaves are falling and continues in bloom long after every leaf has fallen. The fruit, however, is not perfected until the next spring and often persists until fall when the shrubs are again in bloom. It may as an ornamental shrub be considered the opposite of the favorite *Forsythia viridisima* offered in every nurseryman's catalogue. This unfolds its golden flowers in the spring before the leaves appear. *Hamamelis virginica* is its botanical name, and it is a close relative of our liquid-amber or sweet gum. It grows

from five to ten feet high, growing in many parts of the country sometimes on hillsides, sometimes along streams. Infusion of the leaves is thought a valuable medicine in cases of bowel complaints and hemorrhages. There are several Japan varieties of the witch hazel, but the difference, so far as we learn, is chiefly in the size of the leaves.

WEIGELIA ROSEA.

Although in Michigan the rose-colored weigelia is not always quite hardy, still the beauty of the shrub leads people to plant it and care for it. Charles E. Parnell talks about the shrub very pleasantly. He says:

The weigelia, or *diervilla rosea*, is a deciduous shrub growing about five feet high, of erect, compact growth, with opposite, elliptical, ovate leaves, produces large, rose-colored, funnel-shaped flowers in large and graceful clusters from the axils of the leaves and the ends of the branches, in color varying from a pale rose to a deep pink. It belongs to the natural order *Caprifoliaceæ*, and was introduced from China by Mr. Fortune, who found it growing in a mandarin's garden on the Island of Chusan. Mr. Fortune also said that it was unknown in the southern provinces of China, and is not met with in the Chinese hills in a wild state. It is, therefore, just possible that it may have been originally introduced into China from Japan. This, however, is only conjecture. It first flowered in England in April, 1849.

Although it is a shrub of the easiest cultivation, it requires some attention to grow it to perfection, and this attention should be given to enable it to produce satisfactory results. To grow it to perfection it should be given a deep, rich soil. A yearly dressing of well rotted leaf mold, or manure will answer if the mold cannot be obtained, and if the manure can be forked under so much the better.

It should not be cut severely back so as to resemble a bundle of sticks, but several strong shoots should be chosen for leaders. These will also throw out other shoots from different places, and when the plant comes into bloom, will bend to the ground from the weight of the large clusters of beautiful flowers. As before said, the soil must be deep and rich, and if not so naturally, it must be made so. This is a most essential point in the culture of this plant. After the flowering season is over, cut out all weak shoots, and at the same time cut the plants back into shape. If the leaders have a tendency to grow too rank, pinch them back so as to keep the plants in proper shape, but do not cut the plants back again until the flowering season is over.

The Weigelia can also be grown as a standard shrub by selecting one of the strongest shoots, fastening it to a stout stake so as to keep it erect, and also to prevent it from being broken off while young. As soon as it reaches the desired height, pinch back the shoot and remove all the other shoots excepting those at the top. As soon as those top shoots are five inches long, cut them back to three inches and continue this process for one season. After the second season the shoots will require to be pinched back occasionally during the season of growth, so as to keep the plants in good shape. Care must also be taken to remove all suckers as soon as they are noticed; thus grown the Weigelia will prove to be peculiarly attractive, and it will also admit of the grass underneath being cut by the mower.

THE HOP FOR DECORATION.

The Michigan Farmer believes there is a use for the hop vine which is wholly unobjectionable—which cannot be said of its ordinary use :

The mention of hops brings up a vision of the bare poles of a hop yard, with their canopies of verdure, which are to be viewed with an eye single to their commercial value. The good housekeeper usually has a few roots in some out-of-the-way place which she cultivates with a thought as to the quality of her "hop yeast," and from which she gathers the materials for the comforting hop pillow and the soothing poultice. But whoever has seen a wild hop-vine making its way in the world to the very tip-top of a slender sapling, running riot over a dilapidated rail fence, or hanging its graceful garlands of drooping, pale green bells over the naked limbs of some prostrate woodland giant, exemplifying how nature strives to cover with loveliness the decay she herself causes, will recognize its decorative possibilities. There are no gay flowers, no odor save that of cleanliness, to attract the senses. The eye alone is pleased by the graceful abandon of the luxuriant vine, and the contrast of light green panicles and the deeper hue of foliage. Once started they live on indefinitely, dying down in autumn to send up pale, slender shoots in the spring. With all their coquetry there is an humble air about them, as if they were conscious of the ignoble uses to which they were born, and they appear to best advantage over the woodshed door, climbing against the kitchen window, or cherishing the top of the well-house in a loving embrace. They give an excellent effect, however, when planted with other climbers, the blending of foliage being agreeable, and the wreaths of pendant, nodding blossoms, yellowed with golden grains of lupulin, not suffering in grace or beauty by contrast with even the beautiful clematis.

 HIGHWAY TREES.

 STREET AND ROADSIDE PLANTING.

We condense from an excellent article in *Vick's Magazine* some hints on roadside planting :

Trees should always be planted so as to give a good broad walk between the row and the fence or road limits. Objections are sometimes made to this because of the difficulty in protecting them while young, but it must be remembered that the trees are to remain for generations and the sacrifice of a little time and expense is but little compared with the enhanced effect when the trees are large and grand.

While we plant trees on our grounds with special reference to the ornamental effects of their outlines and their beauty of the foliage, the primary object in street planting is ample and lasting shade during the summer season. Trees are subjects of comparatively slow growth ; a generation that witnesses

the planting of certain trees may pass away and yet the trees be young and only partially developed. It is only natural and quite proper that the planter himself should desire to experience the benefit of shade from trees of his own planting. Keeping in mind the space required for their perfect development, and yet aiming at useful results as speedily as possible, it has become evident by long experience and observation that street trees should be planted twice as close as it is proper for them ultimately to stand, and when necessary every other tree should be cut away. Planting the trees thus closely 18 or 20 feet would be proper distances, so that at last after thinning out, they shall stand 36 or 40 feet apart.

The sugar maple and American elm are the most valuable trees for roadside planting, but they are both rather slow growers, and for 20 years will not make a very complete line of shade unless closely planted. For the purpose of getting more immediate effect it would be well to plant these trees 36 or 40 feet apart and alternate them with the silver leafed maple, *Acer dasycarpum*, which is well adapted to this purpose, having a good broad foliage, a spreading head, and is a rapid grower. In 15 or 20 years after planting the silver maples should be cut out and the elms or hard maples allowed the full room. By adopting this method of planting, a satisfactory amount of shade may be attained in the shortest time. Such desirable trees as the American elm and the hard maple will ultimately line the street. And they will then stand sufficiently far apart for their full development.

RETURNS FROM TREE PLANTING.

One rainy day I drove two miles and dug, unaided, a load of sugar maples and planted them along the roadside. They are now beautiful trees, nearly a foot in diameter, and no sane proprietor would think of parting with one for \$25. Here is an easy way to make money and build a monument for yourself. This load of trees cost me one day's work. I claim that an avenue of maples or elms on the highway is often worth to the farm from \$500 to \$1,000, and that many farms will sell for that much more with such trees than without them. They need not be set nearer together than 100 feet, alternating on opposite sides so that no two trees are opposite. The elm is our most durable tree and one of the most attractive.—*C. A. Green.*

TIMBER PLANTING.

THE BLACK WALNUT.

While there is a great deal of loose talk about the danger of the United States being without a stick of timber within the near future, there is no doubt but that it will pay now to plant some kinds of trees in some particular situations. There are yet millions of acres of American forests growing up or

in decadence, and which will not to-day bring five dollars an acre. Near some large consuming centers timber has become scarce, and in prairie countries it has to be planted. But there has really become a scarcity of black walnut, and there is little danger of any one "investing in a dead horse" who plants it. When traveling through Indiana some weeks ago the writer saw some logs that had brought \$100 each. Even under the ordinary course of nature such logs could be produced in 40 years in an Indiana climate; but with a little careful culture in infancy, such as one would give corn, we believe as good logs could be had in half the time. Thousands on thousands of people flock to the life insurance companies, paying perhaps from \$100 to \$1,000 a year for the future good of their families; starving the present that the future may be made rich, but which insurance would not yield anything like the sum ten acres of black walnut would do, and without all the annual drain on the family revenue. Mr. Nuttall says in the *Sylva* that the next neighbor to the black walnut, the butternut, yields as much sugar as the sugar maple. We have never heard of any further experiments in this direction than those quoted by Mr. Nuttall.

The above is culled from the *Gardeners' Monthly* and the editor asks for information as to whether further experiments have ever been tried with the butternut as a sugar producer.

PLANT BLACK WALNUT.

The Boston Furniture Exchange, at a meeting the other day, announced an advance of from 10 to 15 per cent in the price of black walnut furniture. The advance was based on information that the great demand for furniture of this kind since the war had made such great inroads on the black walnut forests of Indiana, our main source of supply, that the supply there had begun to fail. Everywhere prices for this timber are rising. From \$75 to \$80 a thousand in 1874, the price has already gone up to from \$90 to \$125 a thousand, according to size and quality. Next to oak and hickory, black walnut used to be the commonest tree in the State of Illinois, but the State of Illinois is now almost destitute of black walnut, and attention is being directed to other sources of supply, especially to Kentucky, Tennessee, and Mississippi. A black walnut tree will grow to sawing size sooner than a pine; and to-day in our markets it is quoted at three times the price of pine. In view, then, of the ease with which it can be propagated, its rapid growth, the high value of its timber, and the certainty of a constant and profitable demand, why is it not more extensively planted? In this as in other cases, we are living on our timber capital instead of on the interest of it.

TIMBER TO LAST.

A question has arisen among our western tree planters whether a tree of rapid growth, laying on a thick grain of wood each year, will last as long as one of slower growth. The question arose by the catalpa (*speciosa*) being a very fast-growing tree here; it was thought that it would not last as long as those grown in their native woods. But the evidence fails in this case, for

those posts, and logs, and dead trees standing seventy years in the Mississippi bottom have all grown on richer land than the prairies of Iowa.

I have observed that old rails and posts that have lasted the longest are those of the strongest, heaviest, best timber of that variety; not that hickory will last longer than cedar, but oak or ash that is heavy, solid, and strong enough for wagon timber, is also best for post timber. When we go to the hardware store to select farm tools, we pick the coarse grained wood that has grown fast, and find it stronger as a general rule than the fine-grained. But a better test of strength of any particular variety of timber is its weight when thoroughly seasoned. And as a test of its lasting quality for post timber, is its resistance to absorb water. Compare the oak and hickory, the basswood and catalpa, the spruce and cedar. The species that resist the water resist decay. Sap wood and heart wood—who can tell us how this happens? how it changes from sap wood to heart wood—changing the color and quality of the wood? The hickory, with all its sap wood, is very strong and tough, while the red elm, with its very thin sap wood, is about equally strong and tough, but no sap wood has lasting quality. I have cut but one hardy catalpa tree that was large enough to quarter for posts, and on that the sap wood was very thin, only two years' growth, and on some parts of the tree the sap was but one year's growth.—*Prairie Farmer*.

MONEY IN GROWING TREES.

I tried, twenty-five years ago, to keep the original wood lot (on the farm) renewed and keep a good stand of timber, by dressing up and planting in it, and it proved a failure. But I am now growing all the timber I want on the farm by planting seedlings, which I have propagated of such thrifty kinds as I choose, and in such rows and belts for windbreaks and protection as my orchards and fields require. These trees are making very satisfactory growth, and it is all done very cheaply. So that I would recommend all farmers to plant groves and belts of timber as their farms and locations require, and they would find that after a few years they might clear off their original woods and have acres of new land in the place of the old land they planted their trees on, and would have a new and thrifty growth of timber instead of decaying forest timber, and would have it where it would be both useful and ornamental to the premises; besides the crop of old timber would probably much more than pay the cost of starting the new timber growth. Five or six years ago I planted two acres of four-year-old seedlings of white elm and soft maple, in rows sixteen feet apart and three feet apart in the rows, and now the best of them are twenty feet high and twelve inches in circumference, and for thinning out the rows I sell trees for more money than wheat would have brought grown in those same years, and can continue to sell until they are so large that I will take them for fire-wood. I am growing a good crop of orchard grass between the rows, so that these acres in forest timber are paying as well, and are likely to for years to come, as any other acres on the farm. I am cutting now the second crop of wood where the first or original wood was taken off about twenty five years ago, and last winter a thousand rails were taken by a neighbor from one-third of an acre of similar growth, besides a quantity of wood from their tops and timber not making rails. Another neighbor used nice black walnut in building a house, sawed from trees that he had helped to plant when a boy. Our village of Batavia is

admired for its fine rows of thickly growing forest trees along the streets. One soft maple on Main street was broken down by wind, and when cut up made two and a quarter cords of eighteen-inch wood, and the owner of it said he planted it there twenty-one years before; the stump measured nineteen inches in diameter inside the bark, and I could count about twenty circles outside of its red heart. Other trees on the same street were planted seventeen years ago last spring. The largest elm measures four feet around, two feet above the ground, and a maple measures three feet eight inches. I could give many more facts and figures to show that it does pay for Americans to plant forest trees both for fuel and timber, and that very few enterprises they can take hold of will pay better.—*H. Ives in Practical Farmer.*

VEGETABLE GARDEN.

THE GARDEN AND HEALTH.

The perfumes and fragrance of the flower garden, and the life and purity of the vegetable garden, are both health-giving and pleasure-giving to any one who is able to walk amidst the beauty, if he can do as he pleases, work or let it alone. If he has a good, strong constitution, and a fair degree of health, work in the garden will not prove detrimental, but will be useful. But the vegetable garden is no place for a feeble constitution, or for health that cannot stand a strain, unless the gardening is done for pleasure and not for profit. There are no harder-worked men in the world than our market gardeners, and any garden that is expected to pay anything must be closely attended to. The gardeners near our large cities work from twelve to sixteen hours a day, and their work is never entirely ended, whatever may be the season. Much of such labor as the garden requires is done in inclement weather, too, and if a person in feeble physical condition attempts to improve his health by working in a rain-storm, his expectations will not be realized. There are so many things, also, in gardening that need the watchful care of the proprietor, and which cannot safely be left to the care of help, that there is a constant strain upon the physical and mental strength. It is strange, rather amusing, to hear people whose blood is chilled at the slightest touch of a breeze, and who have no constitution to bear the lightest exposure, express the determination to enter upon the business of gardening. It is no business for anybody except a strong, healthy person.

But if it were conducted as we have often seen family gardens managed, it would have no detrimental effect upon the health, however enfeebled it might be, and still less effect upon the pocket. It is a sorry sight to see a garden neglected until it becomes a patch of matted weeds. Neglect on any part of the farm is bad enough, and the resulting appearance is deplorable, but no neglect results so offensively to the eye as that of the garden. We have frequently urged, in the season for it, that a garden be laid out, if it never had been, but really no garden at all is preferable to a garden of weeds. If

we are determined not to give such things any care we had better not have them, for a neglect to have them will only argue a lack of love for refining influences, while a failure to take care of them when we do have them, argues both a lack of such love and a tendency to slovenliness. Garden crops are like other crops, they will not grow without labor. On the farm the principle that you cannot get something out of nothing holds just as good as it does anywhere else.—*Western Rural*.

CULTURE OF CUCUMBERS.

Any one who has about 100 square feet of soil in farm or city yard exposed to the sun's rays may raise plenty of cucumbers for a large family. I have of late on account of the dry season, raised cucumbers after this fashion: Take a line five feet long tied to a peg set in the ground, then with a peg on the other end make a circle ten feet in diameter; this will be a little less than 100 feet. Spade this up two feet deep; mix it thoroughly with leaf manure or well rotted woodpile earth or thoroughly rotted stable manure, elevating the center with a gradual decline to the border about one foot above the general level, the clods well broken and the surface well smoothed. Knock both heads out of a flour or other barrel and set it on the surface of the bed in the center of the circle. Fill this barrel with the richest stable manure. The bed is now ready. On the outside of the barrel, on three sides next to the sun, about the time of planting Indian corn plant a dozen cucumber seeds, making three hills, the north side being reserved for a footpath to the barrel. As soon as the plants are secure against the striped bug or other contingency and have about three leaves, thin them to two or three in a hill, being six or nine in all. As the plants need water, pour a few bucketfuls into the barrel every day or two, and the vines are prepared till frost for the most fruitful growth. As soon as they are ready to run, being well weeded up to that time, place a light layer of brush over the whole bed, to guard against chickens and dogs, and to form a support for the vines and fruit. In cutting the fruit use care to avoid treading on the vines and cut the stems with a sharp knife. Those intended to be cut for pickles should be cut with the stems left on the cucumbers. I have cut, by count, 42 cucumbers an inch or two long for pickles in a single day. It is best to cultivate and handle all tender vines in the late evening so as to give a whole night for recovery before the sun scorches them. Persons raising cucumbers in this way once will never try the old method again. While the striped bug attacks the cucumber most vigorously when planted in the old way, the manure seems to be an entire preventative of their presence; at least I have never seen one on the vines raised in this way.—*Indiana Farmer*.

GROWING PICKLES.

The Michigan Farmer gives a grower's experience as follows:

The land should be perfectly free from weeds, finely tilled and manured at the rate of five or six cords of manure to the acre; it should not be wet, but it should not be liable to suffer from drouth. Plant about six feet apart, six or eight seeds in a hill, thinning the plants to three or four when they have

become established. Plant from the middle of June to the middle of July, and after the vines come up you will find plenty of employment in circumventing the striped bug and other insect pests, at first with gauze frames, and later as the vines grow larger, with plaster, bone dust, etc. The Short Prickly, Early Cluster and Early Frame varieties are recommended. When the cucumbers are about four inches long they are large enough to pick, and better than if allowed to grow larger. Pick every day, clearing the vines of all that are up to size, and in picking leave half an inch of stem attached to the cucumber, and be very careful not to bruise them nor to handle them too much. Have ready clean, open casks half full of strong brine, into which put the cucumbers as fast as they are gathered, keeping them constantly covered by the brine. When the picking season is over, take out the pickles, throw away the brine, rinse out the casks, put back the pickles with a new, strong brine made of clean rock salt, filling the barrels as full as possible, and cover carefully for a few weeks, after which they may be headed up and shipped to market. If the process has been skillfully done the pickles thus prepared will keep until the next summer. Manufacturers prefer to buy them thus salted rather than in vinegar as each has his own method of further preparing them for use.

JUSTICE TO THE WATERMELON.

The average mind is accustomed to regard the watermelon with mild horror as being the repository and lurking place of more colic, cholera morbus, and other such unpleasant matters than any other vegetable, not excepting the chilly and insidious cucumber. Like many other popular superstitions it has little ground for existence, and it is high time it was exploded and the watermelon given the credit it deserves. It is, in fact, one of the most wholesome of fruits, and like many others, has a distinct medical quality in healing the diseases incident to the season in which it appears. No such sure and speedy cure for summer complaint is known as this melon, which contains about 95 per cent of purest water, a trace of pure sugar, and nothing whatever deleterious. Too close scraping toward the rind, however, may well be reprehended as unwholesome.—*Boston Journal*.

SOWING ONION SEED IN THE FALL.

Onions are largely sown in September, and the practice is, on several accounts, to be preferred to spring sowing. There is more time in fall than in spring to get a bed in good condition for the seeds, and as they start much earlier than from spring-sown seeds, there is consequently much less labor required to keep them free from weeds, which it is absolutely necessary to do in order to perfect a crop. The time of sowing is not so important as with cabbage, though if sown too early they are less likely to bottom well, while on the other hand, if the sowing be deferred until too late, they are less likely to stand the winter without injury. In central Pennsylvania, from the tenth to the twentieth is about about the proper time. Farther south they should of course be sown correspond-

ingly later, about six weeks of growing weather being required to get them in proper shape for winter. On the approach of cold weather a light covering of straw, forest leaves, or salt hay should be given, as the young plants, not being entirely hardy, will not stand our rigorous winters without some protection. In the southern States fall sowing is carried on more extensively than spring sowing, for the reason the crop thus having an earlier start is more likely to be perfected before the severe drouths of summer, and even in this latitude some of the finest onions we ever saw were from fall sown seeds. The ground requires the same preparation as for spring sowing and should the weather not be very moist at the time of sowing it will be necessary to roll it well in order to insure the perfect germination of the seeds.—*Seed Time and Harvest.*

SALT AND ASPARAGUS.

P. T. Quinn says that he has frequently put on as much as two inches in thickness of salt on different parts of an asparagus bed, and the young plants have come through this coating without any apparent injury. But he thinks as a matter of utility or economy, a dressing at the rate of twenty-five or thirty bushels of salt to the acre is quite enough, in connection with the annual covering of farm-yard manure or compost, applied in the autumn or spring. When the plants of a new bed are set in autumn they should be eight or nine inches deep. In spring they may be set at first three inches deep, and when the shoots are several inches high earth may be drawn in around them to fill the nine inch furrow. Beds should be set in autumn only on light or well underdrained soil. Mr. Quinn recommends setting the plants at distances of two by four feet, which, we think, quite near enough. Such plantations may be easily cultivated with a horse.

ASPARAGUS ROWS.

About twenty years ago a part of my garden was devoted to grape vines, which were set out in rows eight feet apart. An adjoining space was subsequently prepared for asparagus, and for the sake of convenience in working the whole ground, I sowed my asparagus seed in lines with my grape vines, and consequently for nearly twenty years I have grown my asparagus in rows instead of in beds. The distance between the rows was accidental, but the result has been very gratifying in every particular. The intervals have been utilized for crops of small vegetables, melons, and strawberries, until this year, but in consequence of finding that the roots of the asparagus have been meeting between the rows for some time, the entire space must, in future, be kept clean, and given up to the asparagus.

An additional argument for space,—say from five to eight feet between the rows, is found in the important fact that the asparagus can be gathered in its season, and the ground cared for at all seasons with great facility. The crop is always early, persistent, and large, and of superior quality; and the plants show no diminution in vigor of growth.—*D. S. D., in Country Gentleman.*

Hartford, Connecticut.

FIELD CULTURE OF ASPARAGUS.

When one grows a few plants, has a few cattle, or does anything else on a very small scale, to see how great a yield he can secure without regard to time or expense, he is not pursuing the methods that will achieve commercial success on a large scale. The Rural New Yorker makes a happy note upon the growth of asparagus in field culture, and scouts the old notion of the great attention to be given to the preparation for the crop. It says:

It is our humble belief that thousands of loads of manure have been thrown away upon garden asparagus beds. Our teachers, or many of them, have instructed us to trench two feet deep and fill in with manure and soil. Thus treated, they say, "an asparagus bed will last a lifetime." No doubt. We know of fields of asparagus 20 acres in extent, that have never received any manure, according to the statements of the owners, and they have yielded plentifully for 25 years. The soil is simply a sandy loam, such as exists in a long belt along the south side of the Long Island railroad.

We do not wish to make any extreme statements. We have talked with the asparagus-growers of this Long Island asparagus belt—as it may be called—and many of them are of the opinion that asparagus grows as well, and as large, without as with manure. This is inexplicable; but we are fully of the opinion that an occasional top-dressing of manure is all that is needed in field culture, and the same treatment should apply for a family bed. As for burying an immense amount of manure a foot or more beneath the surface so that a bed may "last for a lifetime," probably a great part of the manure is not available to the roots at all. For the rest, its effects could scarcely extend beyond 10 years, if so long.

PRUNING TOMATOES.

The Germantown Telegraph has the right of it in this matter of pruning tomatoes. It is not that we wish to have less foliage, but that the rampant growth of stem should be checked, that we prune tomatoes. Pinching back tomatoes is a good practice when judiciously done. It may be overdone, however, and injury result. In the first place it is no use to attempt it after the flowers have fallen. The idea is to force the nourishment into the fruit at the earliest start; for it is at that time that the future fate of the fruit is cast. A few leaves beyond the fruit is an advantage. It is only the growth that is to be checked. And then much damage is done by taking off the leaves as well as the fruit. The tomato plant needs all the leaves it can get. It is only the branches that are to be checked in their growth. No one who has not tried it can have any idea of how valuable the leaves are to the tomato plant. One may for experiment take off most of the leaves of a plant, and he will find the flavor insipid and in every way poor. Of course it is the peculiar acidity of the tomato that gives it so much value to all of us; but the acid from a tomato that has ripened with an insufficient amount of foliage is disagreeable to most tastes.

PICKING TOMATOES.

Contrary to the prevalent belief, the fact is that tomatoes are better not to ripen fully on the vines. If picked when only partly red, and placed in a dry shed for a day or two they will ripen all over more perfectly than they will if allowed to remain upon the vines. They are less likely when handled thus to be damaged by rain and by blistering in the excessive heat of our August sunshine. Many of our best gardeners do not market them for a day or two after picking.

TOMATO EXPERIMENT.

On the fifth of March of last spring I sowed the following varieties in a moderate hot-bed and grew probably 200 plants. I selected twelve of each variety and transplanted to the south side of a fence and provided means to cover them in cold nights. May 10th I transplanted them to the garden, placing them three feet apart. The result as to time of ripening is in the following table. The figures represent the total numbers of tomatoes picked at the dates named from each twelve vines:

	June 23.	June 30.	July 3.	July 11.	July 14.	July 24.	July 31.
One Hundred Days.....	6	17	25	39	65	320	565
Alpha.....		1	7	35	52	180	286
Acme.....			1	4	10	32	70
Canada Victor.....				2	10	63	179
Paragon.....					2	21	49

The end of the rows of the last three were shaded a little in the morning, and some little allowance must be made on that account.

The One Hundred Days, as in all my former experiments, ripened first, and furnished much the largest number of tomatoes for the first month. Its fruit, however, is much smaller than any of the others, and especially towards the last of the month. It rotted less than any. Although rather small and sometimes rather rough, yet if a gardener, I should plant at least one quarter of my early stock of the One Hundred Days. This must be taken as opinion only, for many would not agree with me.

Alpha, a new variety, came next, and is a very valuable kind. It is of good size and shape, much like Canada Victor, and if I chose only one kind I would choose it.

Acme is beautiful tomato, and with us most salable of all when it comes, but this experiment and other knowledge of it tells me it cannot be classed among the very early tomatoes. Of course it is one of the best for main crop. It is perfectly smooth and of a purplish color.

Canada Victor is an excellent early variety, ranking in former experiments about as it does here.

Paragon is a very handsome tomato, as smooth as Acme, larger and of a bright red, while the latter is of purplish red. It did not prove productive.—*L. A. Foote in Indiana Farmer.*

LIMA BEANS FOR A LONG SEASON.

The readers of the following item may not be able to follow its provisions exactly, but in it there is an idea in regard to getting ahead of the season which can be used by almost anybody who has a hot bed or a cold frame. Mr. B. G. Smith, of Cambridge, Mass., tells the Massachusetts Horticultural Society how he has fresh Lima beans from the middle of August through the season. He says:

Sow seed the second week in April, always being careful to place the eye down, in small boxes, five in each. These boxes are without bottoms, six inches in height, seven inches square at the lower part, made of half-inch stuff. They are filled with loam and placed in the cold grapery. When the plants are about two inches high the ground is prepared and the pole set out, and a hole large enough to receive the box made at the foot of each. A box is then lifted on a shovel and placed in the hole and the shovel withdrawn. The box is then lifted up, the object of making the top an inch smaller than the bottom being to permit this. The Lima bean is a tropical plant and requires a long season. It is not advisable to set out the young plants before the first of June, but this is early, as early as the seed can be planted outdoors. In saving seed the earliest should be chosen.

 KALAMAZOO CELERY.

Kalamazoo is getting to be a large exporting point for celery. This is the way the growers put it into winter quarters, according to the Kalamazoo Gazette:

Dig about two feet below the surface, then board up about two feet above, then on a frame six feet high 12-foot boards meet and slant down the sides, with windows, all of which is banked and covered with manure. They are usually built 24 feet wide and 40, 75, or 100 feet long. If the building is 50 feet long it will hold 50,000 celery; 100 feet long, 100,000, etc. It is built on upland if possible, for marsh is too damp and cold. When first put in the houses it is green, but bleaches in a few weeks. They pack as close as it will stand, putting boards every few feet to prevent heating and rotting. People can keep their own celery as well as apples or potatoes, by putting some marsh soil in the bottom of a barrel, packing the celery root down, not sideways, and keeping where it will not freeze. It is desirable to keep it growing. The sprouts may run over the top of the barrel but will be no disadvantage. Put in green and it will bleach, and you can wash and trim as you wish for the table. One of the most annoying jobs in the business is the tying in half-dozen bunches. The long felt want is for some Yankee to invent a self-binder.

 USES OF THE POTATO.

We are apt to think of the potato as simply an article of food. The Scientific American in the following paragraph gives other uses of this valuable tuber:

In France farina is largely used for culinary purposes. The famed gravies, sauces and soups of France are largely indebted for their excellence to that source, and its bread and pastry equally so, while the so-called cognac imported

into England from France is the product of the potato. Throughout Germany the same uses are common. In Poland the manufacture of spirits from the potato is a most extensive trade. "Settin brandy," well known in commerce, is largely imported into England and is sent from thence to many of her foreign possessions as the product of the grape, and is placed on many a table of England as the same, while the fair ladies of our country perfume themselves with the spirit of potato under the designation eau de Cologne. But there are other uses which this esculent is turned to abroad. After extracting the farina the pulp is manufactured into ornamental articles, such as picture frames, snuff boxes and several descriptions of toys, and the water that runs from it in the process of manufacture is a most valuable scourer. For perfectly cleansing woolens and such like articles it is the housewife's panacea, and if the washerwoman happens to have chilblains she becomes cured by the operation.

SCHOOL HORTICULTURE.

SCHOOL GROUNDS.

The editor of the *Indiana Farmer* sounds a clear note to follow. This is how it sounds:

The nakedness of farm homes, the utter absence of the ornamental, too often seen even yet, tells of a sad defect in early education. Begin with the school-house and its attached grounds. Make these beautiful and you will not only create an attachment to the school, but the children will soon demand that their homes shall be beautiful as well as the school grounds.

With feelings akin to disgust we recall from the fading pages of memory the old school-house in the woods, with its rude benches and its naked walls of unhewn logs—but the grand old forest spread its boughs above and cast on the earth a gorgeous carpet of sunshine and shade in patterns of ever-varying beauty. Even the wintry storms that howled through these leafless branches stirred up a feeling of the sublime, nearly akin to the beautiful. Let our school surroundings be such as to cultivate the æsthetic sense—the love of the beautiful. In doing this we may still preserve a regard for the useful.

The lawn in front of the school-house should be at least forty feet wide, and inclosed by a neat and substantial fence. From the gate to the door a paved or graveled walk should be made wide enough to accommodate a double file of scholars. This should be bordered on either side by irregular beds of hardy flowers. Clumps of roses and other flowering shrubs should be scattered through the grounds, with here and there a native forest tree—a sugar maple, an ash, a walnut, and a catalpa. Around the whole, and near the inclosing fence, should be set a row of hardy evergreens, both for ornament and for a winter screen. The hemlock, the Scotch or Austrian pine, or red cedar, will

serve this purpose well. This lawn should be handsomely set in grass, and the scholars should understand from the first that it is not to be made a playground. The house should be provided with a door in the rear leading to the playgrounds, and at the noon hour and times of recess the front door should be closed.

Something like this is our idea of a school-house and its surroundings, but if our readers think it is too much trouble, then let us beg you at least to plant some forest trees around your school-house, with secure boxing until they become large enough to protect themselves. If nobody cares now, posterity will thank you for it.

TEACHERS AND SCHOOL GROUNDS.

At the annual meeting of the Michigan State Teachers' Association, Prof. Beal called the attention of that body to the work of our society in ornamenting school premises, and the following resolutions were unanimously adopted:

Resolved, That the members of this association are much gratified to learn of the success attending the recent efforts of the State Horticultural Society to induce school boards, teachers, and pupils to embellish country school grounds. We believe it is a move in the right direction, and hope it may be continued.

Resolved, That we recommend all teachers to encourage any efforts to make the surroundings of our country schools more pleasant, believing that in so doing pupils may be induced to form a stronger attachment for a beautiful home, and a greater love for rural life.

SCHOOLS AND ARBOR DAY.

The following note is from W. Asa Rowe, a Superintendent of Schools in Ingham county:

One of my teachers last Arbor Day closed school in the afternoon, and the scholars, little and big, brought maple, ash, basswood, and elm trees to the school grounds. The smaller ones united forces, and two or three brought one tree. The teacher suggested a place, and helped plant the trees, and placed bits of board about the tree for a mulch. Most of the trees lived and were doing well till stray cattle destroyed a portion of them. They are to have a good fence now to protect what are left, and will plant again next spring.

The practical result of this method appears to be that the children regard these trees as especially their property, and instead of breaking twigs off or bending them over and marring their beauty, they at once try to prevent all such spoliation. Wherever grounds are well fenced, I think this way much better than for the older ones to do all the planting, although they might assist.

This same teacher also had a small flower bed on the grounds, and a few growing plants in the room. Even a few blades of wheat and corn growing in winter seemed quite attractive.

THE SCHOOL GARDEN.

A pamphlet has recently been published in England, showing the necessity of extending the knowledge of gardening and horticulture among the masses. The necessity of this extension the writer, T. Wilkinson, argues is evident from the amount annually paid by England for imports of agricultural and horticultural produce when there are hundreds of thousands of acres of good land entirely out of cultivation,—absolute waste. The remedy proposed is the practical teaching of horticulture in schools to which plots of ground should be attached. It would be difficult to give a good reason why something should not be taught in schools of subjects in which all the world are interested, and by which more than half the people earn their bread.—*Vick's Magazine*.

A LIVE TEXT-BOOK FOR SCHOOLS.

In the milder climes in which men began to lead studious lives, and where the first schools were instituted, there were no walls, nor windows, nor fires, nor special seats. An *academia*, that is a grove, was the resort of the teachers and their disciples. The silver-tongued Plato taught under the trees. Solomon taught of all manner of plants, from the cedars to the starved shrublets growing out of the wall. And our Savior's discourses seem to have been delivered in the open air, among the lilies of the field, or on the hillside, or while passing fields of growing grain. We have in our modern times invented great conveniences under the stress of climatic necessity; but we have become too entirely artificial; and, devoted to letters that are dead, we too much neglect the texts that are living. As these cannot mislead, being the imprints and facts of immutable Nature, teachers cannot go wrong in adding to the dry paper and its inky impressions some notice of the developments of vegetable life, if only enough to habituate children to observing and comparing for themselves.

Very soon the earlier tree-buds and blossoms will put forth—the golden catkins of the willow, the curious bloom of the hazel with its crimson styles, and the clustered blooms of maples, elms, etc., all draped and veiled with beauty which charms the more as the examination grows closer, and is lovely beyond any art when full light and the aid of a lens are given to aid the eye in its inspection. These blossoms are abundant; it is easy to have enough for each pupil to hold one; so as, with his own hands, to separate and view its parts, synchronically with the teacher's dissections and descriptions, or blackboard illustrations. If only a single feature is taken at a time, it is perhaps enough. The petals, for instance, which attract us as they attract insects, and which assure us that the rough world has germs of beauty all through it which we shall sometime enjoy if we learn to regard them, or the finger-like or thread-like stamens which, like the petals, can often be counted and compared with the next day's and the preceding day's blossoms. These look weak and slender, but every blossom has more or less of them; for they hold the germs of the seed, and pour them down the styles to grow; there can be no seed without them. After a few talks, these and their stigmas, and the curious differences of shape, color, size, etc.,—such differences as we see in various kinds of dogs or fowls,—will give unending interest to those saving lessons.—*N. Y. Tribune*.

SCHOOL-GROUND PRIZES.

Charles E. Brown, of Yarmouth, Nova Scotia, kindly sends the secretary the following list of prizes which he and an associate have united in offering to the schools in their own country. The idea is worthy of imitation :

No. 1. Prizes of \$25, \$15, and \$10 will be given to the three public free school grounds in the county, of not less than half an acre in area, best protected by evergreen hedges.

2. \$20, \$10, and \$5 for the best three dozen named apples (not duplicates), grown in any public free school grounds of the county. Trees planted since 1870. Apple trees from Pilling's nursery, planted in Joseph Burrell's grounds last May, bore fruit last season; many of them will bear dozens of apples this year.

3. \$25, \$15 and \$10 will be given at the next annual exhibition of the County Agricultural Society for best three bouquets, composed solely of flowers grown as above. No school to receive more than one prize, but may compete for all. Vick's Floral Guide for 1875 supplied gratis to any school in the county on application to C. E. Brown.

4. \$5, \$3, and \$2 for the best three quarts of named strawberries grown as above this season—duplicates not allowable. Notice of competition to be sent to C. E. Brown in June, and strawberries to be brought to L. E. Baker's office on the fourth Saturday in July. One of our largest growers asserts that his best crop was *from plants set the same spring*.

5. \$20, \$15, and \$10 to the three schools or grounds provided with the best gymnastic appliances within two years.

6. \$10, \$3, and \$2 to the three pupils of whom the most meritorious act towards a school fellow or a teacher may be recorded in 1875.

7. \$25, \$15, and \$10 for the three best essays on above series of prizes, by any teacher of the county.

Prizes in Nos. 1 and 2 open for five years, if not awarded before. In 1, 2, 3, and 5 notice of competition to be sent to the inspector of schools in August; entries to be made for, and prizes will be awarded at the following annual county exhibition. In 6 and 7 awards will be made by the undersigned at the close of the year.

CHARLES E. BROWN,
LORAN E. BAKER.

 MISCELLANEOUS.

HORTICULTURAL SOCIETIES,—THEIR VALUE.

President Ohmer of the Montgomery (Ohio) county horticultural society, in the course of some remarks at the mid-summer meeting, said :

It is said of Americans, and there is more truth than poetry in it, that we devote all our time and best energies to money making. No time to enjoy ourselves in a social way, that is so necessary to make this life a happy one.

As time passes along we are gradually improving in that particular, that is, when I say we I mean we farmers and fruit growers. We are not hankering so much after the almighty dollar but that we can and do take one or two working days in each month for social enjoyment as we are doing here this day. The large number of horticultural societies and farmers' clubs now existing and being organized in this land of the spread eagle, where men, women and children meet together, as is done here to-day, is an evidence that speaks louder than words that we are making great progress toward that much neglected feature of American society, social enjoyment, living as God intended we should live, as one grand family, as his children.

This society has met once every month as we do here to-day, the last twelve or thirteen years. Who can or will deny the fact that much good has come from their meetings, not only to its members, but to our community at large. Therefore, persevere my friends, not only in strengthening our own organization, but do what we can to assist in organizing societies of a similar character wherever you can; be missionaries in the cause, make the world be the better by you having lived in it.

DISHONESTY IN HORTICULTURE.

Not long ago I asked an eminent professor of our Agricultural College if he knew anything about "Ozone," so extensively advertised recently in nearly all of our leading papers. His reply was, "It promises too much; its almost too good to be true," and the recent analysis of the compound by Prof. A. B. Prescott, of Ann Arbor, which reveals but three ingredients, namely, charcoal, sulphur and cinnamon, proves that the inference of my counsel was well drawn. Our leading journals, in which we have had great confidence, can hardly avoid censure by saying that "the order for the advertisement came to them through a reliable agency," for undoubtedly thousands of dollars have been sent to this Pernicious Preserving Company at Cincinnati for their two-dollar compound, which costs the proprietors probably a nickel per package, including wrapper and postage, and worth still less to the purchaser, because the advertisement was seen in a reliable paper, and any publication which has by lack of investigation, admitted to its columns such a gross imposition as "Ozone," forfeits an amount of confidence which greatly injures legitimate business transactions. There is probably no class of men that are more often the subjects of base deception than the progressive horticulturist for the reason that his great desire for knowledge and pecuniary profit impels him to invest in almost every new thing that promises well, especially if it is heralded by a creditable publication, and many a man has by "dipping into new things too fast" lost home, reputation, and interest in horticulture, and then it has gone abroad that "somehow he did not manage well," when the facts are that so long as he had plenty of money to invest in novelties he was called a "progressive horticulturist," but since his failure it is said he "fizzled out for lack of judgment." Nor is deception to be found altogether outside of our horticultural ranks. When we see great displays of fruit competing for premiums, and made by parties who do not cultivate even a fruit tree, vine, plant or shrub, but pick their specimens from the grocer's basket or from neighboring orchards or vineyards, we are led to suggest that the exhibitor in all cases be

required when making an entry to sign an affidavit as to who was the grower of the productions he proposes to exhibit.

E. M. P.

Kalamazoo.

SHALL STOCK BE ALLOWED TO RUN IN OUR HIGHWAYS?

It seems to me that there are no men more interested in this question than the horticulturists, and the full discussion of it is perfectly proper by them. When this State was younger than it is to-day, with very little cleared and tillable land, but instead a large amount open to "the commons," little objection could be made if parties did own more stock than they could keep within their enclosures and chose to take the chances of finding them when once turned into the highway. So common was this practice in an early day that people came to believe the custom had made the law, and by the divine right of citizenship to any settler the highways of the land as well as those tracts unfenced were public property to be used in common for any purpose whatever.

By a gradual progress farms have been cleared and fenced, but very little attention, however, has been paid to the necessity or beauty of shade trees along the highways. But instead, the general belief that each land owner was obliged to build and maintain a "good, lawful fence" on the roads on the line of or running through his farm made it appear that he ought to suffer the loss of his crops and shade trees if he should dare to presume to let his fence get low or the bars down. But the world moves and customs change, and for the last few years our wise men who assemble biennially at Lansing have been trying to make laws to regulate and govern the matter, but to-day we find no law that will practically settle the vexed question; and more, I believe we never will for it is a matter that needs no law more than that which our constitution guarantees to every owner of land in the State. The constitution allows of no law that will tax one man for the benefit of another as an individual. The government deeds the individual a certain number of acres and guarantees to him all the rights and privileges therein, reserving only the power of laying along his boundary line or through his land highways, or what may better be called "public ways." Notice now that nowhere in any act whatever is there any such term as public pasture, but "highway" is the term meaning a passageway for the public. Free and unrestrained is any person who chooses to peaceably pass, but he has no law, nor can there be any law enacted or enforced that allows him any other privilege than that of passage. The owner of the land is required by the State to furnish the land for the road and he is taxed every year on that with the rest of his farm. Not a tree or shrub or anything else that grows or is found there can be used or converted to the use of any private citizen other than he who owns it. Any tree or grass growing on the highway is as much the property of the owner of the land as though it were inside his enclosure, and any other person appropriating it to any other purpose than to benefit or repair the passageway—and that officially—is a trespasser in the full meaning of the term.

It seems to me that when this can be fully understood there need be no more trouble. Stock found grazing in the highway, with no escort or person to drive it along, is trespassing, and should be at once shut up and the owner made to pay for all trouble before he can take it.

Millions of dollars are expended annually in our State alone for no other

purpose whatever than to protect the crops from damage by cattle that are trespassers. No citizen has the right to keep his stock at the expense of his neighbor any more than he has a right to a part of the hay he makes in his meadow. But the inquiry comes, "What is the poor man going to do who owns no pasture for his cow?" How often we hear this, and from persons, too, who claim intelligence. Why, if a man is too poor to own a pasture, he is too poor to own a cow, and if he cannot live without a cow, the public is taxed on purpose to provide for him and his family, but no individual should be taxed to the extent of building miles of fence that he may keep a cow. As well might my poor neighbor demand a part of my hay and corn crop for the winter keeping of his cow as a part of my pasture—that in the highway—for the summer keeping of his cow. Property is the same in one case as the other, and should be as well protected in one as the other.

My advice is that all plant trees along the highways if they choose to, and take away their fences when they are not needed to restrain your own stock, and at once take up and advertise all stock found at large when they come on to your land, and the time is short till trees can grow as safely along the roads as anywhere.

S. B. MANN.

Adrian, Mich.

THE FRUIT TREE AGENT.

In this Portfolio severe criticisms have often been made upon the fruit tree agent, and it is but justice that we quote from President Albaugh of the American Nurseryman's Association, a few words in his defense:

The nurseryman here gets the assistance of that much-abused, often-berated, smooth-tongued, oily-speeched, iron-cheeked, long-winded, but nevertheless truly philanthropic and ever indispensable ubiquitous traveling fruit tree agent. Without him the nurseryman would leave the years of his toiling and labor unfinished. With an indomitable energy worthy of as good a cause as this, he has gained access and penetrated into all the nooks and recesses and corners of the world. He has climbed the mountain side; has traveled along the valleys and over the prairies of the far west; along macadamized roads, and fields teeming with grain; under the scorching summer sun and amid winter's biting frost. He has done even more than this. He has made these nooks and corners of many a barren waste under his manipulating hand to "bloom and blossom as the rose." He has put thousands of thousands of barrels of fine fruits upon your markets and made plethoric the purses of hundreds with the profit of fruit growing that without him would have been destined to go down through all the long years as lean and as lank as the leanest of Pharaoh's kine. With all his faults and foibles and errors—some no doubt real, many others only imaginary—I cannot help exclaiming, "long may he wave," and "may his shadow never grow less."

WATERING TREES.

"Leon" in Rural Yorker says:

I often see men and women spill a pailful of water around the stem of a lawn, street, or orchard tree, and think they have done a good thing, but they

haven't. The absorbing rootlets are not there, but instead, the bulk of them are about as far away from the stem of the tree as the branches extend, therefore it is there, and not at the bole of the tree the water is needed. Observe an isolated, thrifty tree: it rains and you get underneath its boughs to get away from the shower; you keep dry while beyond a little way the water comes down from off the leafy branches as if off a shingled roof, and that is just where it is needed, where it can do the most good; for it is there the fibrous roots prevail. And just about as stupid a practice is the annual piling of manure around the trunks of trees; the manure is needed where the water is, and no nearer. But in the case of a general plantation or orchard, where the branches of the several trees meet, the rootlets are all over the ground, but much less so at the boles of the trees than elsewhere.

APPLE SHIPMENTS FROM EATON RAPIDS.

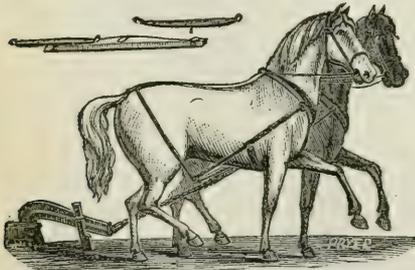
Mr. S. R. Fuller, a reliable fruit grower of Eaton county, obtained the full statement of apples shipped from Eaton Rapids by rail during the autumn of 1881, which was 14,400 barrels. This is pretty good for the non-bearing year.

A HARNESS FOR THE ORCHARD.

During the summer the secretary saw items concerning an adjustable harness for use in orchards that was so arranged as to effectually prevent injury to trees by the ends of whiffletrees. In response to an inquiry, Prof. E. Baur, Corresponding Secretary of the Washtenaw County Pomological Society, sends us the following account of the contrivance, with a small cut of the method of use:

I had the pleasure of seeing the Merrill A. Frost's harness in practical use at the orchard of Mr. J. J. Parshall, near the city of Ann Arbor, which contains 2,500 peach and pear trees of different ages, and by the use of this harness not one tree was injured.

The whiffle trees and evener are carried under the bodies of the horses. A chain fastened to the center of the evener is all that is between the horses and the plow or cultivator to which it is fastened. The usual stepping over traces is done away with, and much time saved. The team, being much nearer to the plow than in the old way, has a much lighter draft.



The cut explains how it is used.

When I first saw the rig I was afraid it would make mischief under the horses, but when I saw it work, my prejudice passed entirely away, as it was far enough from the bodies not to touch a hair.

This harness can be used with two or three horses, and by dropping the patent trees and extending the traces with heel chains, the ordinary whiffletrees can be attached. It should be named after the humane Henry Bergh, as it prevents cruelty to beasts as well as trees.

A PLEA FOR SNAKES.

Prof. Emil Bauer, of Ann Arbor, enters the following plea for serpents :

“ My gardener one day last May brought me triumphantly a very large blue racer he had killed in my orchard, stating that he had been attacked by a pair of them that had their home in a stone pile. I felt very sorry, knowing the usefulness of this species of serpent, yet not being fully posted on the habits of the blue racer, I addressed Prof. J. B. Steere, zoölogist of our State University, an inquiry. He replied : ‘ I received your note. The blue racer is not poisonous, but gets its food by crushing it. Its ordinary food is rats, mice and squirrels, and it may catch small birds. I don’t think they would be dangerous in the least to children, though they have a good deal of force in their coils. I never heard of anyone being hurt by them, though they are very plentiful in many parts of the west. I think you will find that their usefulness will outweigh any injury possible for them to do.’ Every one who meets a snake thinks he must kill it, while most of them are our helpers in the destruction of mice and noxious insects.”

A PAGE OF MICHIGAN HORTICULTURAL HISTORY.

A PIONEER HORTICULTURIST.

BY S. H. COMINGS, ST. JOSEPH.

In the spring of 1834 Timothy W. Dunham, of Orleans county, New York, came to Michigan for the purpose of establishing himself in the nursery business. He brought with him a chest of drawers or shallow boxes filled with apple tree root grafts, about 3,000 in number. He stopped first at Sandstone, Jackson county, and planted his roots on the land of Judge Valentine. The season was a very dry one and the little trees made a small growth. In the autumn he went back to New York and brought back some more grafts, cions and about one and one-half pecks of apple seed, part of which he sold to Hon. T. E. Gidley, together with the young trees that had grown on the farm of Judge Valentine. This seed and these young trees were the first step towards his extensive orchards mentioned by your correspondent, Mr. Shoemaker, in the report of 1880.

Mr. Dunham came on west to Kalamazoo with his remaining stock of apple seed, to make an effort to begin a permanent home, and hoping to establish a nursery and orchard farm somewhat on the plan of the prosperous nurseries about Rochester, N. Y., with which he was familiar. Kalamazoo had then but a handful of inhabitants, and no efforts are known to have been made at raising fruit trees, except a few apple seeds had been planted by Enoch French, hoping to raise a few apples for his own use.

Mr. Dunham purchased 40 acres of oak opening land in what is still known as the "Indian Fields," four miles south of the village. To save time he hired half an acre of flowed land and in the spring planted his apple seeds. The young trees were carefully tended and their growth watched with eager interest. The fine growth made was taken as an encouraging indication that the soil and climate of the then territory of Michigan were as favorable as that of western New York, which was then becoming noted as the "fruit belt" of the east. Each fall for the three following years Mr. Dunham made the tedious trip back to New York to obtain seeds, roots, cions or trees. Some of his first cions were grafted upon the wild crabs found in the forests to keep them alive and growing till his seedlings were large enough to graft. The growth upon the crab was found to be very slow, and after the third year most of them died, but they had served the purpose of keeping alive the costly cions brought so far. On his second trip he brought back a few small peach trees, but could only bring few for the cost of transportation was enough to stagger the faith and exhaust the pocket of any but a retired nurseryman. On

his last trip he brought back trees and a few other goods, in all about one-half ton of freight, and the cost of transportation from Detroit to Kalamazoo was over \$60. These trees were bought largely of Asa Rowe, one of the early nurserymen of Rochester. Gions and roots were also obtained at this time of Lay Brothers, of Ypsilanti, who had started a nursery in company with Asa Howe.

Mr. Dunham found, as did all others at this time, a great deal of confusion in the nomenclature of fruits, many single varieties being sold under various names. There was also great uncertainty as to the varieties best adapted to the soil and climate of Michigan. To test varieties and their adaptation to the country he at once began planting a permanent experimental orchard, planting a few specimens of each variety to test their value, and as soon as they came into bearing those that were not found worthy were discarded from the nursery stock and grafted over into something known to be good. This system of testing varieties was a great trouble and expense, but it was one of the beginnings of our present knowledge of valuable varieties to grow in this State, and if more nurserymen had thus early taken pains to learn the value of varieties a vast amount of labor and expense would have been saved.

Mr. Dunham made a specialty of apple trees, and rapidly extended his original half acre till he had twelve acres of nursery and about eighteen acres of orcharding. The peach grew well and yielded some fruit nearly every year, but a fair crop was obtained only about once in three years, until the winter of 1854-5, when nearly every peach tree in the whole country was killed to the ground. The pear, quince, cherry, and plum were also successfully grown. The latter, free from any depredations of the "little turk," proved a very profitable fruit. A few roses, lilacs and ornamental trees were cultivated, but met with very little sale. The Dunham nursery became widely known and furnished the main supply of home grown trees for the most of the original orchards about Kalamazoo. Many also came from Grand Rapids, Saugatuck, Paw Paw and other distant points for apple trees. One Dr. Thomas took a large number to plant in Illinois.

Jonas Woodward was one of the earliest planters of apples in the vicinity of Kalamazoo; among others who were very early fruit growers were John Knight of Prairie Ronde, Deacon Sherman Comings of Galesburg, Levi Blackman and W. C. Beckwith. Mr. Dunham first introduced the Lombardy poplar, by bringing a few sprouts from western New York, which have since multiplied to a great multitude. The early and enviable reputation which Kalamazoo obtained as a fruit growing town was no doubt largely due to the enthusiastic efforts of Mr. Dunham, who was a great lover of his calling and like others at the present day, very much interested in new varieties.

Toward the latter part of his stay in Kalamazoo one Tomlinson established a nursery east of the town; another was started by one Johnson on Grand Prairie; another by Prouty just out of the village on what is still called "Little Arcadia creek." He did more in ornamental trees and flowers than any other nurseryman at that time.

Messrs. Bragg & Co. had also made a beginning of their present extensive nursery before Mr. Dunham's removal in 1854 to St. Joseph to engage in raising peaches. His own nursery was sold and soon discontinued. At St. Joseph Mr. Dunham planted a large orchard of peach and apple trees, and had a peach nursery which was for years the main source of supply for the town and vicinity; and is still persevering in his efforts to grow peaches and fight the yellows.

REPORTS OF AUXILIARY SOCIETIES.

INGHAM COUNTY HORTICULTURAL SOCIETY.

PREPARED BY C. B. STEBBINS, SEC'Y.

OFFICERS FOR 1882.

President—Prof. W. J. Beal, Lansing.

Vice President—Dr. O. Marshall, Lansing.

Secretary—Geo. W. Parks, Lansing.

Treasurer—W. H. Overholt, Mason.

During the year 1881 the society has held ten meetings, which, though not (with some exceptions) numerous attended, have been of much interest.

Papers have been read upon the following subjects: "What shall I do with my apple orchard?" Prof. Beal; "Adornment of cemeteries," Prof. Beal; "Location of cemeteries," Dr. O. Marshall; "Management and keeping of cemeteries," Wm. Appleton; "Roads, roadsides, and trees," Prof. R. C. Carpenter; "Kitchen gardening," Robert Mann; "School-houses," Mrs. J. H. Emery; "Selection and management of bedding plants," J. Cassidy; "Raising plums," Dr. O. Marshall. Upon all these papers a free discussion ensued.

Among other subjects upon which extempore addresses were made and general discussion had, are the following: "Summary of an address of the President of the Ohio Horticultural Society," Wm. Van Buren; "Management of lawns," Prof. W. J. Beal; "Pear blight, keeping of grapes, etc.," "Lessons from the berry season," Ezra Jones; "Canning fruit," Mrs. D. L. Case; "Grapes—varieties, propagation, enemies, etc.," "Apples—for home consumption and for market," F. B. Johnson; "Report from meeting of State society at South Haven," Prof. Beal.

Several of the papers read and notes of discussions from the Secretary's record have been published in the Lansing Republican.

But twenty-two members were enrolled for the year, against thirty-eight for the year 1880; but the general interest of the meetings has in no wise abated. In keeping up this interest we are greatly indebted to Prof. Beal.

If the people could at all realize the benefit of our discussions, the interest taken in them by those who attend, and the value of a two-dollar book—and all for one dollar—we should soon need a large hall for meetings, instead of the pleasant little room of the State Horticultural Society.

COLDWATER HORTICULTURAL CLUB.

This society has made no official report. It is known that a very entertaining meeting was held in the month of June, at which there was a good attendance.

OFFICERS.

President—Geo. W. Fisk.

Secretary—J. D. W. Fisk.

GREENVILLE HORTICULTURAL SOCIETY.

PREPARED BY SECRETARY TAYLOR.

OFFICERS.

President—Dr. John Avery.*Secretary*—John E. Taylor.*Treasurer*—Mrs. J. W. Belknap.

It has been our misfortune to have appointed each of our regular meetings upon a rainy day, therefore we have not, from theoretical papers or random talks, revolutionized any of the accepted practices in horticulture. The horticultural resources of our vicinity are gradually developing, and the apple traffic has recently received an impetus which far surpasses the expectations of a few years ago. It is of interest, perhaps, to know that this increased traffic is but the natural result of the production of sufficient quantities of apples to attract the attention of shippers. When our orchards were small, we had but few apples; there was no demand beyond the home market, and farmers, considering the \$20 or \$30 proceeds of their 4 or 5-acre orchard but poor interest upon their investment, cried out against fruit-raising. This season Mr. B. S. Bigley of our society (from what fruit-growers would call a small orchard) marketed over \$200 worth of apples, and people generally now believe in the orchard.

BERRIEN COUNTY HORTICULTURAL SOCIETY.

PREPARED BY SEC'Y COMINGS.

OFFICERS FOR 1882.

President—S. G. Antisdale.

Vice Presidents—S. H. Comings, Stephen Cook, D. N. Brown, N. Merry, J. K. Bishop.

Secretary and Treasurer—Geo. F. Comings.

These officers constitute the executive board, with full power to enact laws, remove negligent officers, fill vacancies, call meetings, etc., and have charge of the annual expositions.

Regular meetings are held quarterly, the time and place being selected by the board.

The annual meeting for election of officers occurs on the second Wednesday of December.

Owing to the removal of both President Tate and Secretary Reeves from the State, we have no report of the meetings during the year 1881. Suffice it to say the society has held interesting meetings quite regularly, and is now in good shape to do excellent work for 1882.

SOUTH BOSTON HORTICULTURAL SOCIETY.

OFFICERS FOR 1882.

President—D. H. English, Saranac.

Vice President—J. C. English, Lowell.

Secretary—J. D. Stannard, Lowell.

Treasurer—B. Chapman, Chandler.

The annual meeting was held for election of officers in December, but owing to the fact that people outside of the grange have not interested themselves in the work of the society, the discussions, which otherwise would have made the society a success, have been carried into the grange.

OCEANA COUNTY HORTICULTURAL SOCIETY.

PREPARED BY SEC'Y CANFIELD.

OFFICERS.

President—C. A. Sessions, Sammon's Landing.

Vice President—D. W. Howard, Pentwater.

Secretary—W. J. Canfield, Pentwater.

Treasurer—W. H. Browne, Pentwater.

Librarian—W. Hudson, Pentwater.

Executive Board—L. M. Hartwick, S. A. Browne, D. L. Garver, A. Hollister, E. J. Shirts.

This society became an auxiliary to the State society last year. The territory embraced in its operations is the county of Oceana and vicinity. It contemplates holding its meetings the last Saturday of each month during the year; but owing to the late and backward spring of 1881, and considering the great amount of work for farmers and fruit-growers that would be necessary to be done in a short space of time, it was deemed best by the members of the society to postpone the monthly meetings during the busy season. The monthly meetings held in the early spring months (March and April), when a general discussion was had in regard to the fruit interests of this locality, were of a very pleasing and profitable character.

One great drawback here is that many of the older residents of the county, near the shore of the lake, are yet engaged in lumber operations, and take no especial interest in anything else. The younger portion of our population, many of them, coming and settling here for the express purpose of raising fruit, are wide awake on the subject, and already have large orchards planted, and where these have come into bearing are reaping large rewards for their enterprise and industry. This county bids fair to rival many of the older counties of our State in the production of apples, peaches, plums, pears, and the smaller fruits. The climate and soil are especially adapted to the growing of the peach.

LAWTON POMOLOGICAL SOCIETY.

PREPARED BY SECRETARY LAWTON.

OFFICERS.

President—N. H. Bitely.*Secretary*—C. D. Lawton.*Treasurer*—D. W. C. Lytle.

There is but little to report relating to the Lawton Pomological Society for the year 1881. The peach crop was a failure owing to the severity of the winter. The fruit buds were nearly all destroyed and in some instances a percentage of the trees also; but the orchards have received proper care during the past summer and the trees are in excellent condition for the present winter, and give abundant promise for a bounteous yield the ensuing year. All the dead trees will be replaced and the orchards enlarged and increased, and the number of peach trees planted out will be considerably increased. It is the first season since 1874-5 that there has been even a partial failure in the peach crop. The fruit men have been vigorous in watching for and in exterminating trees affected with the yellows. A commissioner made diligent search in all the orchards of the township, marking every tree that gave indications of disease, and found cheerful acquiescence in his judgment of condemnation from the owners. The yellows law is found to work admirably here, and the result thus far in endeavoring to check the spread of the disease is encouraging, to the extent that the percentage of loss of trees from this cause has not increased since systematic measures have been pursued to eradicate all diseased trees.

The berry crop, though not large, proved remunerative as prices ruled high, but owing to a lack of crates and boxes the growers were only able to ship a portion of the fruit, and much of it was sold to the fruit evaporating company here, by whom it was dried and marketed in that form.

Grape vines yielded well and the fruit brought good prices, and those who were fortunate enough to possess bearing vineyards profited handsomely. The anticipations of the early fruit growers here that the hills about Lawton are exceedingly well adapted to the production of this fruit in unusual excellence is borne out by later and larger experience. No better grapes are anywhere grown or with greater ease and profit. The varieties thus far cultivated are the Concord and Delaware, though many other kinds to a more limited extent, are successfully grown. The newer much lauded, high-priced varieties are being tested and such as prove valuable here will undoubtedly be largely set in the future. Among those of which the greatest hopes are entertained are the Pocklington, Vergennes, Prentiss, Dutchess, etc. Possibly the Niagara may be found to possess the greatest merits. When the embargo is removed that also will be tried. At present we listen to its praises from its proprietors and wait.

Members of the society have organized a fruit evaporating company and have an excellent building supplied with two Williams evaporators and other necessary appurtenances. It has been in operation two seasons and proves to be a very important adjunct to our fruit growing, enabling us to work up and

make profitable our soft peaches and unsalable berries and windfall and unmerchantable apples. It is thus an excellent auxiliary to the fruit growers and not an unprofitable investment to the stockholders. Our experience with dried berries will result in largely increasing the area of this fruit. If the demand for fresh berries is dull in the markets, or if by reason of protracted storms or unfavorable weather it is undesirable to ship, or the fruit becomes unsuitable for that purpose the grower is relieved from loss or anxiety by taking his fruit to the evaporator.

A market for the otherwise nearly worthless apples has lately grown up through the operations of two cider mills, the grinding and presses operated by steam, and one of them capable of making a large number of barrels per day. In the other have been placed facilities for making apple butter, boiled cider, apple jelly, etc., using the steam coil, and large wooden vat that can be readily raised or lowered to or from the stationary coil. The business can be greatly enlarged and made into an important industry.

Notwithstanding the failure of the peach crop the past year we have abundant ground for encouragement, and have in no wise lost faith in the profits and certainty of fruit growing as a business for a livelihood. The meetings of the society have been interrupted of late owing to several causes, but will be again resumed.

WOODLAND HORTICULTURAL SOCIETY.

PREPARED BY SECRETARY DAVENPORT.

OFFICERS.

President—Ira Stowell, Woodland.*Vice President*—B. S. Holly, Woodland.*Secretary*—Eugene Davenport, Woodland.*Treasurer*—Jesse Jordan, Woodland.

Owing to bad weather the regular meeting was not attended, and the officers above are those for 1880, the new officers not having been yet elected.

Several experiments in keeping apples were tried last winter, most of them failures. But it was found that apples packed in common land plaster kept till August 1st, and were gone then only because the supply was exhausted. Many were carried away as samples. Apples kept in this way seem to preserve their flavor far more perfectly than by any other process ever known to the writer, not excepting burying.

Fruit of all kinds was less plenty here this year than last, especially peaches. Apples were the nearest to a full crop. Cherries were injured in some places by worms, and plums are generally given over to the ravages of the "peculiar," as a local tree agent called him. Cabbage as a crop is almost a failure, owing to the worm.

In this region horticulture is not the vocation of any. General farming is the business, and a garden for the home table is all that any expect to have. Not returning a direct money profit, the real utility of a good garden is not appreciated by many of our citizens. The society has done no important work this year to be reported. The work for next year will, it is hoped, be in accordance with some definite plan. Although not fully decided what it will be, it is hoped that each member will take some one thing for his specialty, study its habits, best kinds, methods of raising, enemies, etc. If this plan is followed out, the secretary will have more to report another year. Even then a society located in a purely agricultural district will not do the work of one in a section where horticulture is the business of a large share of the inhabitants.

HOLLAND COLONY FARMERS AND FRUIT GROWERS' ASSOCIATION.

OFFICERS.

President—Arend Vischer.

Vice Presidents—Geo H. Souter, John Coatsworth.

Secretary—Isaac Marsilji.

Treasurer—Prof. Chas. Scott.

The secretary of this society reports that although meetings of the society have been held, still nothing of general interest has been brought out for report in the volume of the State Horticultural Society.

MUSKEGON COUNTY HORTICULTURAL SOCIETY.

PREPARED BY SECRETARY HOLT.

This society was organized December 16, 1880, and the following officers for 1881 elected:

President—Hiram S. Tyler.

Vice President—Samuel B. Peck.

Treasurer—Henry H. Holt.

Secretary—John F. Daggett.

The president and secretary afterwards resigned, and Samuel B. Peck and Henry H. Holt were elected to fill their respective places.

Regular meetings of the society have been held on the first Saturday of each month during the year, and have been more or less fully attended. At the meeting in February a very interesting article was read by the president, Mr. Peck, entitled the "Grape for the million." The article was published in the daily papers, and was very well received by those who had an opportunity of reading it. Mr. W. B. Clark read a valuable paper at the March meeting upon the cultivation of the sugar beet, which we regret to say was not published. This subject was well treated by Mr. Clark, and, by the way, is one in our opinion that is worthy of receiving greater attention than is at present bestowed upon it.

The society has made two exhibitions of fruit during the year, and which proved very successful, both as regards the display and the attendance on these occasions. The first of these was a display of strawberries and the other that of grapes and autumn fruits.

A *resumé* of the season as relates to fruit culture in Muskegon and vicinity is hereto attached.

MUSKEGON FRUIT SHIPMENTS.

From June 1, 1881, to September 19, 1881, the Lumberman's National Bank paid out for Chicago parties to Muskegon individuals the sum of \$23,338.88 for berries that had been shipped from this city to Chicago. Most of this amount was paid for strawberries. A few blackberries, raspberries, huckleberries, and whortleberries were also shipped from Muskegon, but not enough to become of any importance. This certainly speaks exceedingly well for the fruit raising qualities of Muskegon's soil, for all these berries are raised within a radius of six miles from our city—the fruit being larger and of a better quality than any other region can boast of. Perhaps this is claiming a great deal, but facts and appearances will undoubtedly prove that we are correct in our assertions. Each and every year the strawberry crop in this vicinity has been assuming larger proportions, and has now become enormous; indeed, our people are turning their attention simply to strawberries, grapes, and peaches, and are fully realizing all their hopes. The soil in this region is peculiarly adapted to fruit culture, and our easy access to the larger markets is something of great importance to fruit growers. By looking at the crop report for September it will be observed that Muskegon farmers can do better raising fruit than wheat.

The number of acres of wheat in Muskegon county was 6,297; the average yield per acre, 7.7 bushels; the number of bushels harvested, 48,479. Therefore our farmers are doing wisely in dropping the wheat question and spending more time in the valuable pursuits of cultivating the choicest strawberries, grapes and other fruits, and obtaining a desirable revenue for the same. This year the strawberry crop has been good, while the grape crop will be simply immense, and other fruits are raised with exactly as much satisfaction. There is no doubt in the minds of well posted fruit growers but that in a very few years Muskegon will rank as one of the first counties in the State in the raising of fruits of all descriptions; at least it looks that way at present.

At the meeting in November action in compliance with the request of the signal service corps was taken, an account of which copied from the Muskegon Daily Chronicle explains itself:

THE WEATHER REPORTS.

The Hon. H. H. Holt, secretary of the Muskegon County Horticultural Society, received a circular from H. B. Hazen, chief signal service officer of the United States, requesting the society's opinion as to the value of the reports to the various interests of the country now rendered by the signal service corps. He requested also that a statement be made as to what the interests of this section are, and that the society suggest any improvements in the workings of the service which would make it more efficient and useful.

In response to this circular the following resolution was passed by the society at its meeting Nov. 5, 1881:

Resolved, That the weather forecasts, or signal reports, now in use in the signal service have been proved to be of great value to the various interests of our country, including the fruit interests, and that we earnestly hope that measures will be used which shall provide for the publication of these reports in every city and village of the United States in which a daily paper is published. In this connection we would particularly ask that means be provided for the publication of these reports in the daily papers of the city of Muskegon, it being the largest and most important commercial city on the eastern shore of Lake Michigan.

The members of the society feel that the success thus far attained has been such as to encourage further effort and purpose to enter upon the new year with increased energy.

GRAND RIVER VALLEY HORTICULTURAL SOCIETY.

PREPARED BY SECRETARY COOK.

OFFICERS.

President—Henry Holt, Cascade.*Vice President*—Wright L. Coffinberry, Grand Rapids.*Treasurer*—Samuel L. Fuller, Grand Rapids.*Secretary*—William N. Cook, Grand Rapids.*Executive Board*—William K. Emmons, Wyoming; Elwood Graham, Walker; William K. Munson, Grand Rapids; Sherman M. Pearsoll, Grand Rapids.

The regular monthly meetings have been held (with one or two exceptions) and well attended by members who are thoroughly interested in the general subject of horticulture. An important session of the society was the meeting for the discussion of yellows in peach trees on the evening of January 18, 1881, (which was well attended by the leading horticulturists of the State), in the parlors of Sweet's Hotel in the city of Grand Rapids. A very large meeting was held at the village of Sparta, March 1st, at which time the fruit buds of the peach trees in the townships of Alpine and Sparta were examined, having at that time experienced the severest cold of winter, and the favorable report of the committee was fully verified by the crop which followed.

The picnic and meeting of the society at the grounds of Munson & Knapp was well attended by members of the society and the people of the neighborhood, also a delegation of eleven members of the Allegan county pomological society, including its president and secretary.

Delegates from this society to the quarterly meetings of the State society have attended those meetings and reported at our own meetings.

Our society has held no fair nor have they exhibited fruit as a society, but the interest in our meetings has been kept up and we feel encouraged to continue our work vigorously next year.

BAY COUNTY HORTICULTURAL SOCIETY.

PREPARED BY SECRETARY WEDTHOFF.

OFFICERS.

President—B. F. Partridge.*Vice President*—Samuel Rowden.*Secretary*—A. B. Wedthoff.*Treasurer*—Nathan Knight.

This is a young society founded during 1881, and promises well. Starting with a membership of twenty-nine and full meetings, we shall expect an excellent report for 1882. At the annual meeting there was a fine attendance and a nice exhibit of winter fruit.

ADRIAN HORTICULTURAL SOCIETY.

PREPARED BY SECRETARY OWEN.

OFFICERS.

President—J. W. Davis.*Vice President*—D. Ellenwood.*Treasurer*—A. Sigler.*Secretary and Librarian*—Woodland Owen.*Executive Committee*—D. Edmiston, Benjamin Steere, A. Sigler, G. Allen, C. W. Sheffield, Peter Collar.

At the annual meeting, held at the office of Dr. W. Owen, Henry E. Owen presented a circular from the Secretary of the State Horticultural Society, urging the advantages to this society of becoming auxiliary to that institution. The circular was discussed at considerable length, and laid on the table till the next meeting. At the next meeting, January 19, 1881, the following resolution was passed: "That the Adrian Horticultural Society become auxiliary to the State Horticultural Society, and that its constitution be amended to conform thereto, with the proviso to withdraw at any time by a majority vote of this society."

The society has had several meetings during the year, but not with the regularity anticipated at its commencement.

The fruit crop in this county has not been up to the average this season. Apples half a crop, pears an average,—and many very fine orchards. Small fruits injured by drouth. The show of fruits at Lenawee county fair, though not so large as at some other times, was in many respects of superior quality,—and some of the best plates of pears ever shown in the county, while grapes did not reach the average; apples were good but scarce.

The taste for horticulture and pomology, as well as floriculture has greatly improved the past few years in this county, and a growing interest is yearly manifested by the taste and beauty displayed in the ornamentation of homes, way-sides, and some attempts at landscape gardening.

SAUGATUCK AND GANGES POMOLOGICAL SOCIETY.

PREPARED BY RETIRING SECRETARY MARKHAM.

OFFICERS.

President—James F. Taylor.*Vice Presidents*—A. Hamilton, Levi Loomis, J. H. Bandle, Wm. Corner, P. Purdy, N. W. Lewis.*Secretary*—H. Bird, Jr.*Treasurer*—J. S. Owen.*Directors*—J. P. Leland, T. R. Lewis, A. Hamilton, H. L. House.

But few meetings have been held during the year, and at these but few discussions were had except of a local character. Judging by these discussions the fruit men have not lost faith in the business, and judging by the amount of transplanting done and preparing to be done, great results must be expected. The fruit crop was very small the past season, but brought excellent prices, and the few lucky ones were enabled to reap a rich reward. Small fruits were a fair crop, and prices better than for years. Peaches averaged \$2 (net) per bushel. Apples, half a crop netted an average of about 80c. per bushel.

The prospects thus far are excellent for a large crop the coming season. The fall has been neither cold nor warm, and buds have not swelled or otherwise been injured, and the setting is large. The prosperity of every class of industry is indicative of remuneration to the pomologist.

That dreaded scourge to the peach grower, the yellows, is still under comparative control, and taken all in all our prospects for another year are decidedly encouraging.

The work of our society has not been carried on with its usual vigor. The members have not been as punctual in their attendance, or as earnest in their work when they did attend. Financially the society is in constant straits to meet its obligations, and it was thought advisable to curtail its expenses. For the ensuing year no reports except of business transactions will be made. The secretary and other officers are to serve without compensation, and the usual postal card notice to members of the time of meeting is to be discontinued. It is hoped in this way to be able to meet all obligations, and if the society shall prove to be small, the expenses will not be large.

The wildest prophesies about the extent of the fruit business of this region bid fair to be more than realized. From reliable data I have ascertained that in the three towns of Laketown, Saugatuck, and Ganges, more than 200,000 peach trees will be set the coming spring, and there seems to be just as much eagerness to extend the area of orchards as ever. I am of the opinion that the business is already overdone, and that in the near future it will be ruined by a product greatly exceeding the demand, and that it behooves the prudent and careful to be on their guard.

BENZIE COUNTY HORTICULTURAL SOCIETY.

OFFICERS.

President—H. M. Spicer, Frankfort.

Secretary—J. W. Van Deman, Benzonia.

Treasurer—A. G. Butler, Frankfort.

The assistant officers for the township branches are as follows: Benzonia, Vice President, J. J. Hubbell, Assistant Secretary, Chas. F. Burroughs; Frankfort, Vice President, James McKelvey, Assistant Secretary, August Schmidt; Joyfield, Vice President, Chas. H. Parker, Assistant Secretary, John S. Perry; Blaine, Vice President, Wm. G. Voorheis, Assistant Secretary, Orlo E. Putney; Pleasanton, Vice President, D. R. Van Amburg, Assistant Secretary, A. M. Warren.

A meeting of citizens of Benzie county was held at the College Hall in Benzonia on Tuesday evening, Feb. 8, 1881. Owing to the rain and bad roads there was not the large attendance from all parts of the county that was expected. Four townships were represented. The Benzie County Horticultural Society was organized as a branch of the Michigan State Horticultural Society by adopting the constitution and by-laws furnished us by the State secretary. The constitution was amended so that any township represented by five members or more shall be entitled to a vice president and assistant secretary. The following officers were elected: J. J. Hubbell, President, J. W. Van Deman, of Benzonia Secretary; A. G. Butler, of Frankfort, Treasurer. For Joyfield township Chas. B. Parker was elected Vice President, John S. Perry Secretary. For Blaine, Wm. G. Voorheis Vice President, Orlo Putney Secretary. For Crystal Lake township, H. M. Spicer Vice President, N. A. Parker Assistant Secretary.

After some discussion of business and tasting specimens of fruit the society adjourned to meet in Frankfort Tuesday evening March 8, 1881. The township assistant secretaries were requested to obtain as many members as possible immediately, and collect the fees (\$1 for gentlemen, 50 cents for ladies), and forward to the secretary at Benzonia, that one-half of the fees may be forwarded with the names to the State Secretary early in March in time to get copies of the State Horticultural Report for each member.

Regular monthly meetings have been held during the year and topics suitable to the season have been discussed. The plan of this society is to follow the example of the parent society and do missionary work by holding meetings in the various parts of the county.

Just before the annual meeting a card was sent out, which was folded, having the announcement of the meeting on one side and a blank ticket for election of officers on the other. As the idea may be useful to other societies the card is here inserted in the report:

A CARD.

The annual meeting of the Benzie County Horticultural Society will be held at Benzonia, Wednesday eve., Dec. 7, 1881. All members of the society and those intending to become members for 1882, are requested to be present, as it is the election of officers for the coming year. If you cannot come please fill out the attached blank ticket and forward to J. W. Van Deman, Benzonia.

Old members are entitled to vote if they do not renew their membership, but all are requested to continue with the society.

J. W. VAN DEMAN,
Secretary.

TICKET FOR OFFICERS OF THE BENZIE COUNTY HORTICULTURAL SOCIETY.

	President
	Secretary
	Treasurer
Frankfort.	{ V. Pres.
	{ Ass. Sec.
Benzonia.	{ V. Pres.
	{ Ass. Sec.
Joyfield.	{ V. Pres.
	{ Ass. Sec.
Blaine.	{ V. Pres.
	{ Ass. Sec.
	Please enroll my name as a member for 1882.
	Name

The membership of the society is above forty, and there is an increasing interest. We aim to be in the van among the branches of the State society.

The following item was prepared for the Benzie County Journal by the secretary early in the year:

I take pleasure in reporting the following items for your columns. The fruit crop of Benzie county for 1880 was, apples, 8,579 bushels, peaches 1,140 bushels, pears 104 bushels, plums 650 bushels, cherries 125 bushels. Our township, having the oldest orchards, produced, apples 5,137, peaches 495, pears 44, plums 150, cherries 25 bushels. The sum total of all for the county is 10,598 bushels (not including grapes and small fruits); value about \$10,000. The value of orchard products reported for Benzie county in census of 1870 was \$60. Our county is growing, you see. Our favorable location in the fruit belt on the east shore of Lake Michigan will help our thousands of thrifty fruit trees to make a still better showing ten years hence, if providence favors us and we do our part.

JACKSON COUNTY HORTICULTURAL SOCIETY.

PREPARED BY R. T. MCNAUGHTON, SECRETARY.

OFFICERS.

President—W. K. Gibson.*Secretary and Treasurer*—R. T. McNaughton.

The first meeting of the year was held February 10th, the rooms being decorated very prettily with plants, bouquets of flowers, and plates of fruit, one collection of apples preserved and exhibited by H. F. Thomas, representing in time of ripening every month in the year; Mrs. Andrews also had nestling in a beautiful basket of flowers an orange ripened in her greenhouse. Hon. Eugene Pringle first addressed the meeting on the subject of ornamental tree culture. He thought an error was frequently made in planting evergreens too thickly in a limited place, and in placing them too near the house, especially on the south side. He would use evergreens mainly as a background to deciduous trees, and for wind-breaks. If a large place has no desirable surroundings, it is well to so plant and trim the trees and shrubs used as to confine the view mainly within the place itself, while if the surrounding scenery is good, the planting should be so arranged as to appropriate it and show the best views.

Mr. Pringle's remarks brought out some discussion of the subject, after which Prof. White made some excellent remarks on the educational value of horticulture. As education, the development and expansion of our powers in the greatest degree, is the true object of our life here, so any occupation becomes of value to us in proportion as it is educational. The child with his teacher, and the garden for a text-book, would be, perhaps, as well prepared to learn the great truths of life, and to discipline himself, as if confined within the walls of a school-room, and many of our self-made men have received their best lessons from nature.

Following this, and after a selection of vocal music, a paper was read by Alex. Brown, Jr., on the

TREATMENT OF HOUSE PLANTS.

There are many different families of plants, varying so widely in their nature and requirements as to soil and treatment, that it would be exceedingly difficult, even if I were perfectly competent, to give any brief directions for general application.

With regard to the growing of the common house plants,—geraniums, fuchsias, begonias, etc., etc.,—needing the same temperature and treatment, one general rule may be followed. The first thing to be considered in keeping plants is the pots in which they are to be placed. The common clay flower pots, being porous, are the best. When covered with the pretty, ornamental, expansive wood covers which are now quite generally used, they are almost as showy as the expensive glazed china, or fancy pots. In potting plants, care should be taken not to place the plant in too large a pot. One size larger than that in which it has been growing is sufficient. The drainage of house plants,

as with all vegetable growth, is of the utmost importance. Every pot should have at least an inch of broken crocks, charcoal, or small gravel stones placed in the bottom. With regard to soil, most plants succeed best in a mixture consisting of four equal parts of leaf mould, rotted manure, sand, and common garden soil.

Whenever the plants are dry they should be watered, so that the earth in the pot will be saturated and no more, for when much water passes off it tends to weaken the soil. No water should be allowed to remain in the saucers under the pots except in the case of aquatic plants. Soft-wooded plants require more water than hard-wooded. The plants should be placed in a room where the temperature does not exceed 65 or 70°, and where they can have as much light and fresh air as possible. If placed in windows the plants should be turned occasionally, so that they may not grow one-sided. Cold air should never be allowed to blow directly against the plants.

One of the greatest secrets in growing plants successfully in the house lies in keeping them clean. The leaves should be washed on both sides at least once a week, with a sponge moistened with warm water; this serves to open the pores and keeps the plant healthy. Plants should never be allowed to become covered with insects, as they are easily destroyed if dealt with when they first appear. The aphid, or green fly, may be removed by fumigating with tobacco smoke. Put the plants under a barrel with smoking tobacco, let them remain about ten minutes, then give them a syringing. The mealy bug and scale may be removed by washing the plants thoroughly with warm soap-suds. Worms are best removed by turning the plant out of the crock and picking them out.

Mrs. R. T. McNaughton then read a paper on the

ARRANGEMENT OF FLOWERS IN BOUQUETS.

What a beautiful thing is a flower! God's smiles, as they are aptly called, appeal to every human heart, and exercise a soothing and refining influence even over the roughest. The last link which binds the degraded and erring one to a good and noble life is often the faded flower in the vase, or the evident longing towards the beautiful seen in the few poor plant pots in the window. Anything which helps to continue and increase this taste and love so common to all must then be regarded as worthy of our attention, and we can but feel that this society is destined to do much in this direction, "humbly aiming," in the words of that talented horticultural writer, the lamented Downing, "to weave something into the garland of the beautiful and useful that encircles this excellent old earth." Flowers, while beautiful in themselves and standing singly, have this beauty increased and intensified by being properly combined in a bouquet, and as there is much in the manner of their combination to determine the success of the whole, my few words will aim to hint at the way of effecting this in the most pleasing and tasteful manner. And first, when flowers are cut, the stem should be severed with a sharp knife, and not with a scissors, nor the thumb and finger, since the bruising of the stem prevents the ready absorption of water in the vase. The selection of varieties of flowers will depend somewhat on the kind of bouquet and its use. If a large emblem to be used in a public place and seen at a distance, large flowers may be used which would seem coarse in a hand bouquet. Colors must also be considered in the choice of material. Taste would seem to indicate that a certain unity of design should be regarded, and not a promiscuous assemblage permitted. Some one or two kinds and colors should take the lead in giving the character

to the composition, and all the rest being subservient to these and supporting them. For instance, the principal feature of the bouquet may be roses or camellias, and the prevailing colors pink delicately shading into black and white, with a dash of bright scarlet, or violet, to set off the white. A tasteful writer on this subject says: "The incongruous mixing of colors in a great measure destroys the effect of the finest flowers, while the more delicately the coloring is blended, and the more strikingly contrasted, the more perfect and pleasing the result. Yellow may occasionally be used with good effect, and seems to blend best with blue shades. Crimson and scarlet should never be placed side by side or used in the same bouquet, as one destroys the other. Purple and blue should also be avoided." Just as much taste and judgment should be exercised in the arrangement of colors in a floral design as in a bonnet or dress. Green should always be used in abundance. Indeed, each flower set in a bed of green prevents one detracting from the beauty of another. The simplest and most common way of arranging flowers is placing them in vases, the more loosely and unconfined the better. To accomplish this one must have plenty of green to keep the flowers apart. Crowding should always be avoided. Flowers of similar size and shape should not be placed together, for both being of the same character, if not of the same kind, are so intermingled that we lose sight of the real beauty of both. Arrange them in the most graceful manner possible, avoiding all stiffness; easy and unconfined, as if they grew in that particular position, with here and there a sprig of fern, spikelet of heath, or graceful trailing vine. There are many ways of arranging flowers. Even the poorest need not be deprived of their refining influence, and with a little taste can render the plainest home charming and attractive by these, nature's loveliest adornments. Vases should be of a delicate tint, never of a dense color. Select those which are wide at the top—trumpet-shaped are the most graceful—thus permitting the use of drooping vines. Pretty, open work-baskets filled with flowers, with fine vines twined over the handles, make very pretty floral pieces. Pyramids of various descriptions are beautiful for center pieces. Few ladies seem to realize how much more attractive a home may be made by the use of flowers. Tables, sideboards, and mantels, especially if the latter has a mirror at its back, afford a fine place for a floral display. Like all gifts which come from our Creator, they are free to all who have minds to admire and energy and taste to cultivate and arrange them. They do not spring up at our bidding, nor are we always obliged to seek greenhouses for them, but they may be found by the roadside, in the woodland or meadow, springing up here, there, and everywhere, bearing to us glad tidings of our Father's great goodness and love.

After some discussion as to the needs of the society, and the way to make its meetings effective, the society adjourned.

March Meeting.

At this meeting the subject under discussion was "The Vegetable Garden; What and How to Plant." As the preliminary to work in the open ground, the management of a hot-bed was talked over by President Gibson and others, bringing out the best methods for the private and commercial garden. In brief, for a family garden, prepare a pit two feet or so deep, and, say, six by nine feet, for three sashes each three by six feet; put these sashes onto a box-like frame made to cover the pit, and so that the sashes are removable, but as tight-fitting as may be, and with a slight pitch to the south. The pit should

then be nearly filled from a pile of fresh horse manure and leaves, two to one (previously piled up to heat), well mixed and trodden down, and when the violent heat of fermentation has subsided to, say 90°, put on five or six inches of rich soil, and sow seed. After this, great pains should be paid to watering, admitting air during the day, and covering the sash at night till the plants are transplanted.

A paper was next read by Mr. Doney on a selection of the best twelve vegetables for the family garden, which he made as follows, with some remarks about each vegetable on the list: Asparagus, rhubarb, beans, peas, potatoes, onions, pumpkins, tomatoes, squash, melons, celery, and cabbage. He would have more in his garden, but these would be his selection if limited to twelve. Some varieties were recommended: Of peas, McLain's Little Gem, Champion of England, Saxton's Alpha, Early June; of cauliflower, Early Paris and Early Erfurt; and of celery, Boston Market, or other dwarf sort.

A paper written by Geo. Sawyer, of Grass Lake, was read by the secretary (Mr. S. not being present) on

FARM YARDS AND GARDENS.

As we pass through the country in this part of the State (which, by the way, is the very garden of Michigan), how forcibly are we impressed with the difference in the way in which farmers care for their farms, yards, and gardens! On the one side they seem to think they cannot spend too much labor, or take too much pains, to have their farms look well, and really vie with each other as to who shall have the best cultivated, and consequently the best-looking farms. While upon the other hand there is directly the opposite feeling manifested—yard rough and neglected, with no garden worth mentioning. Who can pass by a nicely-kept yard, in connection with a fine vegetable and flower garden, without exclaiming how pleasant, how home-like, no matter how humble the dwelling? But there are so few of these in the country that you can ride mile after mile, through the very best and richest part, without passing a single well-kept yard and garden. The idea seems to prevail very largely among farmers that time spent in caring for anything more than a potato and cabbage patch in the way of a garden is time thrown away; at the same time, a great majority of them will spend more time in town than would care for a beautiful garden, which would add so much toward making home pleasant and attractive for their families, and, at the same time, cast a refining influence over their children that would not forsake them during their entire lives. And right here let me say that there is a feeling quite prevalent among farmers that they are compromising their dignity by working in the flower garden or with the lawn mower. This is all wrong, and our society should be the means of correcting such improper notions. The vegetable garden that the family can run to and gather at will is a great convenience, and there is no measuring the comfort derived from it.

In my vegetable garden I would have all the staple varieties, from the asparagus that comes so early, and is so welcome after the long winter, to the celery that is dug in the fall and transplanted in the cellar for winter use. It is not necessary to raise a large amount of these things; a well-selected variety, and a little of each, will supply any ordinary family, and it is so easily done, too, that a few minutes each day, or an hour now and then, as the case may be, will suffice to grow all that is needed. A very small amount of labor will give a family a constant supply of fine, crisp radishes simply by making a bed of

clear sand three feet wide by twenty feet long, and one foot deep. They flourish well in this, and will be entirely free from worms. I mention this, for I think it is not generally known. By planting one-half of this bed, and waiting ten days or two weeks before planting the other half, one can have a constant supply of that much coveted vegetable. And a strawberry bed no one can afford to do without, it is so easily cared for, and yields such a quantity of healthy and delicious fruit. I would also have a row of currants, gooseberries, raspberries, blackberries, and grapes in my garden; they all do so well here, and require so little attention, it seems as if no family could afford to be without them. The manner of setting out and cultivating I will not enter into. Of course the better they are handled the better returns one will get. My flower garden I would have nicely laid out, and well filled with hardy plants that follow each other in blooming so that there would be plenty of flowers for the family to pick at any time.

A well-written essay on canning fruit was read by Mrs. G. H. Lathop, developing many good ideas. The manner of preserving fruit fresh was discussed at some length, and some well preserved apples shown. The society then adjourned till its April meeting for the consideration of the question, "How to observe Arbor Day," which meeting was held on

April 22.

Mr. A. J. Gould read an interesting paper on the subject, pointing out some inducements for planting trees and shrubs, with instructions how to set successfully, and hints as to where he would put them. The following resolution was also adopted:

WHEREAS, The 28th day of April has been designated by proclamation of the Governor as Arbor Day, and intended as an occasion on which all who can may unite in setting out trees and shrubs; and,

WHEREAS, We, members of the Jackson County Horticultural Society, believe this to be productive of much benefit in a country already being stripped of its forests to too great an extent, and of great value to our city in the appearance of its streets and lawns, and of much pleasure and gratification to those planting the trees and watching their growth; therefore,

Resolved, That this society heartily recommends this work on Arbor Day to the general public, and especially to those owning city lots not already ornamented by trees and shrubs, by the observance of which duty they may render such lots more valuable, and the general appearance of the city more pleasing.

It was thought that the efforts of the society were instrumental in bringing about the pretty general planting which followed on Arbor Day.

COLON AND MATTESON POMOLOGICAL SOCIETY.

The officers for 1880 and 1881 are as follows:

President—Orison Tomlinson.

Vice President—R. E. Copeland.

Secretary—J. H. Clement.

Treasurer—G. W. Teller.

Executive Committee—Dr. Isaac Sides, W. H. Castle, Richard Dougherty, P. Farrand, Ansel Tyler, of Colon; R. E. Copeland, A. Turner, A. Fiske, G. Fulton, of Matteson; Wm. B. Langley, of Centerville; Henry Yanney, A. C. Prutzman, Three Rivers.

No report has been received from this society at the time of making this compilation.

ALLEGAN COUNTY POMOLOGICAL SOCIETY.

OFFICERS FOR 1881.

President—George T. Lay.

Vice President—John B. Dumont.

Secretary—Edwy C. Reid.

Treasurer—Benj. D. Pritchard.

This society has held interesting meetings regularly during the year, but no report has reached the State society at the date of sending this to the printer.

WASHTENAW COUNTY POMOLOGICAL SOCIETY.

BY SECRETARY GANZHORN.

OFFICERS FOR 1882.

President—J. Austin Scott, Ann Arbor.*Vice Presidents*—J. D. Baldwin, Manchester; Dr. A. Conklin, Manchester; Judge P. L. Page, Ann Arbor.*Secretary*—Jacob Ganzhorn, Ann Arbor.*Corresponding Secretary*—Emil Baur, Ann Arbor.*Treasurer*—Evert H. Scott, Ann Arbor.*Executive Committee*—Wm. McCreery, C. H. Woodruff, J. J. Parshall, John Alman.*Botanist*—Prof. Volney Spalding.*Ornithologist*—Prof. J. B. Steere.*Entomologist*—D. J. Higley.*Climatologist*—Dr. Alex. R. Winchell.*Hygienist*—Prof. A. B. Prescott.

The society is steadily gaining strength. Rarely a meeting passes off without more or less new members joining. The membership is now nearly twice the number it was January 1, 1881.

The fruit crops for the past season were light, except grapes; the latter yielded immensely, and of the best quality, where the vines received proper care. An increased interest is being taken in small fruits, especially in raspberries, Cuthbert and Gregg leading. The grape is now largely planted for the market, and for the family supply among farmers. Apples began to drop unusually early from the trees, and the crop was poor and in every way imperfect. Good apples are selling from \$1.50 to \$2 per bbl. Peaches sold for 60 to 80 cents per 8-quart basket at home; extra choice ones, \$1 per basket. Grapes sold at from 4 to 6 cents per lb. Strawberries and raspberries were in good demand, and sold quickly at 10 and 15 cents per quart. There were but few pears and quinces in the market; no blackberries, except from those who have the Snyder. Currants are raised in moderate supplies, and sold for 6 to 8 cents per quart. Plums were an entire failure, and many of the growing trees have suffered from the past cold winter, and a good many were killed outright.

MEETINGS.

In the January meeting the condition of the fruit buds—the peach—mainly was discussed, with the view of the prospective crop, as the weather had been severe. The main discussion of the meeting, however, was on the preservation of fruits. The feasibility of starting a canning factory was talked of and was favorably considered. A committee was appointed to consider the subject further, and to report at a future meeting.

An adjourned meeting was held on the 15th of the month. The continued severe cold weather had caused anxiety as to the safety of the peach buds, and a talk on the subject naturally followed. The views of the speakers began to be less hopeful than at the former meeting.

The planting of peach trees close to a belt of timber was considered injurious; a free circulation of air was considered best.

Transportation of fruits was talked of some, and encouragement was given by J. D. Baldwin that improved facilities may soon be realized.

Fruit packages were next discussed. Crates and bushel baskets were liked better than the small round baskets, especially when shipped for canning purposes.

J. J. Parshall spoke of the value of coal ashes as a mulch to keep down weeds, and of their power to retain moisture around plants and trees.

J. D. Baldwin used them considerably, and said it loosened up his heavy clay soil.

By request of the meeting Dr. A. Conklin gave his experience and observation in keeping fruits in refrigerating houses. He believed such houses practicable for keeping fruits beyond their natural season and that soft peaches could be made into jellies without sugar.

Emil Baur believed it was better to make peach jam out of soft peaches.

In the February meeting the subject of the erection of a fruit and vegetable canning factory was resumed and the project was favorably entertained, but no definite result being arrived at in the matter.

A fine display of apple jellies was exhibited by N. B. Covert. They were made by Miss Sarah Fletcher.

A discussion ensued on jelly making. Miss Fletcher was in favor of using sugar in its manufacture for the market, while others believed the use of sugar for market purposes impracticable.

J. D. Baldwin spoke enthusiastically on fruit culture, and believed we could not overdo the business as there was an increasing demand for our fruits by foreign markets.

J. Austin Scott was much interested in what was said by the preceding speakers, and like them felt assured that a canning house could be profitably carried on here. We need and want them all around us and the world will require their products. If all the suitable lands were put into apples with the proper varieties, and the trees properly managed, he contended the business would not be overdone. Mr. Scott laid particular stress on the importance of good care to trees. The cultivator, he said, should have a love for his business and then he would succeed. To grow and produce something, he believed was one of man's noblest efforts.

Judge P. L. Page spoke of the moral side to the question under discussion and thought the good effect upon the community that would follow in giving employment to a large number of persons through the establishment of canning or fruit preserving houses was apparent.

J. D. Baldwin, as vice president of the county agricultural and horticultural society, made a proposition at the March meeting that this society take charge of the fruit exhibit of said society at the next fair. After discussion the proposition was accepted.

A variety of jellies was again presented to the meeting for examination and on which a discussion followed.

Judge P. L. Page said that he believed apples should be cooked with the skins left on, and that by so doing the full aroma of the apple is retained.

Prof. B. E. Nichols gave the meeting a very interesting talk on the sanitary effects of eating fruits. He had no doubt but that the apple was best eaten as it comes from the tree. Half of his living, he said, was fruit. In order to secure the best effects from eating fruit one must abstain from eating it between meals.

Emil Baur said he concurred in the remarks made by Prof. Nichols, but regarding the eating of fruit as given us by the hand of nature, fruits would have to be preserved in various ways in order to supply the people living where fruit cannot be raised. He thought highly of baked apples.

N. B. Covert asked Prof. Nichols if he knew any one who ate largely of fruits who was addicted to the use of alcoholic drinks, and the reply was in the negative.

Dr. Lockwood said that he once was afflicted with dyspepsia, but was now entirely cured by eating largely of fruits.

J. Austin Scott said that he was in the habit of eating apples a little before meal time and that he experienced good results from it.

In April the committee on fruit canning houses made verbal reports. The project was warmly entertained by the committee and by the meeting, but as the cold winter allowed a poor prospect for a good or full peach crop the matter was thought best to go over for this season.

The manufacture of jellies was again discussed and other minor topics, also the transportation of fruits.

J. W. Wing said that the fruit interest was closely allied with farming and that the two great interests together in the near future would force attention among railroad companies, and that those interested would have something to say in making rates of freights.

In May the subject for discussion was "injurious insects."

Dr. A. Conklin said a mixture of lard or common grease and sulphur applied around the bodies of trees would prevent depredations by the curculio on cherries, plums and peaches. He had tried it with success.

Against the codling moth Paris green and London purple was recommended, also pasturing sheep and swine in the orchard.

Some fight the peach borer by digging them out with the knife. J. D. Baldwin put ashes around the trunks at the base and left a square of sod uncultivated as a remedy against the borer. Dr. Conklin uses his grease and sulphur remedy for this insect.

Emil Baur thought that Dr. Conklin was on the right track with the use of sulphur against insect life and cited some noted German authorities who fight insect life and mildew with sulphur.

President Dorr uses soft soap, carbolic acid and sulphur as a mixture against the peach borer. He has used London purple for killing potato bugs with success, and thought it cheaper than Paris green.

Judge Page and others destroyed the currant worm successfully with hellebore. Emil Baur said carbolic soap dissolved in rain water was better than hellebore for killing the currant worm. Slacked lime and ashes were successfully used for this insect, before the hellebore remedy was known, by a member.

John Alman said that cayenne pepper mixed with flower or fine midlings, and dusted on with a pepper-box, was a remedy for the cabbage worm.

J. D. Baldwin said he had no success with linseed oil for keeping off the pear blight.

At the June meeting J. D. Baldwin said mulching strawberries in winter made them ripen somewhat later. He favored sandy soil. The Wilson is still esteemed by him as a valuable variety. Woodruff's seedling No. 1 on sandy soil, he considers very valuable.

Rev. E. A. Spence spoke favorably of Crescent Seedling. It did better with him than the Wilson.

Jacob Ganzhorn said the location and soil has also much to do with the time of ripening. High ground, he had observed, ripened the berries earlier than low ground, and a sandy, warm soil favored early ripening more than a soil of a colder nature.

J. D. Baldwin then opened a talk on the raspberry, and spoke in high terms of the Cuthbert. He commented on the great success his neighbor, Benjamin Day, had achieved with this berry. Mr. Day made this his exclusive variety for the market, and of which he has 5 or 6 acres planted.

J. Austin Scott praised the Cuthbert. He also stated that now was a good time to transplant raspberries. The Snyder blackberry he finds the most hardy, and for that reason the best to plant. Mr. Scott also likes the Gregg raspberry.

Jacob Ganzhorn said he liked the Turner better for quality than the Cuthbert, but had no doubt that the latter is the most profitable market berry.

J. D. Baldwin here related his observation in regard to the Hill's Chili peach reproducing itself from the seed.

Mr. Scott said that some years ago he procured a quantity of Hill's Chili peach pits and planted them. The peaches of these seedling trees, he claimed, are richer, and in every way better, than those of budded trees. The seedling trees all proved to be Hill's Chili in appearance, but somewhat better in quality. He took some of these to Ohio and showed them to some of the best fruit men, where they were pronounced of the best quality, and fine in appearance. The seedling trees being hardier than budded trees, he believed them superior for planting.

In July Dr. Conklin's grease and sulphur remedy against the curculio was inquired into. Emil Baur reported a decided failure with it. J. D. Baldwin used up 50 lbs of the mixture, but with no success at all; others reported likewise.

Mr. J. A. Scott believed that the shaking process was the severest remedy against the curculio.

Mr. Baldwin stated that the sulphur remedy was a sure preventive on melons against the yellow-striped bug.

Judge Page said that the severe cold winter followed by a severe dry spring was very trying to fruit trees.

The reproduction by the seed of the Hill's Chili peach was brought up again and an enthusiastic discussion in favor of improving the peach by known hardy kinds like the above ensued.

Mr. Baldwin believed that after about eight generations with the Hill's Chili peach, a variety would be produced hardy enough to stand the climate of northern Minnesota.

At the August meeting Secretary Ganzhorn explained the process of budding quite minutely, and was asked numerous questions about the details of the process.

The raising of seedling peaches was again discussed. J. D. Baldwin and Jacob Ganzhorn contended that we ought not to go into this business in a haphazard way; but should begin on some foundation. The pits of some well known hardy variety should be chosen, and such as ripen about the time we desire.

At the September meeting Chas. H. Woodruff displayed his new seedling grape, White Ann Arbor, which was much admired and won universal praise.

Judge Page asked whether it was good practice to cut back peach trees during the growing season.

Jacob Ganzhorn said that when the growth is too rampant a shortening in would help to mature the wood properly for the winter; but if but a moderate growth is made by the tree, no material benefit would be derived by summer pruning.

The barbed-wire fence was strongly advocated, and also the picket-wire fence for orchards.

John J. Robertson believed that the picket-wire fence is the best for an orchard.

E. A. Nordman said that he would recommend a strong, heavy picket. If a barbed wire fence was put up, he would use at least six wires instead of four as is usually done, and would put the posts eighteen feet apart.

S. Mills was decidedly in favor of barbed-wire fence; he said stock should be introduced to the wires before driving them in such an enclosure, and by so doing no fatal result to the stock would be incurred.

Jacob Ganzhorn said that the fruit man is obliged to fence against trespassers rather than against stock, and for this reason believes the picket-wire fence the best for him.

Prof. E. B. Nichols said he had the osage orange hedge, and that this made a good fence, and he would recommend it with confidence.

Jacob Ganzhorn said that wherever the osage hedge crosses a low place it winter-killed in severe cold winters; the honey locust was entirely hardy, and would therefore be a better hedge plant.

Mr. Bodwell showed the meeting a honey locust plant and a separate branch four feet long taken from a three-years-old hedge plant. He has this hedge in use and said it would make a safe fence against live stock in from three to four years.

A special meeting was held in the middle of the month for perfecting plans and preparations for the fruit exhibit at the county fair in October.

The October meeting was mainly devoted to the county fair.

Merely business of a local character was transacted at the November meeting and delegates appointed to the annual meeting of the State Horticultural Society for December, 1881. The weather being unpropitious and people tired out by the recent fairs, the meeting had but a small attendance.

ANNUAL MEETING.

After annual reports the secretary read a communication sent in by Dr. Conklin, of Manchester, of the committee on the preservation of fruit. He

gave his experience with refrigerating houses, and was confident that fruit can be kept in these houses till it can be advantageously disposed of. He has kept summer apples in such a house till now in perfect condition, and kept strawberries thirty days from picking in good condition.

The society then proceeded to the election of officers for the ensuing year, which resulted in the choice as given at the head of this report.

FRUIT CATALOGUE FOR 1882.

PREFATORY NOTE.

Owing to the pressure of other matter, it was thought best to publish our volume for 1880 without the Fruit Catalogue, and by so doing we have learned, perhaps, better than we otherwise could have done, the appreciation of this work by the fruit-growers of Michigan and adjoining States. Numbers of inquiries have been made as to whether the publication of the Catalogue had been permanently discontinued. It is to be hoped that those who seem so deeply interested in this work of our Catalogue committee will not forget to show their satisfaction by rendering such assistance as they can in the labor of revision. The Catalogue is expected to be an epitome of the experience of our Michigan fruit-growers, and its accuracy depends upon the readiness with which they respond to the interrogations of the chairman of the committee.

It is with pleasure we note the adoption of similar methods in other States; let the good work go on, and when each State that grows fruit extensively shall have a catalogue of its own, the American Pomological Society may well look with pride upon the offspring of its own early undertakings in a valuable field of enterprise.

The requests and acknowledgments of the committee cannot be better expressed than in the following communication which was received in connection with the copy for the revised edition:

SOUTH HAVEN, January 3d, 1882.

Sec. Chas. W. Garfield.

DEAR SIR—In submitting the second revision of the Fruit Catalogue, I may be allowed to again invite the attention of those interested in fruit culture to the fact of its proposed annual revision, and to the consequent necessity for the collection, during the year, of such facts and experiences as may serve as aids in rendering the result more perfect, and therefore more valuable. With this purpose, we urge all persons into whose hands this Catalogue may come to communicate to the member of the committee for his district, or to the general chairman, at any time during the year, any facts within their knowledge calculated to aid in rendering such revision more perfect.

The desired information, to be available for the purpose, should be received early in November, in order that the revision may be completed in time for submission at the annual meeting of the society, on the first Wednesday in December.

Aside from the reports of the several members of the committee of the past year, the chairman takes this opportunity to especially acknowledge the receipt of valuable aid from C. D. Lawton, of Lawton, Van Buren county; also from George C.

McClatchie, of Ludington, Mason county; besides occasional and valuable incidental aid from various other persons.

The following gentlemen are members of the standing committee on catalogue for the year 1882, to any one of whom information may be communicated:

First District—B. W. Steere, Adrian, Lenawee county.

Second District—E. W. Cottrell, Detroit, Wayne county.

Third District—H. Dale Adams, Galesburgh, Kalamazoo county.

Fourth District—W. A. Brown, Stevensville, Berrien county.

Fifth District—George C. McClatchie, Ludington, Mason county.

Each of the above is empowered and expected to appoint three or more residents of his district as a sub-committee for the district, he being, *ex officio*, chairman thereof; the duty of such sub-committee being to collect information respecting the introduction and testing of varieties of fruits in the district; and also as to the "uses and values" of the varieties grown therein, and to forward the same to the general chairman as aids in the next revision.

It is deemed desirable and important that such sub-committees be appointed at an early date, and that they be called together occasionally during the season at which fruits are maturing, for the comparison and identification of varieties.

It is also deemed important that there be at least one meeting during the year of the general committee, for the purpose of general consultation, and the arranging of plans for the coming revision.

T. T. LYON,

Chairman of Committee on Catalogue.

The wish of the society is not to avoid criticism, but rather to invite it, for perfecting the work that is begun. We want the friends of Michigan horticulture to aid us by advice and kindly assistance, that we in turn may aid the planters who look to our association for counsel. By thus aggregating the experience of the best observers, we hope to secure the people who come to abide with us, in developing the fruit interests of our State, from many of the errors which others have made from a want of information.

SECRETARY.

CATALOGUE FOR 1882.

ABBREVIATIONS, APPLICABLE THROUGHOUT THE CATALOGUE.

Size.	Quality.	Adhesion.	Season.	Origin.
l. large.	b. best.	c. cling.	The usual ab-	The usual ab-
m. medium.	g. good.	f. free.	brevisions	brevisions
s. small.	v. very.		for months.	for countries.
v. very.			b. beginning.	h. hybrid.
			e. end.	? doubtful.
			m. middle.	

The season of maturity given is, as nearly as practicable, that of the second and third tiers of counties, reckoning from the south line of the State.

The nomenclature adopted is that of "Downing's Fruits and Fruit Trees of America"—latest edition.

PLAN OF THE CATALOGUE.

The varieties are numbered at the extreme left, and also at the left of the page occupied by the column of remarks, to avoid confusion in tracing the connection. Synonyms are introduced in a few cases only, and *italicised*. In the column devoted to descriptions, the distinguishing peculiarities of the fruit, with its season and origin, are more or less fully given by the use of abbreviations. Those applicable to the entire catalogue appearing at its commencement; and those applying locally, at the heads of the sections to which they appertain. In each of the sub-columns headed use and value, the figures 1 to 10 express the graduations of value, for the purpose to which the column is devoted; the first two sub-columns having reference strictly to the quality of the fruit separately considered; and the third to all the qualities, whether of tree or fruit, that affect the question of profitableness. Under the head of locality, a sub-column is assigned to each of the five districts into which the lower peninsula of the State is divided, such divisions being as follows, viz.: 1st district, the eastern tier of counties, from the southern boundary of the State northward as far as its capacity for fruit culture is known. 2d district, the mass of interior counties, omitting the tier along the southern boundary, and those adjoining Lake Michigan. 3d district, the southern tier of counties, omitting Monroe on the east and Berrien on the west. 4th district, the lake shore counties from the south line of Berrien northward to and including Ottawa county. 5th district, the counties adjacent to Lake Michigan and its bays from the south line of Muskegon county as far northward as their capacity for fruit culture is known. In these columns a * indicates that the variety which it represents is known to succeed in the district; ** that it is especially valuable, and a † that it is on trial and found promising. In the column headed use and value, the graduation is generally arrived at by comparing fruits of similar character with each other, as sweet apples with sweet apples; also fruits of a given season with others of the same class and season. Many kinds of very little value are added, for the purpose of showing by the low values given them, and by remarks in the column for that purpose that, though more or less grown in the State, their farther cultivation is not intended to be encouraged. The leading advantage to the fruit culturists of the State, sought in this catalogue, is to supply all who may wish to plant with a distinct purpose in view, the means of selecting wisely with reference to such purpose, from the varieties which shall have been properly tested in the State and found best adapted to the special purpose they shall have in view.

SECTION I.—APPLES.

ABBREVIATIONS FOR THIS SECTION.

Form.

a. angular.
c. conical.
f. flattened.
l. top sided or oblique.

o. oblong.
ob. obtate or obtuse.
ov. oval or ovate.
r. roundish.

NUMBER.	NAMES.	DESCRIPTIONS.					USE AND VALUE, Scale 1 to 10.			
		Size.	Form.	Color.	Quality.	Season.	Origin.	Dessert.	Cooking.	Market.
1	Alexander.....	v. l.	r. c.	g. y. r.	g.	Oct. Dec.	Rus.	2	10	6
2	American Beauty.....	l.	r. c.	y. d. r.	v. g.	Dec. Apl.	Mass.	7	5	6
3	American Golden Pippin.....	m. l.	r. ob. c.	y. b.	v. g.	Nov. Feb.	Am.	7	7	7
4	American Golden Russet.....	s.	r. ov.	y. ru.	b.	Oct. Jan.	Am.	9	6	2
5	American Pippin (<i>Grindstone</i>).....	m.	ob.	g. r. b.	g.	Dec. Dec.	Am.	1	6	4
6	American Summer Pearmain.....	m.	o.	y. r.	b.	Sept.	Am.	10	5	5
7	Anglo American.....	m.	ob.	y. r.	v. g.	Aug. Sept.	Can.	7	5	3
8	Aunt Hannah.....	m.	r. ob.	y. ru.	g.	Dec. Feb.	Mass.	6	6	6
9	Autumnal Swaar.....	l.	r. c.	o. y. ru.	v. g.	Sept.	Am.	7	7	5
10	Autumnal Sweet Swaar.....	m.	c. ob.	y. r.	v. g.	Oct.	Am.	5	5	2
11	Autumn Sweet Bough.....	m.	c. a.	y.	v. g.	Aug. Oct.	Am.	5	5	2
12	Bailey Sweet.....	l.	r. c.	y. d. r.	v. g.	Nov. Mar.	N. Y.?	6	7	4
13	Baldwin.....	l.	r. c.	y. c. r. o.	v. g.	Nov. Mar.	Mass.	6	9	10
14	Bars.....	l.	r.	y. r. ru.	v. g.	Sept.	R. I.	7	4	6
15	Beauty of Kent.....	l.	r. f. c.	g. y. p. r.	g.	Oct. Nov.	Eng.	5	8	7
16	Belle et Bonne.....	v. l.	r. ob.	y.	g.	Oct. Mar.	Conn.?	2	8	6
17	Belmont.....	m.	r. f. c.	y. v.	v. g.	Nov. Mar.	Penn.	9	5	7
18	Ben Davis.....	m. l.	r. c.	y. r.	g.	Dec. May.	Ken.?	3	5	9
19	Benoni.....	m. s.	r. ob. c.	y. d. c.	v. g.	Aug. Sept.	Mass.	7	6	6
20	Bentley Sweet.....	m.	r. f. l.	y. g. r.	v. g.	Jan. May.	Vir.?	4	6	3.
21	Better than Good.....	m.	ob.	y.	g.	Nov. Jan.	Penn.?	6	5	2.
22	Black Gilliflower.....	m.	o. c.	g. d. r.	g.	Nov. Feb.	Am.	4	2	6.
23	Blenheim Pippin.....	l.	r. ob. c.	y. o. d. r.	g.	Oct. Dec.	Eng.	5	9	8
24	Blue Pearmain.....	l.	r. c.	d. p. r.	g.	Oct. Feb.	Am.?	6	5	5.
25	Bottle Greening.....	m.	ob. c.	g. y. c. r.	v. g.	Jan. Feb.	Ver.	8	---	---
26	Broadwell.....	m.	ob. c.	y. b.	v. g.	Nov. Feb.	Ohio.	7	7	2
27	Buckingham.....	m. l.	ob. c.	g. y. c. r.	v. g.	Nov. Feb.	Vir.?	6	7	7
28	Buffington's Early.....	m.	ob.	y. w. r.	v. g.	Aug.	Penn.	7	7	3
29	Burr's Winter Sweet.....	m.	ob. c.	y. r.	v. g.	Nov. Mar.	Mass.	6	7	2
30	Cabashea (<i>20-oz. Pippin</i>).....	v. l.	r. ob. c.	y. r.	g.	Dec. Feb.	Am.	1	4	1
31	Canada Reinette.....	l.	ob. c. f.	g. y. b.	v. g.	Dec. Apr.	Eur.?	8	7	1
32	Carolina Red June.....	s.	ov. c.	d. r.	v. g.	Aug.	N. C.?	7	6	3

SECTION I.—APPLES.

ABBREVIATIONS FOR THIS SECTION.

b. brown.
c. carmine.
cr. crimson.
d. dark.
g. green.

Color.
o. orange.
p. purplish.
r. red.
ru. russet.
s. scarlet.

v. vermillion.
w. whitish.
y. yellow.

NUMBER.	LOCALITY.					REMARKS.
	East.	Center.	South.	Southern Lake Shore.	Northern Lake Shore.	
1	*	*	*	*	*	Tree vigorous, spreading, productive; very beautiful. For cooking, superior.
2	*	*	*	---	---	Vigorous, productive, annual bearing tree. Sometimes small and scabby from overbearing.
3	*	*	*	---	---	An old sort. Superior to many that are better known.
4	*	*	*	---	---	Said to be better farther south. Tree upright. Fruit often scabby and worthless.
5	*	*	*	/*	*	Keeps a year. Cooks well, but otherwise scarcely eatable.
6	*	*	*	*	*	Slow grower, hardy. Fruit, when perfect, mild, rich, excellent. Very beautiful.
7	*	---	---	---	---	Tree vigorous, productive. Sweet apples are little wanted at this season.
8	*	---	---	---	---	Tree a slow grower. Fruit not specially attractive.
9	*	*	*	*	---	Hardy, vigorous, spreading. Excellent, but not productive enough for the market.
10	*	---	---	---	---	Tree and fruit desirable, but coming in with the bulk of the fall fruits lessens its value.
11	*	---	---	---	**	One of the best dessert sweet apples of its season.
12	*	*	*	*	*	For vigor, productiveness, size, beauty and quality combined this has few if any superiors.
13	**	**	**	**	*	Tree lacks hardness. Fruit drops badly. Bitter rot in large specimens. Stands first on light soils in southern Michigan.
14	*	---	---	---	---	Good enough in tree and fruit, but has to compete with the mass of fall fruits.
15	*	*	*	*	*	An old culinary fruit,—now nearly superseded.
16	*	---	---	---	---	A vigorous and productive old New England apple. Little known here, and not valued where known.
17	*	*	*	*	*	Fruit often defective in this climate. Best for home markets. Suits the popular taste.
18	*	*	*	*	*	Vigorous, hardy, prolific. Fruit beautiful and handles well, but scarcely fit to eat. Sells well in the market.
19	*	*	*	*	*	Tree upright, vigorous, very productive. Fruit too small on old trees.
20	*	---	---	---	---	Tree grows and bears moderately. Not generally known or highly valued.
21	*	---	---	---	---	Not as good or as valuable here as the name imports.
22	*	*	*	*	*	Very mild flavor. Soon gets dry and mealy. Prized by a very few persons.
23	*	*	*	*	---	In vigor and productiveness, also character of fruit, this is very desirable, for market and cooking.
24	*	*	*	*	*	Beautiful; but lacks both productiveness and quality.
25	*	---	---	†	---	Vigorous, spreading. Little grown in this State.
26	*	*	*	†	*	Vigorous, hardy, spreading, irregular, productive. A desirable sweet apple.
27	*	---	---	---	---	Little grown here. More popular farther south.
28	*	---	---	---	---	A desirable dessert apple. Not at generally known as it deserves to be.
29	*	---	---	---	---	Good grower, early bearer, productive. But little known.
30	*	*	*	*	*	Tree vigorous, tender; thin bearer; drops badly. Poor quality. Subject to bitter rot.
31	*	*	*	*	---	An old and excellent apple; but now little called for.
32	*	*	*	*	*	Often small, scabby, and imperfect; quality excellent. Ripens in succession.

SECTION I.—APPLES—CONTINUED.

NUMBER.	NAMES.	DESCRIPTIONS.					USE AND VALUE, Scale 1 to 10.			
		Size.	Form.	Color.	Quality.	Season.	Origin.	Dessert.	Cooking.	Market.
33	Chenango Strawberry.....	m.l.	o. c.	w. c.	v. g.	Sept. Oct.	N. Y.	8	4	9
34	Chronical.....	m.	r. c.	g. y. r.	g.	Dec. Dec.	Ind.	2	2	4
35	Clyde Beauty.....	l.	r. c. a.	g. r.	g.	Oct. Jan.	N. Y.	6	7	8
36	Cogswell.....	m.l.	r. ob.	y. r.	b.	Dec. Mar.	Conn.	8	7	8
37	Cole's Quince.....	l.	r. ob.	g. y. r.	v. g.	Oct. Dec.	Maine.	6	8	6
38	Colvert.....	l.	ob. c.	g. y. r.	g.	Oct. Nov.	N. Y.?	4	7	7
39	Cooper.....	l.	r. ob.	g. y. r.	g.	Oct. Dec.	Am.?	4	6	7
40	Cooper's Market.....	m.	ob. c.	y. r. c.	g.	Dec. May.	Am.?	6	6	6
41	Cornell's Fancy.....	m.	o. c.	y. c.	v. g.	Oct. Nov.	Penn.	7	6	8
42	Craig's August.....	m.	r. c.	y. r.	g.	Aug. Sept.	Am.	6	4	6
43	Cranberry Pippin.....	m.	r. ob.	y. s.	g.	Nov. Mar.	N. Y.	5	7	7
44	Cumberland Spice.....	m.l.	r. c.	y. r.	g.	Dec. Mar.	N. J.	6	5	7
45	Daniel.....	m.	o. c.	g. y. cr.	v. g.	Sept. Oct.	Am.	6	4	2
46	Danver's Winter Sweet.....	m.	r. o.	y. o.	v. g.	Nov. Apr.	Mass.	5	7	3
47	Detroit Black.....	m.l.	r. c. f.	d. cr.	g.	Oct. Feb.	Can.?	6	4	2
48	Detroit Red.....	m.	r. c.	d. cr.	g.	Oct. Nov.	Am.?	4	3	1
49	Devonshire Quarrenden.....	m.s.	r. f. c.	d. cr.	g.	Aug. Sept.	Eng.	5	6	2
50	Domine.....	m.	r. ob.	g. y. r.	v. g.	Dec. Apr.	Am.?	6	6	7
51	Drap D'Or.....	l.	r. ob.	y.	g.	Aug. Oct.	Eur.	5	5	1
52	Duchess of Olbenburgh.....	m.	r. ob.	y. r.	g.	Sept.	Rus.	5	9	8
53	Dyer (<i>Pomme Royal</i>).....	m.	r.	g. y. r.	b.	Sept. Oct.	Fr.?	10	8	4
54	Early Harvest.....	m.	r. ob.	y. w.	b.	July, Aug.	N. Y.?	9	8	5
55	Early Joe.....	s.	ob. c.	y. r.	b.	Aug. Sept.	N. Y.	10	6	4
56	Early Long Stem.....	s.	o. c.	g. y.	g.	Aug.	Am.	6	5	1
57	Early Strawberry.....	s.	r. c.	y. r.	v. g.	July, Aug.	N. Y.	8	6	6
58	English Russet.....	s.m.	r. c.	g. y. ru.	g.	Jan. May.	Am.?	4	5	6
59	English Sweet.....	m.l.	o. c.	d. r.	v. g.	Oct. Feb.	N. E.?	6	9	4
60	(<i>Ransdell's Sweet</i>) Esopus Spitzenburgh.....	l.	o. c.	y. r.	b.	Dec. Apr.	N. Y.	9	10	4
61	Evening Party.....	s.m.	ob.	w. g. r.	g.	Dec. Mar.	Penn.	8	4	2
62	Fallowater.....	v.l.	r. c.	y. g. r.	g.	Nov. Mar.	Penn.	4	4	7
63	Fall Jenetting.....	l.	ob. c.	g. y. r.	g.	Sept. Oct.	Conn.?	5	4	6
64	Fall Orange.....	l.	r.	y. r.	g.	Oct. Nov.	Mass.	4	8	8
65	Fall Pippin.....	v.l.	r. f.	y. g. b.	b.	Oct. Dec.	Am.	9	10	7
66	Fall Wine.....	m.	r. ob.	r. y.	b.	Sept. Nov.	Am.	8	6	1
67	Fameuse (<i>Snow</i>).....	m.	r. ob.	g. y. r.	v. g.	Oct. Nov.	Can.?	9	4	6
68	Flushing Spitzenburgh.....	m.	r. c.	g. y. r.	g.	Nov. Mar.	N. Y.?	6	6	7

SECTION I.—APPLES—CONTINUED.

NUMBER.	LOCALITY.					REMARKS.
	East.	Center.	South.	Southern Lake Shore.	Northern Lake Shore.	
33	*	*	*	*	*	Tree vigorous, spreading, productive. Fruit of very delicate texture. Popular wherever known.
34	*	*	*	*	---	Negative in quality; will keep two years; moderate annual bearer.
35	*	*	*	*	---	Tree vigorous, upright, very productive. A desirable market apple.
36	*	*	*	*	---	The tree and fruit are both satisfactory, whether for the home or market.
37	*	---	---	---	---	Upright, spreading, productive. A desirable family fruit with a quince aroma.
38	*	*	*	*	*	Tree vigorous, hardy, prolific. Fruit large, showy, but not of high quality. Popular with the masses. Sells well in market.
39	*	*	*	*	*	Tree very vigorous, upright, spreading. Fruit even sized, very attractive.
40	*	*	*	---	*	Hardy, vigorous, upright, productive. Profitable.
41	*	*	*	---	---	Vigorous, productive. A desirable fruit for general purposes.
42	*	---	---	---	---	Strong grower, upright, productive. Of possible value for market.
43	*	---	---	---	*	Tree a good grower, productive. Fruit much like the Maiden's Blush. Even more beautiful. Worthless at the extreme north.
44	*	*	---	---	---	Tree a good grower and great bearer. Its color and season are against it for the market.
45	*	---	---	---	---	Very peculiar in growth of tree, as well as color and flavor of fruit. Is better than it looks.
46	*	*	*	*	---	Strong grower and very productive; deserves more attention.
47	*	*	*	---	---	Unproductive, showy, valueless. This is probably the Detroit Red of Downing.
48	*	*	*	---	---	There are probably several varieties grown under this name. None of them valuable.
49	*	---	---	---	---	Tree spreading, productive. Flavor fine, but fruit often imperfect or scabby; beautiful.
50	*	*	*	*	*	Tree has long, stout, spreading branches, which are very liable to be broken by the heavy crops of fruit. Scabs on old trees.
51	*	*	*	---	*	Tree straggling, moderate grower, unproductive. Very little known.
52	**	**	*	**	*	Hardy, vigorous, very productive. Of little value except for cooking and market. Sells well; but soon decays.
53	*	*	*	*	---	One of the very finest dessert apples. A poor grower. Unprofitable as a market fruit.
54	*	*	*	*	*	Tardy, irregular bearer. Fruit often imperfect. Valued mainly for its earliness. Fails on old trees.
55	*	*	*	*	*	For the garden. With high culture the fruit is beautiful and excellent.
56	*	---	---	---	---	Little grown. Of little value with so many more attractive fruits in season.
57	*	*	*	*	*	One of the most attractive dessert apples of its season. Ripens in succession. By some considered profitable.
58	*	*	*	*	*	Strong, upright, very productive, tender. Fruit very even sized, often small. Keeps easily a year. Poor quality.
59	*	*	*	*	*	Very vigorous, and productive. Best sweet apple of its season for cooking and market.
60	*	*	*	*	*	Tree seems to lack vigor. Fruit much called for in the market, but rarely offered. Best on rich, warm soils.
61	*	---	---	---	*	Much like Rambo in tree and fruit. Very little disseminated.
62	*	*	*	*	*	Grows and produces well. Too poor in quality. Size its chief recommendation. Always sells well.
63	*	*	*	*	*	Tree vigorous; spreading, productive. Its season and color detracts from its value.
64	*	---	*	---	---	The apple grown in this State under this name proves to be the one grown as "Newell," in Hillsdale county.
65	*	*	*	**	*	Tree strong, spreading, productive; liable to scab. Often keeps till spring. In central district lacks productiveness.
66	*	*	*	*	*	Grows and bears well. Fruit often scabby. Not extensively grown.
67	*	*	*	*	**	Fruit scabby and imperfect on old trees. Best on new, rich soils. Good at the north. Profitable where it succeeds.
68	*	*	*	*	---	Strong, reddish brown shoots. Very productive. Sometimes scabby. Not esteemed valuable.

SECTION I.—APPLES—CONTINUED.

NUMBER.	NAMES.	DESCRIPTIONS.						USE AND VALUE. Scale 1 to 10.		
		Size.	Form.	Color.	Quality.	Season.	Origin.	Dessert.	Cooking.	Market.
69	Fort Miami.....	m.	r. o. c.	y. b. ru.	v. g.	Mar. May.	Ohio.	6	6	---
70	Foundling.....	m.l.	r. ob. c.	y. g. r.	v. g.	Aug. Sept.	Mass.	7	7	6
71	Fourth of July.....	m.s.	r. ob. c.	w. y. r.	g.	July.	Ger.	4	6	6
72	Gabriel (<i>Ladies' Blush</i>).....	m.	r. ob.	w. g. cr.	v. g.	Oct. Nov.	Am. ?	9	6	3
73	Garden (<i>Comstock's</i>).....	m.	r. ob.	w. r.	g.	Sept. Oct.	N. Y.	3	9	5
74	Garden Royal.....	m.s.	r. ob. c.	g. y. r.	b.	Aug. Sept.	Mass.	10	5	3
75	Garrettson's Early.....	m.	r. c.	y.	v. g.	Sept.	N. J.	8	8	8
76	Genesee Chief.....	l.	r. c.	w. cr.	g.	Sept.	Am.	6	8	7
77	Gilpin (<i>Carthouse</i>).....	m.	r. o.	r. y.	g.	Dec. May.	Vir.	5	4	5
78	Gloria Mundi.....	v. l.	r. ob.	g. y.	g.	Oct. Feb.	Eur. ?	1	3	3
79	Golden Russet (N. Y.).....	m.s.	r. ob.	y. ru.	v. g.	Dec. May.	Eng. ?	8	5	9
80	Golden Sweet.....	l.	r.	g. y.	g.	Aug. Sept.	Conn.	6	5	4
81	Gravenstein.....	l.	r. ob. a.	y. r. o.	v. g.	Sept. Oct.	Ger.	7	7	5
82	Green Newtown Pippin.....	m.	r.	g. br.	b.	Dec. May.	N. Y.	10	8	3
83	Green's Choice.....	m.	r. c.	y. r.	g.	Aug. Sept.	Penn.	6	5	7
84	Green Sweet.....	m.	r. ob. c.	g. y.	g.	Dec. Mar.	Mass. ?	6	6	7
85	Grimes' Golden.....	m.	r. ob. c.	y. o.	v. g.	Dec. Mar.	Va.	9	7	8
86	Hall.....	s.	ob. c.	y. r.	v. g.	Dec. Apr.	N. C.	8	---	---
87	Hartford Sweet.....	l.	r. f.	y. g. r.	g.	Dec. June.	Conn.	6	7	4
88	Harvest Redstreak.....	s.	r. f.	g. y. r.	g.	July.	Penn. ?	2	6	2
89	Haskell Sweet.....	m.l.	ob.	g. y. r.	v. g.	Sept. Oct.	Mass.	6	7	2
90	Hawley (<i>Dowse</i>).....	l.	r. ob. c.	y.	v. g.	Sept.	N. Y.	9	2	5
91	Hawthornden.....	m.l.	r. f.	w. y. r.	g.	Sept.	Scotch.	3	7	7
92	Herefordshire Pearmain.....	m.	r. c.	y. d. r.	v. g.	Nov. Feb.	Eng.	8	6	1
93	Hightop Sweet.....	m.s.	r.	y.	v. g.	Aug.	Mass.	6	6	2
94	Hog Island Sweet.....	m.	ob.	y. r. c.	v. g.	Sept. Oct.	N. Y.	6	7	3
95	Holland Pippin.....	v. l.	r.	g. y. r.	g.	Aug. Nov.	Eur. ?	6	8	4
96	Hollow Crown.....	l.	r. c.	y. r.	g.	Nov. Dec.	N. E.	5	7	8
97	Horse.....	l.	r.	y. r. ru.	g.	Aug. Sept.	N. C. ?	5	6	5
98	Housum's Red.....	m.	r. o.	y. r.	v. g.	Dec. Feb.	Penn.	6	6	5
99	Hubbardston Nonsuch.....	l.	r. o. c.	y. r.	b.	Nov. Feb.	Mass.	10	5	8
100	Hunt's Russet.....	m.s.	r. ob. c.	y. ru. r.	v. g.	Jan. Apr.	Mass. ?	7	7	6
101	Hurlbut.....	m.	ob. c. a.	y. r.	g.	Oct. Dec.	Conn.	6	7	6
102	Indiana Favorite.....	m.l.	r. f.	y. r.	g.	Jan. Apr.	Ind.	5	5	7
103	Jabez Sweet.....	m.	r. c.	y.	g.	Dec. Feb.	Conn.	5	7	3
104	Jefferis.....	m.	ob. c.	y. cr.	v. g.	Sept. Oct.	Penn.	9	6	6

SECTION I.—APPLES—CONTINUED.

NUMBER.	LOCALITY.					REMARKS.
	East.	Centre.	South.	Southern Lake Shore.	Northern Lake Shore.	
69	*	---	*	---	---	So far bears rather sparsely. Tree healthy, thrifty. Requires farther trial.
70	*	---	---	---	---	Moderately vigorous, spreading, productive; desirable in its season.
71	†	---	---	†	---	Strong, upright. May be valuable for its earliness.
72	*	---	---	†	---	Small tree; productive. A very beautiful dessert fruit.
73	---	---	*	---	---	A fine culinary apple. Cooks well when half grown.
74	*	*	*	---	---	Moderate grower. Upright roundish. Best dessert apple of its season.
75	*	---	---	---	---	Vigorous, upright, spreading. Very promising.
76	*	*	*	*	---	Strong, vigorous. The showy fruit is the chief attraction.
77	*	*	*	*	---	A good cider apple, and passable for the table.
78	*	*	*	*	*	Vigorous; not productive. Size its only attraction. Worthless every where.
79	**	**	*	*	**	Hardy, vigorous. Shoots slender. Very productive. Brings a high price in late spring, if wintered in close packages.
80	*	*	*	*	*	A hardy, spreading, prolific tree. Very popular in its season. Tree tender at the extreme north. Often fed to stock.
81	*	*	*	*	*	A fine culinary fruit. Tree a fine grower and hardy; lacks productiveness. Bears better at the north.
82	*	*	*	*	*	A weak, slender grower. Fails generally at the west. Unprofitable. Best on "opening" soils.
83	*	---	---	---	---	Vigorous, productive. Has good qualities for market.
84	*	*	*	*	---	Tree vigorous, productive. Desirable. More than one variety grown under this name. The genuine is of course intended.
85	*	*	*	*	*	Tree spreading, vigorous, hardy, prolific. Fruit beautiful. Flavor fine, peculiar.
86	*	---	---	---	---	A hardy, upright, slender grower. A beautiful little fruit for the table.
87	*	*	---	---	---	Moderate grower, hardy, productive. A good baking sweet apple.
88	*	*	*	---	*	Tree overbears and fruit becomes small. Tender flesh, acid. Unworthy.
89	*	*	*	*	**	Vigorous, productive. One of the finest of sweet apples.
90	*	*	*	*	*	Annual bearer. Fruit beautiful and good, but soon decays. A dessert fruit. A better keeper north.
91	*	*	*	*	---	Tree vigorous, spreading. Productive alternate years. A beautiful culinary market fruit.
92	*	*	*	*	---	Tree vigorous. Fruit excellent in flavor, but generally imperfect. Very unprofitable.
93	*	---	*	---	---	Tree upright, vigorous. Very productive. Fruit very beautiful and good.
94	*	---	---	---	---	Vigorous, prolific. Desirable, but very little known. Beautiful.
95	*	*	---	---	*	Like Fall Pippin, except in quality and season; but not as good. Very little known.
96	*	---	---	---	---	Little planted. This season has other and worthier varieties.
97	*	---	---	---	---	Should give place to others of better quality for this climate.
98	*	---	---	---	---	Little known; and may very properly be laid aside.
99	*	*	*	**	**	Should be in every orchard. A very good market variety. Of the highest quality.
100	*	*	*	*	*	Distinct from Golden Russet of N. Y. and the west. Not as valuable.
101	*	---	---	---	---	Very productive. Fruit fair, but not very attractive. Little disseminated.
102	*	---	---	---	---	Both tree and fruit adapted for market. Very little known.
103	*	---	---	---	---	Highly prized in Monroe Co. Not widely disseminated.
104	*	*	*	*	*	A very productive and desirable dessert fruit for early autumn.

SECTION I.—APPLES—CONTINUED.

NUMBER.	NAMES.	DESCRIPTIONS.						USE AND VALUE. Scale 1 to 10.		
		Size.	Form.	Color.	Quality.	Season.	Origin.	Dessert.	Cooking.	Market.
105	Jefferson County.....	m.	r. ob.	y. r.	g.	Oct. Nov.	N. Y.	7	6	5
106	Jersey Sweeting.....	m.	r. ov. c.	g. y. r.	v. g.	Sept.	N. J.	7	7	4
107	Jewett's Best.....	l.	ob. r.	y. g. r.	v. g.	Dec. Feb.	Ver.	8	6	4
108	Jewett's Fine Red.....	m.	r. ob.	g. w. cr.	g.	Nov. Feb.	N. H.	7	6	5
109	Jonathan.....	m.s.	r. c.	y. r.	v. g.	Nov. Feb.	N. Y.	9	5	8
110	Kaighn's Spitzenburgh.....	l.	o. ov. c.	w. y. r.	g.	Nov. Jan.	N. J.	5	6	6
111	Keswick Codlin.....	m.l.	ov. e.	g. y. r.	g.	Sept. Oct.	Eng.	2	10	7
112	King of Tompkins Co.....	l.	r. f. e. a.	y. r. cr.	v. g.	Dec. Mar.	N. J.?	7	6	6
113	Klaproth.....	m.	f.	g. y. r.	v. g.	Aug. Oct.	Penn.	7	7	4
114	Lacker.....	m.	ob.	r. cr.	g.	Nov. Mar.	Penn.	5	2	5
115	Lady.....	v.s.	f.	y. r.	v. g.	Dec. May.	Fr.	8	1	5
116	Lady Sweet's.....	l.	r. ov. c.	y. r.	v. g.	Dec. May.	N. Y.	7	7	6
117	Large Yellow Bough.....	l.	o. ov.	g. y. r.	v. g.	Aug.	Am.	8	7	6
118	Late Strawberry.....	m.	r. c.	w. r.	v. g.	Oct. Dec.	N. Y.	8	4	5
119	Ledge Sweet.....	m.	ob.	w. y. r.	g.	Dec. Mar.	N. H.	5	5	5
120	Limber Twig.....	m.	r. ob. c.	g. y. cr.	g.	Jan. Apr.	N. C.?	5	7	8
121	London Pippin.....	l.	r. c. f.	y. r.	g.	Nov. Feb.	Eng.	5	7	6
122	Lowell.....	l.	r. ov. c.	g. y.	v. g.	Sept. Oct.	Penn.?	7	7	8
123	Lyscom.....	l.	r.	g. y. r.	g.	Sept. Nov.	Mass.	7	3	5
124	Macomber.....	m.	ob.	y. r.	g.	Dec. Jan.	Maine.	6	4	5
125	Maiden's Blush.....	m.	r. f. e.	y. r. or.	g.	Sept. Oct.	N. J.	6	7	10
126	Mann.....	m.l.	r. ob.	y. b. r.	v. g.	Jan. Apr.	N. Y.	6	7	8
127	Manomet.....	m.	r. ob.	y. r.	v. g.	Aug. Sept.	Mass.	7	7	4
128	Marston's Red Winter.....	m.	r. c.	w. y. r. cr.	v. g.	Dec. Mar.	N. H.	8	7	6
129	May Seeknofurther.....	m.	ob. c. l.	g. y. r.	g.	Feb. June.	Am.	1	1	7
130	McAfee's Nonsuch.....	m.l.	r. ob. c.	y. r.	v. g.	Oct. Feb.	Ken.	6	7	7
131	McLellan.....	m.	r. ob. c.	y. r.	v. g.	Dec. Mar.	Conn.	9	7	8
132	Melon.....	m.l.	r. ob. c.	y. cr. c.	b.	Nov. Mar.	N. Y.	10	8	7
133	Melt in the Mouth.....	m.s.	r. c.	y. r.	v. g.	Sept. Nov.	Penn.	9	5	4
134	Mexico.....	m.	r. ob.	cr. r. y.	b.	Sept. Oct.	Conn.	10	6	5
135	Milam.....	m.s.	r.	g. r.	g.	Dec. Mar.	Am.	5	6	5
136	Miller of New York.....	l.	o. ob. c.	y. r.	v. g.	Oct. Nov.	N. Y.?	7	6	8
137	Minister.....	l.	o. c.	g. y. r.	g.	Oct. Feb.	Mass.	6	7	5
138	Monmouth Pippin.....	l.	ob. c. a.	y. r.	v. g.	Nov. Mar.	N. J.	6	7	8
139	Morris Red..... (Steele's Red erroneously.)	m.l.	ov. c.	r. ru.	v. g.	Jan. Apr.	Conn.?	8	8	---
140	Mother.....	m.	r. c.	y. r.	b.	Nov. Feb.	Mass.	7	6	6

SECTION I.—APPLES—CONTINUED.

NUMBER.	LOCALITY.					REMARKS.
	East.	Center.	South.	Southern Lake Shore.	Northern Lake Shore.	
105	*	---	*	---	*	Vigorous, hardy, prolific. Is but little known.
106	*	*	*	*	*	Prolific. One of the richest early sweet apples. Tree tender in central district.
107	*	---	---	---	---	Tree spreading. Does not keep long enough for profit. Little known.
108	*	---	---	---	---	Moderate grower. Downing says—requires high culture. Little known.
109	**	**	*	*	**	Good bearer, alternate years. Fruit small, very beautiful, and good. Improves in quality at the north.
110	*	*	*	*	---	Tree vigorous, straggling, productive. Old. Now little grown.
111	*	*	*	*	---	Cooks well, even when but half grown. Very early bearer. Very hardy and prolific.
112	*	*	*	*	*	Too large for market. Not a long keeper. Not good enough for dessert. Growing in popularity at the north.
113	*	---	---	---	---	Downing commends it as a promising market apple. This remains to be shown.
114	*	*	*	---	---	An old variety. Not of decided value. Rarely seen in Michigan.
115	*	*	*	---	*	A beautiful little fancy apple. Brings large prices in market in eastern cities. Little known west.
116	*	*	*	*	*	A fair baking apple. Desirable as a long keeper. Retains its juice and flavor.
117	*	*	*	*	*	Tree a little tender, and lacks productiveness. The most popular early sweet apple.
118	*	*	*	*	*	Regular, early bearer. Chenango Strawberry is often grown under this name.
119	*	---	---	---	---	Vigorous, productive, regular bearer. But little known.
120	*	*	*	*	*	Popular west and south as a long keeper. Distinct from Willow Twig.
121	*	---	---	---	---	Little known, with little to specially recommend it.
122	*	*	*	*	**	Strong grower; bears heavily in alternate years. Popular. Profitable.
123	*	---	*	---	---	Generally fair. Tree vigorous, upright, spreading. Not largely planted.
124	*	---	---	---	---	Annual bearer. But little known, and not likely to command special attention.
125	*	**	*	**	**	Spreading, vigorous, prolific. The most popular early autumn market apple. Rather acid for dessert.
126	*	*	*	*	*	Hardy, upright, annual bearer. Not much disseminated. Promising.
127	*	---	---	---	---	Vigorous, productive. Fruit excellent. Worthy of increased attention.
128	*	---	---	---	---	Moderate grower. A beautiful and excellent fruit.
129	*	*	*	*	---	Vigorous. Known in Eastern Michigan as Romanite. Unfit to be eaten.
130	†	---	---	---	---	An old variety. Not widely disseminated in Michigan.
131	*	**	---	*	---	Thrifty, upright, productive. A very promising variety for home and market. Bears alternate years.
132	*	**	*	*	---	One of the very best dessert apples. Tree hardy, with short wiry shoots. Very productive alternate years.
133	*	---	---	---	---	Moderate vigor. Spreading. Little disseminated. Not likely to become popular.
134	*	*	*	---	---	Moderate grower, hardy, productive. One of the finest of dessert apples.
135	*	*	*	---	*	A hardy and somewhat popular apple farther west. Not common in Michigan.
136	*	---	*	---	---	Vigorous, productive. A promising fruit for market and general purposes.
137	*	*	*	*	---	Moderately vigorous; very productive. Not widely disseminated.
138	*	*	*	*	---	Vigorous, upright, productive. Will prove to be a good market variety.
139	---	---	*	---	---	Vigorous, stocky, leaves large. Buds prominent. May be an old variety. Also known in Fulton Co., Ohio.
140	*	*	†	*	*	Productive. An excellent dessert apple. Deserves more attention.

SECTION I.—APPLES—CONTINUED.

NUMBER.	NAMES.	DESCRIPTIONS.					USE AND VALUE. Scale 1 to 10.			
		Size.	Form.	Color.	Quality.	Season.	Origin.	Dessert.	Cooking.	Market.
141	Munson's Sweet.....	m.	ob.	y. r.	v. g.	Sept. Feb.	Mass.?	6	7	6
142	Newark Pippin.....	l.	r. o.	g. y. r.	v. g.	Nov. Feb.	N. J.?	7	7	2
143	Newtown Spitzenburgh..... (<i>Vandevere of N. Y.</i>)	m.	ob. c.	y. r.	b.	Oct. Feb.	N. Y.	9	7	5
144	Nickajack.....	l.	r. ob. c.	y. r.	g.	Dec. Apr.	N. C.	4	2	5
145	Northern Spy.....	l.	r. c.	g. y. r.	b.	Dec. Apr.	N. Y.	10	9	10
146	Northern Sweet.....	m.	r. ob.	y. r.	v. g.	Sept. Oct.	Ver.	7	7	2
147	Oakland Co. Seeknofurther.....	m.	r. ob.	y. r.	v. g.	Nov. Mar.	Mich.?	8	---	8
148	Oconee Greening.....	l.	r. f.	y. b.	g.	Nov. Dec.	Ga.	6	6	7
149	Ohio Nonpareil.....	l.	r. ob.	y. r.	v. g.	Nov. Dec.	Ohio.?	8	9	9
150	Ortley (<i>White Detroit</i>).....	m.	r. ob. c.	g. y. r.	v. g.	Nov. Feb.	N. J.	7	4	2
151	Paw Paw (<i>Rubicon</i>).....	m.	r. o.	y. r.	v. g.	Dec. June	Mich.	9	5	5
152	Peach Pond Sweet.....	m.	ob.	y. r.	v. g.	Sept. Nov.	N. Y.	6	6	6
153	Peck's Pleasant.....	m. l.	r. f.	g. y. r.	v. g.	Nov. Mar.	R. I.?	8	8	8
154	Pennock.....	l.	r. f. l.	r. y.	g.	Nov. Mar.	Penn.	1	1	5
155	Perry Russet.....	m.	r. c. l.	y. ru. b.	g.	Nov. Dec.	N. Y.?	6	6	5
156	Pittsburgh Pippin.....	l.	ob.	y. r.	v. g.	Nov. Apr.	Penn.	8	8	9
157	Pomme Gris.....	s.	ob. r.	ru. r.	b.	Dec. Mar.	Eur.?	10	6	5
158	Porter.....	m. l.	o. c.	y. r.	v. g.	Sept.	Mass.	8	7	7
159	Pound Royal (<i>Winter</i>).....	l.	r. o. c.	y. w. r.	g.	Dec. Apr.	Fr.?	6	5	4
160	Primate.....	m.	r. ob. c.	g. w. cr.	v. g.	Aug. Oct.	N. Y.?	10	5	6
161	Progress.....	m.	r. ob.	y.	g.	Oct. Apr.	Conn.	7	5	6
162	Pumpkin Russet.....	l.	r.	y. g. ru.	g.	Sept. Jan.	N. E.?	2	6	2
163	Pumpkin Sweet (<i>Pound Sweet</i>).....	v. l.	r.	w. g. y.	g.	Sept. Dec.	Conn.?	2	8	4
164	Rambo.....	m.	r. ob.	y. w. r.	v. g.	Oct. Feb.	N. J.?	8	5	5
165	Rawle's Janet.....	m. l.	ob. c.	y. r. cr.	g.	Feb. June	Vir.	3	1	5
166	Rebecca.....	m.	ob.	w. y. cr.	g.	Sept.	Del.	7	5	2
167	Red Astrachan.....	m. l.	r. c.	g. y. cr.	g.	Aug.	Rus.	5	9	10
168	Red Canada.....	m.	r. ob. c.	y. r. cr.	v. g.	Dec. June	N. E.?	8	5	10
169	Red Russet.....	m. l.	r. c.	y. r. ru.	v. g.	Jan. Apr.	N. H.	8	7	5
170	Ribston Pippin.....	m.	r. c.	y. r. ru.	v. g.	Nov. Apr.	Eng.	7	7	4
171	Rhode Island Greening.....	l.	r. ob.	g. y. r.	v. g.	Nov. Apr.	R. I.?	9	10	8
172	Richardson.....	l.	r. c.	r.	g.	Aug. Sept.	Mass.	6	6	5
173	River.....	m. l.	ob. c.	y. r.	g.	Aug. Sept.	Mass.	5	8	6
174	Roman Stem.....	m.	r.	y. b. ru.	v. g.	Nov. Mar.	N. J.	7	7	4
175	Rome Beauty.....	l.	r. c.	y. r.	g.	Nov. Feb.	Ohio.	6	7	5
176	Rose Red (<i>Autumn Rose</i>).....	m.	r. ob. c.	y. r.	v. g.	Nov. Jan.	N. Y.?	6	7	4

SECTION 1.—APPLES—CONTINUED.

NUMBER.	LOCALITY.					REMARKS.
	East.	Center.	South.	Southern Lake Shore.	Northern Lake Shore.	
141	*	*	*	---	*	Tree spreading, vigorous, prolific. Fruit very perfect, even sized, and beautiful.
142	*	---	---	---	---	Tree crooked, irregular, drooping. An amateur variety. Unprofitable.
143	*	*	*	*	---	Requires warm soils. Sometimes scabs or cracks. One of the best apples when perfect.
144	*	*	*	*	---	A southern variety. Hardy, vigorous. Not profitable in this latitude.
145	*	**	**	**	**	Strong, upright, hardy. Tardy bearer. Fruit sometimes uneven and imperfect. Requires good culture and careful handling.
146	---	---	*	---	---	A poor grower. Much like Munson, which excels it in this respect. Little known.
147	---	*	---	---	---	Popular in Oakland Co. Less disseminated elsewhere.
148	*	---	---	---	---	A vigorous, hardy, southern apple. Does well in eastern Michigan.
149	*	**	*	*	*	Very vigorous, productive. One of the most valuable late autumn apples.
150	*	*	*	*	*	Moderately vigorous, upright, productive. Fruit frequently scabby and worthless.
151	*	*	*	*	---	Hardy, moderate grower, regular bearer. Must have suitable soil and good culture.
152	*	*	*	---	*	Tree vigorous, spreading, productive. A beautiful and desirable sweet apple.
153	*	*	*	*	*	Habit of tree like R. I. Greening, but less vigorous. Generally and deservedly popular. Fruit beautiful and excellent.
154	*	*	*	*	*	Sometimes profitable to ship South. No person cares to taste it the second time.
155	*	*	*	*	*	Distinct from Golden Russet. An early, abundant bearer. More than one variety is probably grown under this name.
156	*	---	---	*	---	Spreading. Very productive. A very promising variety. But little known.
157	*	*	*	*	*	Moderate, upright grower. Good early, bearer. An exceeding fine dessert apple. Less successful on light soils.
158	*	*	*	*	*	Usually very fair. Valuable for market or home use, as well as dessert.
159	*	---	---	---	---	Spreading grower. Must have high culture. Little known.
160	*	**	*	*	*	One of the best dessert apples. Subject to water core and other defects. Ripens in succession.
161	*	---	---	---	---	Moderate grower, early and prolific bearer. Very little disseminated.
162	*	*	*	*	---	Large spreading tree. Only useful for cooking and for feeding. Sweet.
163	*	*	*	*	*	Tree strong, upright, spreading. Fruit often water cored. Culinary.
164	*	*	*	*	---	A vigorous, but tender tree. Overbears and produces small fruit. A very common farmer's apple.
165	*	*	*	*	*	Hardy, vigorous, spreading. Better farther south.
166	*	---	---	---	---	Upright, spreading, productive. A nice dessert apple. Little known here.
167	**	**	**	**	**	Strong grower; early bearer; hardy. Fruit beautiful; showy; profitable; too sour for dessert.
168	**	**	**	*	**	Very popular for market where fully proved. Tree not vigorous. Should be top-grafted in all cases. Best on strong soils.
169	*	---	---	---	---	Tree much like Baldwin. The same true of fruit except the Russet.
170	*	*	*	*	*	Tree a good grower, productive. High, sharp flavor. Succeeds at the north.
171	*	*	*	**	**	Tree spreading, vigorous; generally productive on strong soils; best at lake shore. One of the old favorites.
172	*	---	---	---	---	Comes in with the summer and autumn fruits. Little known.
173	*	*	---	---	---	Slow grower; productive. An excellent, high flavored culinary fruit.
174	*	*	*	---	*	Moderately vigorous, spreading. Very productive. Not very much known in this State.
175	*	*	*	*	*	Moderate grower, productive. Inclined to overbear on old trees.
176	*	---	*	---	---	Tree spreading, productive. Desirable when fair. Often scabby and worthless.

SECTION 1.—APPLES—CONTINUED.

NUMBER.	NAMES.	DESCRIPTIONS.						USE AND VALUE. Scale 1 to 10.		
		Size.	Form.	Color.	Quality.	Season.	Origin.	Dessert.	Cooking.	Market.
177	Roxbury Russet.....	m.l.	r. ob. a.	y. ru. r.	v. g.	Jan. June.	Mass.	6	9	7
178	Scarlet Pearmain.....	m.	c.	cr. y.	v. g.	Aug. Oct.	Eng.	9	8	5
179	Shiawassee Beauty.....	m.	ob.	w. r.	v. g.	Oct. Jan.	Mich.	10	6	8
180	Sine Qua Non.....	m.	r. c.	g. y.	v. g.	Aug.	N. Y.	8	5	4
181	Slingerland Pippin.....	m.l.	r. l.	y. r.	g.	Dec. Mar.	N. Y.	6	7	6
182	Smith's Cider.....	m.l.	r. ob. c.	y. r.	g.	Dec. Mar.	Penn.	5	4	7
183	Smokehouse.....	m.l.	ob.	y. cr.	g.	Sept. Feb.	Penn.	5	7	8
184	Somerset of N. Y.....	s.m.	r. c.	w. y. ru.	v. g.	Sept. Oct.	N. Y.?	9	7	5
185	Sops of Wine.....	m.	r.	y. r.	g.	Aug. Sept.	Eur.	4	6	6
186	Spiced Sweet.....	m.l.	r. f.	y.	g.	Aug. Sept.	Am.	6	5	1
187	Stark.....	l.	r. c.	g. y. r.	g.	Jan. May.	Ohio.?	6	6	8
188	Stillman's Early.....	s.	r. c.	y. r.	g.	July. Aug.	N. Y.	7	4	2
189	St. Lawrence.....	l.	ob. c.	y. c.	v. g.	Sept. Oct.	Can.?	8	8	9
190	Striped Bellflower.....	l.	o. c.	w. r.	g.	Oct. Jan.	Ohio.?	2	5	5
191	Summer Bellflower, N. Y.....	m.	ov. c.	y. o.	g.	Aug. Sept.	N. Y.	6	7	6
192	Summer Greening.....	m.	r.	g. y.	v. g.	Sept.	Mich.?	8	7	4
193	Summer Hagloe.....	l.	r. ob.	w. y. r.	v. g.	Aug. Sept.	N. J.?	5	7	7
194	Summer Pippin (<i>Champlain</i>).....	m.l.	r. o. c.	y. cr.	v. g.	Aug. Sept.	N. Y.?	8	8	8
195	Summer Pound Royal.....	l.	r. ob. c.	g. w.	g.	Aug. Sept.	Am.	6	8	7
196	Summer Queen.....	l.	r. c.	y. r.	g.	Aug. Sept.	N. Y.?	6	7	6
197	Summer Rambo (<i>Rambour</i>).....	l.	ob.	g. y. r.	g.	Sept.	Fr.	6	8	6
198	Summer Rambo (<i>Mich.</i>).....	m.	r. f.	w. y. r.	v. g.	Sept.	Ind.	9	8	4
199	Summer Rose.....	s.	r.	y. r.	b.	Aug.	N. J.	10	7	5
200	Summer Sweet Paradise.....	l.	r. f.	g. y.	v. g.	Aug. Sept.	Penn.	9	7	4
201	Sweet and Sour.....	l.	ob.	g. y.	g.	Dec. Feb.	?	5	4	3
202	Swaar.....	l.	r. ob.	y. o. b.	b.	Dec. Apr.	N. Y.	10	6	4
203	Sweet Baldwin.....	m.	r. ob.	y. r.	g.	Oct.	Am.	---	5	---
204	Sweet Winesap (<i>Henrick Sweet?</i>).....	m.	ob. c.	r. cr.	v. g.	Nov. Mar.	Penn.	6	9	7
205	Sweet Rambo.....	m.	r. ob.	y. r.	g.	Oct. Dec.	Penn.?	2	5	---
206	Sweet Vandevere.....	m.	r. ob.	y. r.	g.	Nov. Mar.	Am.	---	6	---
207	Table Greening.....	m.	r.	g.	g.	Dec. Mar.	Me.	---	---	---
208	Talman Sweet.....	m.	r.	w. y. r.	v. g.	Nov. Apr.	R. I.	6	8	6
209	Tetofsky.....	m.	r. ob. c.	y. r.	g.	Aug.	Rus.	5	7	---
210	Tewksbury Blush.....	s.	ob.	y. r.	v. g.	Jan. July.	N. J.	7	7	5
211	Toole's Indian Rareripe.....	l.	r. c.	g. y. r.	g.	Sept. Oct.	Am.	6	8	5
212	Townsend.....	m.	ob. c.	y. r.	g.	Aug. Sept.	Penn.	6	6	7

SECTION I.—APPLES—CONTINUED.

NUMBER.	LOCALITY.					REMARKS.
	East.	Center.	South.	Southern Lake Shore,	Northern Lake Shore,	
177	*	*	*	*	*	Very liable to attacks of the codling moth. Tree strong, spreading, productive, tender. Not profitable on light soils.
178	*	---	---	---	---	Moderate grower. One of the finest and most beautiful dessert apples of its season.
179	*	*	*	*	---	Tree hardy, vigorous, upright, spreading, productive. Like Fameuse, but superior to it.
180	*	*	*	---	---	Slow grower. Prolific. A desirable dessert apple. Always perfect and even sized.
181	*	---	---	---	---	Tree vigorous, spreading, productive. Little known. Not especially desirable.
182	---	*	*	---	---	Very productive, vigorous, straggling. Valued for market purposes.
183	*	*	---	---	---	Vigorous, spreading, productive. Culinary, market.
184	*	---	---	---	---	Tree vigorous, spreading, productive. A fine family fruit. Deserving of more attention.
185	*	*	*	*	*	Tree vigorous, upright, productive. Widely disseminated, but not valuable.
186	*	*	*	*	*	Fruit generally scabby. Going out of cultivation.
187	*	*	*	*	*	Tree vigorous, hardy, productive. Fruit good enough to sell. Valued as a market fruit.
188	*	---	---	---	---	Tree upright, productive. Little known. Not desirable compared with others in season.
189	**	**	*	**	*	Tree very vigorous; productive. Highly and justly valued. Sometimes cracks and scabs.
190	*	*	*	*	*	Known at Adrian as Fall or Striped Gilliflower. Large and showy but not profitable or valuable.
191	*	*	*	*	---	Vigorous, upright, productive. Not quite good enough. Little known.
192	*	*	---	---	---	Upright, productive. Esteemed in parts of Oakland county. Not much known.
193	*	---	---	---	---	Vigorous, productive. An old and useful culinary variety.
194	*	*	*	*	---	Tree vigorous; forms a round head; productive. A valuable variety.
195	*	*	*	*	---	Very vigorous. Productive. A profitable market apple for its season.
196	*	*	*	*	*	Liable to scab. One of the best cooking apples. Popular.
197	*	*	*	*	---	A large, vigorous tree; moderately productive. Rarely planted. Profitableness doubtful.
198	*	*	*	---	---	Tree similar to Rambo. Also the fruit, with similar tendency to overbear. Superior flavor.
199	*	*	*	---	*	Tree moderately vigorous, productive. One of the finest dessert fruits of its season.
200	*	*	*	---	---	Tree spreading, drooping, moderate, regular bearer. Very desirable among sweet apples.
201	*	*	*	*	*	Much ribbed; the ribs sub-acid, the hollows sweetish.
202	*	*	*	*	*	Can only be recommended as an amateur fruit. Tree lacks hardiness. Fruit often imperfect.
203	*	---	*	---	*	Tree very vigorous, upright, spreading productive.
204	*	---	---	*	---	Recommended as successful and profitable at Lawton and in Wayne Co.
205	*	---	---	---	---	Tree vigorous, upright; a tardy bearer. Little known. Of doubtful value here.
206	*	---	*	---	---	Tree a crooked grower; productive. Not disseminated. Too many competitors.
207	---	---	*	---	---	Reported only from the southern district. Little known.
208	*	*	**	*	*	Best winter baking apple. The most popular and profitable sweet, market apple.
209	*	*	*	*	*	Of doubtful value, except for its great hardiness and vigor.
210	*	*	*	---	*	Tree vigorous, upright, productive. A fine, long keeping table fruit.
211	*	*	*	*	---	Tree vigorous, upright, moderately productive. A showy, attractive and profitable market fruit.
212	*	---	---	---	---	Tree vigorous, upright, spreading, productive. Little known; almost "very good."

SECTION I.—APPLES—CONTINUED.

NUMBER.	NAMES.	DESCRIPTION.					USE AND VALUE. Scale 1 to 10.			
		Size.	Form.	Color.	Quality.	Season.	Origin.	Dessert.	Cooking.	Market.
213	Trenton Early.....	m.l.	r. ov.	y. r.	g.	Aug.	Am.?	6	6	8
214	Twenty Ounce.....	v.l.	r.	g. y. r.	g.	Oct. Jan.	Conn.	5	7	8
215	Twin.....	m.l.	ob.	y. w. r.	g.	Oct. Nov.	Am.?	6	8	7
216	Vandevere.....	m.	ob.	y. r.	g.	Nov. Mar.	Del.	6	8	8
217	Wagener.....	m.	r. ob.	y. cr.	v. g.	Nov. Mar.	N. Y.	9	6	5
218	Walpole.....	m.	r.	y. r.	v. g.	Aug. Sept.	Mass.	7	5	2
219	Washington Royal.....	m.l.	r. ob.	y. g. r.	v. g.	Dec. June.	Mass.	7	6	---
220	Washington Strawberry.....	l.	r. c. f.	y. r.	v. g.	Sept. Oct.	N. Y.	7	7	8
221	Water.....	m.	r. c.	w. y. cr.	v. g.	Oct. Dec.	Penn.	8	6	7
222	Wealthy's Favorite.....	m.	r. ob.	y. cr.	v. g.	Dec. Feb.	Mich.	8	6	2
223	Western Spy.....	m.l.	r. ob.	y. cr.	g.	Nov. June.	Ohio.	---	8	6
224	Westfield Seeknofurther.....	m.l.	r. c.	g. r. ru.	b.	Oct. Mar.	Conn.?	8	3	6
225	Wetherell's White Sweet.....	m.	r. c.	y. r.	v. g.	Sept. Oct.	N. J.	7	9	4
226	White Doctor.....	l.	r. ob.	g. y.	g.	Sept. Oct.	Penn.	6	9	7
227	White Juncating (<i>Early May</i>).....	m.s.	r. f.	g. y. r.	g.	July.	Eur.	4	8	4
228	White Pippin.....	l.	r. ob. l.	g. w. y.	v. g.	Jan. Apr.	Am.?	6	7	5
229	White Spanish Reinette.....	v.l.	r. ob.	y. g. o. r.	v. g.	Oct. Jan.	Spain.	9	10	6
230	Williams' Favorite.....	m.	r. o. c.	r.	g.	Aug. Sept.	Mass.	6	5	7
231	Willow Twig.....	m.	r. c. ob.	y. r.	g.	Dec. May.	Vir.	5	7	7
232	Wine (<i>Hay's Winter</i>).....	m.l.	r. f.	d. r. y.	g.	Oct. Mar.	Del.	7	7	6
233	Winesap.....	m.	r. ob. c.	d. r. y.	v. g.	Nov. May.	N. J.	6	6	4
234	Winter Pippin, of Mich.....	m.l.	r. ob.	g. y.	g.	Dec. May.	N. Y.	7	7	8
235	Winter Sweet Paradise.....	m.l.	r. ob.	g. b.	v. g.	Nov. Mar.	Penn.	6	6	2
236	Winthrop Greening.....	l.	ob.	g. y. ru.	g.	Sept.	Me.	6	7	6
237	Yellow Bellflower.....	v.l.	o. c.	g. y. r.	v. g.	Dec. Mar.	N. J.	8	10	7
238	Yellow Newtown Pippin.....	m.	r. ob. l.	y. r.	b.	Dec. May.	N. Y.	10	8	3

SECTION I.—APPLES—CONTINUED.

NUMBER.	LOCALITY.					REMARKS.
	East.	Centre.	South.	Southern Lake Shore.	Northern Lake Shore.	
213	*	*	*	*	---	Tree moderately vigorous, productive, hardy. A fine profitable orchard fruit.
214	*	*	*	*	*	Fruit sometimes imperfect in Lenawee county. Very profitable for market.
215	*	*	---	---	---	Probably an old unrecognized fruit; bears in pairs, hence the local name. Profitable.
216	*	*	*	*	*	Distinct from N. Y. Vandevere. This variety is widely planted. Valuable.
217	*	**	*	**	**	Very early bearer; ruining the tree unless thinned and highly cultivated. Fine dessert apple. Sells well in market.
218	*	---	---	---	---	Tree of moderate vigor. Comes in the season of the summer fruits. Hence less valued.
219	*	---	---	---	---	Tree vigorous, prolific. Promising, but may prove too variable in size.
220	*	*	*	*	---	Tree vigorous. Bears early and abundantly. A valuable variety for general purposes.
221	*	*	---	*	---	Tree vigorous, upright. Blooms late. A fine, mild dessert apple. Not widely known.
222	*	---	---	---	---	Origin Wayne Co. Requires good culture. An excellent, mild, dessert apple.
223	*	---	---	---	---	Tree rather vigorous; productive. Wood soft, spongy, Of very doubtful value.
224	*	*	*	*	*	Popular old variety for home use. Somewhat lacking in productiveness, and hence unprofitable.
225	*	---	---	---	---	Introduced into Wayne county as Honey Sweet.
226	*	*	---	---	---	Tree strong and prolific. A showy and profitable culinary and market fruit. Little known.
227	*	---	*	---	---	Of very poor quality. Short lived. Desirable for its extreme earliness only.
228	*	*	*	*	*	Tree vigorous, upright, productive. Fruit of the Newtown Pippin class. Popular south.
229	*	---	---	---	---	Tree and fruit much like Fall Pippin, but keeps longer. Seldom seen under its own name.
230	*	*	*	*	*	Tree a good grower; productive. Valued by some as a market variety.
231	*	*	*	*	*	Hardy, vigorous, productive. Fruits vary greatly in size. Keep and sell well.
232	---	*	---	---	---	Hardy, prolific. A fine, though little known winter fruit.
233	*	*	*	*	*	Irregular grower; good, early bearer. Good for dessert, market, or cider.—Downing.
234	*	---	---	---	*	Strong, upright grower; slender shoots. Profitable. Probably an unrecognized eastern sort.
235	*	---	*	---	---	Tree hardy, upright, vigorous; a tardy bearer. Productive. Little grown.
236	*	---	---	---	---	Tree vigorous, upright, spreading. A large showy fruit. Little grown.
237	*	*	*	*	---	Needs dry, warm soils. High, rich flavor. Uneven in size. Often unproductive. Not successful at the north. Fruit much in demand.
238	*	*	*	*	---	Tree and fruit like the Green N. P. Some doubt their distinctness.

SECTION II.—APPLES—CRABS.

ABBREVIATIONS FOR THIS SECTION.

Color.
b. brown. *g. green.* *ru. russet.*
c. carmine. *o. orange.* *s. scarlet.*
cr. crimson. *p. purplish.* *v. vermilion.*
d. dark. *r. red.* *y. yellow.*

NUMBER.	LOCALITY.					REMARKS.
	East.	Center.	South.	Southern Lake Shore.	Northern Lake Shore.	
1	---	*	---	†	*	For preserves. Very valuable. A cross of the Bailey apple upon the Siberian crab.
2	---	**	---	*	**	Tree slender, weak grower. A very beautiful crab. Origin Van Buren county.
3	*	*	*	*	*	An exceedingly rich looking crab. Keeps well. Sells well.
4	*	*	*	*	*	A vigorous tree; productive. Has the calyx large and prominent.
5	*	*	*	*	*	One of the most beautiful and prolific. Bears in alternate years.
6	*	*	*	*	**	Unexcelled in beauty of appearance. Said to be less beautiful at the north.
7	*	*	*	*	*	Sometimes called "small red." Quite small, beautiful. Often scabby on old trees.
8	---	---	---	*	*	Of little value except for cider and cooking.
9	**	**	**	**	**	One of the largest, most productive and beautiful of the older crabs.
10	---	---	---	*	---	Very large, beautiful and excellent. Tree vigorous, upright, productive.

SECTION III.—APRICOTS.

Apricots are recommended for dessert or amateur purposes, with little reference to actual profit; as, owing to occasional loss of the very early bloom, and liability to injury from extreme cold in unfavorable localities, together with extreme liability to the depredations of the curculio, little pecuniary return can be confidently anticipated from them. Since they are recommended only as amateur fruits, they are not quoted for cooking.

NUMBER.	LOCALITY.					REMARKS.
	East.	Center.	South.	Southern Lake Shore.	Northern Lake Shore.	
1	*	*	*	*	*	Hardy, productive, excellent. Kernel sweet.
2	†	†	†	†	†	Tree vigorous. Branches long, slender. Freestone.
3	†	†	†	†	†	Beautiful, excellent. Stone not perforated. Kernel bitter.
4	†	†	†	†	†	Vigorous. One of the best early varieties. Freestone. Kernel bitter.
5	*	*	*	*	†	One of the most popular. Stone perforated. Kernel bitter.
6	*	*	*	*	*	Considered the finest variety. Stone perforated. Kernel bitter.
7	†	†	†	†	†	Hardy, productive. Not high flavor. Kernel bitter.
8	†	†	†	†	†	Earlier than Moorpark. Juicy, sweet, rich.
9	†	†	†	†	†	Old. Later than Moorpark. Stone impervious. Kernel sweet.

SECTION IV.—BLACKBERRIES.

ABBREVIATIONS FOR THIS SECTION.

Form.

c. conical. *ov.* oval.
a. oblong. *r.* roundish.

NUMBER.	NAMES.	DESCRIPTIONS.						USE AND VALUE. Scale 1 to 10.		
		Size.	Form.	Color.	Quality.	Season.	Origin.	Dessert.	Cooking.	Market.
1	Ancient Briton.....	l.	o. ov.	b.	v. g.	l.	Ark.	8	7	9
2	Barnard.....	l.	o. ov.	b.	v. g.	l.	Wis.?	8	7	9
3	Dorchester.....	m.	o. c.	b.	b.	m.	Mass.	7	5	7
4	Kittatinny.....	l.	r. c.	b.	b.	m.	N. J.	10	10	10
5	New Rochelle (<i>Lawton</i>).....	l.	ov.	b.	g.	l.	N. Y.	9	9	8
6	Snyder.....	m.	r. ov.	b.	v. g.	e.	Ind.	8	8	9
7	Wilson's Early.....	l.	o. ov.	b.	v. g.	e.	N. J.	7	8	9

SECTION V.—CHERRIES—HEART AND BIGARREAU.

ABBREVIATIONS FOR THIS SECTION.

Form.

a. angular. *l.* long.
c. conical. *ob.* obtuse.
co. compressed. *ov.* ovate or oval.
h. heart-shaped. *r.* roundish.

The numbers under the head of "cooking" recommend strictly for canning or drying with sugar as raisins.

NUMBER.	NAMES.	DESCRIPTIONS.							USE AND VALUE. Scale 1 to 10.		
		Size.	Form.	Color.	Quality.	Season.	Class.	Origin.	Dessert.	Cooking.	Market.
1	American Heart.....	l.	h.	a. b. r.	g.	m. June.	h.	Am.	6	----	7
2	Baumann's May.....	s.	ov. h. a.	d. r.	g.	b. June.	b.	Ger.	3	----	3
3	Belle D'Orleans.....	l.	r. h.	w. y. r.	v. g.	b. June.	h.	Fr.?	8	----	8
4	Bigarreau (<i>Yellow Spanish</i>).....	v. l.	ob. h. co.	y. c. r.	b.	e. June.	b.	Eur.	10	6	7
5	Bigarreau De Mezel.....	v. l.	ob. h.	d. r. b.	g.	b. July.	b.	Eur.	6	6	8
6	Bigarreau Gros Cœur.....	l.	r. h.	d. r.	g.	b. July.	b.	Fr.	5	----	----
7	Black Eagle.....	m.	ob. h.	b.	b.	b. July.	h.	Eng.	9	8	9
8	Black Hawk.....	l.	ob. h. co.	p. b.	v. g.	e. June.	h. b.	Ohio.	9	6	9
9	Black Heart.....	l.	h.	b.	v. g.	e. June.	h.	Eur.	9	6	9
10	Black Tartarian.....	v. l.	ob. h.	p. b.	v. g.	m. June.	h. b.	Rus.	9	8	9
11	Brant.....	l.	r. co. h. a.	r. b.	v. g.	m. June.	h. b.	Ohio.	8	----	7
12	Burr's Seedling.....	l.	h.	w. y. r.	v. g.	e. June.	h.	N. Y.	9	6	8
13	Champagne.....	m.	r. h.	r.	v. g.	e. June.	h.	N. Y.	8	----	6

SECTION IV.—BLACKBERRIES.

ABBREVIATIONS FOR THIS SECTION.

Color.

*b. black.**w. white.*

NUMBER.	LOCALITY.					REMARKS.
	East.	Center.	South.	Southern Lake Shore.	Northern Lake Shore.	
1	---	---	---	*	---	Strong grower and prolific. Well worthy of extended trial.
2	---	---	---	*	---	Comes from west of Lake Michigan, with a reputation for hardiness.
3	*	*	*	*	---	An old New England variety. Of superior flavor.
4	**	**	**	**	*	Too well known to need description. Sometimes rusts or mildews.
5	*	*	*	**	*	Plant grows late. Tender. Fruit colors before fully mature. Quality best when fully ripe.
6	*	*	*	*	**	Not large, but good. Is said to be very hardy and prolific.
7	*	*	*	*	**	One of the largest. Lacks richness. Valued for market. Needs winter protection.

SECTION V.—CHERRIES—HEART AND BIGARREAU.

ABBREVIATIONS FOR THIS SECTION.

Color.

*a. amber.**b. black.**br. bright.**c. carmine.**cr. crimson.**d. dark.**p. purplish.**r. red.**w. whitish.**y. yellowish.*

Class.

*b. bigarreau.**h. heart.*

NUMBER.	LOCALITY.					REMARKS.
	East.	Center.	South.	Southern Lake Shore.	Northern Lake Shore.	
1	*	*	*	*	---	Vigorous, spreading, productive; but variable in quality.
2	*	*	*	*	---	One of the earliest and most prolific. Must give place to larger and better sorts. Too small and poor in flavor.
3	*	*	*	*	*	Largest and best of the very early varieties. Tree vigorous, spreading, productive.
4	*	*	*	*	*	Downing says—"Largest, most beautiful and delicious of cherries." Often cracks and rots.
5	---	*	*	---	---	Supposed to be identical with Great Bigarreau, and Large Red Prol.
6	---	---	---	---	---	Of French origin. Somewhat rare in this country.
7	*	*	*	*	*	Excellent. Requires age before it will bear profusely.
8	*	*	*	*	---	Fine tree. Fruit much like Bigarreau in its general qualities.
9	*	*	*	*	---	Very old. Tree large and hardy. The abundant fruit is of fine quality.
10	**	**	**	**	**	A rapid, erect grower. Prolific. Fruit very large and showy, but not of the highest quality. Tree lacks hardiness.
11	*	*	*	*	---	One of the many fine Ohio varieties of comparatively recent origin.
12	*	*	*	*	---	A vigorous tree. Bears early and profusely.
13	*	---	---	---	---	Originated with Mr. Downing at Newburgh, N. Y.

SECTION V.—CHERRIES—CONTINUED.—HEART AND BIGARREAU.

NUMBER.	NAMES.	DESCRIPTIONS.							USE AND VALUE. Scale 1 to 10.		
		Size.	Form.	Color.	Quality.	Season.	Class.	Origin.	Dessert.	Cooking.	Market.
14	China Bigarreau.....	m.	r. h.	a. r.	b.	e. June.	b.	?	10	---	4
15	Cleveland.....	l.	r. h.	r. y.	v. g.	m. June.	b.	Ohio.	9	6	8
16	Coe's Transparent.....	m.	r.	a. r.	b.	m. June.	h.	Conn.	10	6	5
17	Delicate.....	m. l.	r. ob.	a. y. r.	b.	e. June.	h.	Ohio.	10	---	5
18	Doctor.....	m.	r. h.	y. r.	v. g.	b. June.	h.	Ohio.	8	---	7
19	Downer's Late.....	m.	r. h. ov.	a. r.	v. g.	b. July.	h.	Mass.	9	6	10
20	Downton.....	l.	ob. h.	br. y. r.	v. g.	e. June.	h.	Eng.	9	---	6
21	Early Purple Guigne.....	m.	r. h.	d. r. p.	v. g.	b. June.	h.	Eur.	8	6	5
22	Elton.....	l.	l. h.	y. br. r.	v. g.	m. June.	b.	Eng.	9	7	9
23	Governor Wood.....	l.	r. h.	y. r.	v. g.	m. June.	h.	Ohio.	9	6	8
24	Kirtland's Mary.....	l.	r. h.	y. r.	v. g.	b. July.	b.	Ohio.	8	---	7
25	Knight's Early Black.....	l.	ob. h.	d. p. b.	v. g.	m. June.	h.	Eng.	8	6	6
26	Logan.....	m.	ob. h.	p. b.	v. g.	e. June.	b.	Ohio.	7	---	6
27	Manning's Mottled.....	l.	r. h. co.	a. r.	v. g.	e. June.	h.	Mass.	8	---	5
28	Merveille de Septembre.....	s.	ob. h.	d. r.	g.	Sept.	b.	Fr.	1	---	2
29	Napoleon Bigarreau.....	v. l.	l. h.	y. r.	g.	b. July.	b.	Eur.	6	6	8
30	Ohio Beauty.....	l.	ob. h.	r.	v. g.	m. June.	h.	Ohio.	7	---	8
31	Osceola.....	m. l.	r. h.	d. r.	v. g.	e. June.	h.	Ohio.	8	---	7
32	Pontiac.....	l.	ob. h.	d. p. r.	v. g.	e. June.	h. b.	Ohio.	8	---	8
33	Powhattan.....	m.	r. co.	d. r.	g.	m. July.	h. b.	Ohio.	5	---	9
34	Red Jacket.....	l.	ob. h.	a. r.	g.	b. July.	h. b.	Ohio.	7	7	9
35	Rivers' Early Amber.....	m.	h.	a.	g.	b. June.	h.	Eng.	6	---	7
36	Roberts' Red Heart.....	m.	r. h.	a. r.	v. g.	e. June.	h.	Mass.	7	---	8
37	Rockport.....	l.	r. ob. h.	r. a.	b.	m. June.	b.	Ohio.	9	7	9
38	Sparhawk's Honey.....	m.	r. h.	a. r.	v. g.	e. June.	h.	Mass.	8	8	8
39	Tecumseh.....	m. l.	ob. h.	r. p.	g.	e. July.	h. b.	Ohio.	6	---	8
40	Tradesant's Black Heart..	l.	h.	b.	g.	m. July.	b.	Eur.	4	---	6
41	Transparent Guigne.....	s.	ov. h.	y. w. r.	g.	b. July.	h.	Eur.?	6	---	2
42	White French Guigne.....	s.	r. ob. c.	w. y. cr.	g.	m. July.	h.	Fr.?	3	---	---
43	White Tartarian.....	m.	ob. h.	w. y.	g.	m. July.	h. b.	Eur.?	3	---	2
44	Wilkinson.....	m.	h. co.	d. r.	g.	b. July.	h.	Am.?	2	---	2

SECTION V.—CHERRIES—CONTINUED.—HEART AND BIGARREAU.

NUMBER.	LOCALITY.					REMARKS.
	East.	Center.	South.	Southern Lake Shore.	Northern Lake Shore.	
14	*	*	*	---	---	Identity uncertain. The fruit intended is one of the very best in quality.
15	*	*	*	*	---	A seedling of Dr. Kirtland of Cleveland, Ohio. Tree thrifty, spreading, productive.
16	*	*	*	*	**	One of the finest and most beautiful of the heart (tender fleshed) varieties.
17	*	---	---	†	---	Delicate as its name imports. Excellent for home use.
18	*	*	*	*	---	Tree a free spreading grower. Good cultivation requisite to produce fine fruit. At Lawton, not worthy of cultivation.
19	**	**	*	**	---	One of the finest and most valuable late cherries. Of New England origin.
20	*	*	*	*	---	An English seedling. Supposed to have sprung from the Elton.
21	*	*	*	*	*	A moderate grower. One of the best of the very early cherries. Hardy for a Mazzard; but tender at the north.—(Parmelee.)
22	*	**	*	*	**	Originated in England in 1806. One of the best of its class and season.
23	**	**	*	**	†	Seedling of Dr. Kirtland. Every way desirable, except for its liability to rot.
24	*	*	*	*	---	Seedling of Dr. Kirtland. Desirable for either dessert or market.
25	*	**	*	*	*	A week earlier than Black Tartarian. Fine quality. Tree spreading.
26	*	*	*	*	---	Seedling of Dr. Kirtland. Ranks high in quality. But little known.
27	*	*	*	*	---	Tree vigorous, prolific. Named from the mottled appearance of the fruit.
28	*	*	*	*	---	A French variety. The latest of sweet cherries. Only valued as a curiosity.
29	*	*	*	*	**	Very large and showy. Very firm. Most valued for the market.
30	*	*	*	*	*	Seedling of Dr. Kirtland. Productive and valuable.
31	*	*	*	*	---	Seedling of Dr. Kirtland. Moderate grower and bearer. Flavor excellent.
32	*	*	*	*	---	Seedling of Dr. Kirtland. Vigorous, productive. Valuable either as a table or market fruit.
33	†	---	---	†	---	Seedling of Dr. Kirtland. One of the best for market purposes.
34	†	*	---	†	---	Seedling of Dr. Kirtland. Vigorous, spreading, productive. Very desirable for market.
35	---	---	---	†	---	Seedling of Thomas Rivers; England. Like Early White Heart, but later.
36	*	---	---	*	---	Tree hardy, a free grower; productive. Origin, Massachusetts.
37	*	*	*	*	---	Seedling of Dr. Kirtland. Very highly esteemed. A good bearer.
38	*	*	*	*	---	Origin, Massachusetts. Vigorous. Productive when trees have acquired sufficient age.
39	*	*	*	*	---	Seedling of Dr. Kirtland. Moderate grower; productive. Desirable for its lateness.
40	*	---	*	---	---	A European variety. Vigorous; but not particularly desirable. Very little grown.
41	*	---	*	---	---	A very pretty little fruit, for dessert, but not otherwise desirable.
42	*	---	---	---	---	A vigorous, foreign variety. Not valuable, unless for its maturity.
43	*	---	*	---	---	A vigorous tree. It has not proved very productive.
44	---	---	---	†	---	But little grown. Its value not fully determined.

SECTION VI.—CHERRIES—DUKE AND MORELLO.

ABBREVIATIONS FOR THIS SECTION.

Form.		Color.	
<i>co. compressed.</i>	<i>ov. oval.</i>	<i>a. amber.</i>	<i>p. purplish.</i>
<i>h. heartshaped.</i>	<i>r. roundish.</i>	<i>b. bright.</i>	<i>r. red.</i>
<i>ob. oblate.</i>		<i>d. dark.</i>	<i>y. yellow.</i>

NUMBER.	NAMES.	DESCRIPTIONS.							USE AND VALUE. Scale 1 to 10.		
		Size.	Form.	Color.	Quality.	Season.	Class.	Origin.	Dessert.	Cooking.	Market.
1	Archduke	l.	ob. h.	d. r.	v. g.	m. July.	d.	Eur.	7	6	7
2	Belle de Choisey	m.	r. ob.	y. a. r.	b.	m. June.	d.	Fr.	10	5	3
3	Belle Magnifique	l.	r. h.	b. r.	v. g.	m. Aug.	d.	Fr.	8	6	8
4	Carnation	l.	r.	y. w. r.	g.	m. July.	-----	Fr.?	6	-----	5
5	Donna Maria	m.	r.	d. r.	g.	m. July.	m.	Eur.?	4	6	6
6	Duchesse de Palluau	m.	r. h. co.	d. p.	g.	m. June.	d.	Eur.	5	5	6
7	Imperatrice Eugenie	l.	r. ob.	d. r.	v. g.	m. June.	d.	Eur.	7	6	7
8	Jeffrey's Duke	m.	r. ob.	b. r.	v. g.	m. June.	d.	Eur.	6	6	6
9	Kentish (<i>Early Richmond</i>)	m.	r. ob.	d. r.	v. g.	m. June.	m.	Eur.	5	8	10
10	Late Duke	l.	ob. h.	d. r.	v. g.	m. July.	d.	Eur.	7	7	6
11	Late Kentish (<i>Common Red</i>)	m.	r. ob.	d. r.	g.	m. July.	m.	Eur.	4	8	8
12	Leib	m.	r.	r.	g.	July.	m.	Eur.?	-----	-----	-----
13	Louis Philippe	l.	r.	d. p. r.	v. g.	e. July.	m.	Fr.	4	10	10
14	May Duke	l.	r. ob. h.	d. r.	b.	m. June.	d.	Eur.	8	8	10
15	Montmorency Ordinaire	l.	r. ob.	d. r.	v. g.	e. June.	m.	Eur.	5	8	10
16	Morello	l.	ob. h.	d. r.	v. g.	m. July.	m.	Eur.	5	10	10
17	Plumstone Morello	l.	r. h.	d. r.	g.	b. Aug.	m.	Eur.	1	10	3
18	Reine Hortense	v. l.	r. ov.	b. r.	v. g.	m. July.	d.	Fr.	6	7	6
19	Royal Duke	l.	r. ob.	d. r.	g.	e. June.	d.	Eur.	6	7	7
20	Ramsey's Late Morello	l.	r. h.	b. r.	g.	e. Aug.	m.	Am.	1	7	2

SECTION VI.—CHERRIES—DUKE AND MORELLO.

ABBREVIATIONS FOR THIS SECTION.

Class.
d. duke.
m. morello.

NUMBER.	LOCALITY.					REMARKS.
	East.	Center.	South.	Southern Lake Shore.	Northern Lake Shore.	
1	*	*	*	*	---	Tree vigorous, upright, hardy, prolific.
2	*	**	*	*	---	One of the best dessert cherries of any class; but a thin bearer. When on sandy soils, or top-grafted on Morello, proves productive.
3	*	*	?	*	*	Moderate grower; productive. Good for dessert when fully ripe.
4	*	**	*	*	---	A beautiful, large, light red cherry; highly esteemed where known.
5	*	---	---	*	---	A small tree. Very prolific.
6	*	---	---	*	---	A comparatively new variety; but little disseminated.
7	---	---	---	†	---	A new French cherry. An early and prolific bearer.
8	*	---	---	†	---	A tree of compact habits and slow growth. A prolific bearer.
9	**	**	**	**	*	Better known here as the Early Richmond. One of the most profitable market cherries. Not as good as several of the Dukes.
10	*	*	*	*	---	Valuable for dessert or cooking. Ripening after Mayduke.
11	*	*	*	*	---	Emphatically the pie cherry of this country.
12	---	---	†	†	---	A newly introduced variety. Claimed to withstand the winters of the northwest.
13	*	*	*	*	---	A strong, healthy tree, intermediate between Dukes and Morellos. Productive; valuable.
14	**	**	**	**	**	The type of its class. One of the oldest and most popular cherries.
15	---	†	---	†	---	Larger than Kentish, and ten days later.
16	*	*	*	*	*	Highly esteemed for preserving and other culinary purposes.
17	*	*	*	*	*	One of the best culinary sorts; but a slow grower and a tardy bearer.
18	*	**	*	*	*	A healthy and beautiful tree. A popular and desirable variety.
19	*	*	*	*	---	An upright, compact grower. Later than Mayduke.
20	*	*	---	*	---	Ripens gradually through August and September.

SECTION IX.—GRAPES—NATIVE.

ABBREVIATIONS FOR THIS SECTION.

FORM.

<p>Bunch. <i>b. broad.</i> <i>c. compact.</i> <i>l. long.</i></p>	<p>o. open or loose. <i>s. short.</i></p>	<p>sh. shouldered. <i>v. very.</i></p>	<p>Berry. <i>r. round.</i> <i>o. oblong.</i> <i>ov. ovate or oval.</i></p>
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NUMBER.	NAMES.	DESCRIPTIONS.								USE AND VALUE, Scale 1 to 10.		
		SIZE.		FORM.		Color.	Quality.	Season.	Origin.	Dessert.	Cooking.	Market.
		Bunch.	Berry.	Bunch.	Berry.							
1	Adirondac.....	l.	l.	c. sh.	r.	p. b.	v. g.	b. Sept.	N. Y.	8	---	6
2	Agawam (<i>Rog. 15</i>).....	l.	l.	c. sh.	r.	d. r.	v. g.	m. Sept.	h. Mass.	7	---	7
3	Allen's Hybrid.....	m. l.	m. l.	sh. c.	r.	w. y.	b.	m. Sept.	h. Mass.	10	---	4
4	Alvey.....	m. l.	s.	sh.	r.	b.	v. g.	b. Sept.	Md.	5	---	5
5	Aminia (<i>Rog. 39</i>).....	---	l.	---	r.	b.	v. g.	m. Sept.	h. Mass.	8	---	---
6	Anna.....	---	---	---	---	g.	v. g.	Oct.	N. Y.	9	---	2
7	Belvidere.....	l.	m.	---	r. ov.	b.	g.	b. Sept.	Am.	---	---	---
8	Black Hawk.....	m. l.	l.	c.	r.	b.	g.	b. Sept.	Penn.	---	---	---
9	Brighton.....	m.	l.	c. sh.	r.	r.	v. g.	m. Sept.	W. N. Y.	9	---	9
10	Canada (<i>Arnold's 16</i>).....	m. l.	m. l.	sh.	r.	b.	g.	m. Sept.	h. Ont.	8	---	3
11	Catawba.....	m.	l.	sh. o.	r.	r.	v. g.	Oct.	Md.	9	---	6
12	Clinton.....	m.	s.	c. sh.	r.	b.	g.	Oct.	N. Y.	3	---	3
13	Concord.....	l.	m. l.	c. sh.	r.	b.	v. g.	m. Sept.	Mass.	7	---	10
14	Cornucopia (<i>Arnold's 2</i>).....	l.	l.	c. sh.	r.	b.	v. g.	m. Sept.	h. Ont.	6	---	1
15	Creveling.....	m. l.	m.	l. sh.	r.	b.	v. g.	m. Sept.	Pa.	8	---	2
16	Croton.....	m.	s. m.	l. sh.	r.	g. y.	b.	b. Sept.	h. N. Y.	10	---	2
17	Delaware.....	s.	s.	c. sh.	r.	l. r.	b.	m. Sept.	N. J.?	10	---	10
18	Diana.....	l.	l.	c. l.	r.	r. l.	v. g.	e. Sept.	Mass.	6	---	6
19	Essex (<i>Rog. 41</i>).....	l.	v. l.	---	r.	b.	g.	m. Sept.	h. Mass.	---	---	---
20	Eumelan.....	l.	m.	c. sh.	r.	p. b.	v. g.	m. Sept.	N. Y.	9	---	2
21	Hartford Prolific.....	l.	l.	c. sh.	r.	b.	g.	b. Sept.	Conn.	4	---	6
22	Herbert (<i>Rog. 44</i>).....	l.	l.	l.	r.	b.	v. g.	m. Sept.	h. Mass.	6	---	---
23	Iona.....	l.	m.	o. sh.	r. o.	r.	b.	m. Sept.	N. Y.	10	---	6
24	Isabella.....	l.	l.	c. sh.	o.	b.	v. g.	e. Sept.	S. Car.	6	---	6
25	Israella.....	m. l.	l.	c. sh.	o.	p. b.	v. g.	m. Sept.	N. Y.	7	---	4
26	Ives.....	m.	m.	c. sh.	r. o.	b.	g.	e. Sept.	Ohio.	7	---	7
27	Janesville.....	s.	m.	s. c.	r.	b.	g.	b. Sept.	Am.	7	---	9
28	Kalamazoo.....	l.	l.	l. o.	r.	r.	v. g.	e. Sept.	Ohio.?	6	---	6
29	Lady.....	m.	l.	l. c.	r.	y. g.	b.	m. Sept.	Ohio.	9	---	---
30	Lindley (<i>Rog. 9</i>).....	m.	m.	l. c.	r.	r.	v. g.	m. Sept.	h. Mass.	7	---	8
31	Martha.....	m.	l.	sh. o.	r.	g. y.	g.	m. Sept.	Mo.	4	---	6
32	Massasoit (<i>Rog. 3</i>).....	m.	l.	s. sh.	r.	r.	g.	m. Sept.	h. Am.	6	---	4
33	Merrimac (<i>Rog. 19</i>).....	l.	l.	s. b. c.	r.	b.	g.	m. Sept.	h. Mass.	7	---	7

SECTION IX.—GRAPES—NATIVE.

ABBREVIATIONS FOR THIS SECTION.

Color.		
<i>a.</i> amber.	<i>l.</i> light.	<i>r.</i> reddish.
<i>b.</i> black.	<i>li.</i> lilac.	<i>w.</i> whitish.
<i>d.</i> dark.	<i>p.</i> purple.	<i>y.</i> yellowish.
<i>g.</i> greenish.		

NUMBER.	LOCALITY.					REMARKS.
	East.	Center.	South.	Southern Lake Shore.	Northern Lake Shore.	
1	*	*	*	*	*	One of the finest very early grapes. Subject to mildew of the foliage. Not generally successful. Keeps well after gathering.
2	*	*	*	*	*	
3	*	*	*	*	*	Its foreign blood seems to create a tendency to mildew. Finest of white grapes.
4	*	*	*	*	*	Has no specially valuable characteristics.
5	---	---	---	*	*	Very well esteemed by those who have fruited it.
6	---	---	---	*	---	Beautiful and excellent, but is too late for our climate.
7	---	---	---	*	---	Early and hardy. Will compare in character and quality with Perkins.
8	---	---	---	*	---	Will possibly be valued where quality must be deferred to hardiness.
9	---	---	---	*	---	Highly promising. One-fourth Foreign.
10	---	---	*	*	---	One of the recent Canadian hybrids. Has yet to acquire a reputation in this State. Bears profusely.
11	*	---	*	*	---	Is yet one of the best in localities where the season is long enough to ripen it. Good two years out of three at the south.
12	*	*	*	*	*	Is seldom good, or even passable till ripened by frost. Fruit best on high, warm, gravelly soils.
13	**	**	**	**	**	Here as elsewhere, this is "the grape for the million."
14	---	---	*	†	---	Another Canadian hybrid, with a character yet to be established.
15	*	*	*	*	*	Possibly from defect of the bloom, this is a bad setter and a thin bearer.
16	*	*	*	*	---	A very desirable white grape, if preserved from mildew, to which it is very liable.
17	**	**	**	**	**	Slow grower. Fully as productive as Concord when well established. Fruit sometimes fails from dropping of the leaves.
18	*	*	*	*	*	Rather foxy, with a thick tough skin. One of the best keepers. A thin bearer on strong soils. Better on dry, warm soils.
19	---	---	---	*	---	A fair variety for dessert and market uses. Rather liable to mildew.
20	*	*	*	*	*	A good dessert grape. May in some localities do for market.
21	*	*	*	*	*	Still prominent as one of the hardest and most productive for early market; but very liable to drop its berries.
22	---	---	---	*	---	Another of the Massachusetts hybrids, needing more extensive trial.
23	*	**	*	*	**	Generally esteemed as the finest of our natives. The vine seems to lack constitution; and is not generally successful.
24	*	*	*	*	---	An old favorite. Still popular where it is sure to ripen. Is not generally successful.
25	*	*	*	*	*	A good early sort, with tender, breaking pulp, and fair flavor. Requires warm soils.
26	*	*	*	*	---	Valued for hardiness, vigor and productiveness. A good wine grape.
27	---	---	---	*	*	New, hardy, and vigorous. Not fully tested in this State. Three weeks earlier than Concord.
28	---	*	---	*	---	Succeeds at Kalamazoo. Not yet much planted elsewhere.
29	---	†	---	†	---	Seedling of Concord, and said to be as hardy and healthy; but has not yet realized such promise.
30	---	---	*	*	†	A vigorous and productive vine. But little grown in this State.
31	*	*	*	*	---	Much sought for on account of its color. Very sweet, but too foxy.
32	*	*	*	*	---	Moderately vigorous and productive; like most of the hybrids, liable to mildew.
33	*	**	*	*	**	Vigorous and prolific. Much like Wilder in quality and season.

SECTION IX.—GRAPES—CONTINUED—NATIVE.

NUMBER.	NAMES.	DESCRIPTIONS.								USE AND VALUE. Scale 1 to 10.		
		SIZE.		FORM.		Color.	Quality.	Season.	Origin.	Dessert.	Cooking.	Market.
		Bunch.	Berry.	Bunch.	Berry.							
34	Moore's Early	l.	l.	c. sh.	r.	b.	v. g.	b. Sept.	Mass.	8	---	---
35	Mottled	m.	m.	sh. c.	r.	r.	v. g.	m. Sept.	Ohio.	7	---	4
36	Neff (<i>Keuka</i>)	m.	m.	b.	r.	d. r.	g.	m. Sept.	N. Y.	5	---	6
37	Norton's Virginia	m.	s.	sh. c.	r.	d. p.	g.	Oct.	Va.	2	---	4
38	Othello (<i>Arnold's J</i>)	l.	l.	sh. c.	r.	b.	g.	m. Sept.	h. Ont.	4	---	2
39	Perkins	m.	m.	sh. c.	r. o.	r.	g.	e. Sept.	Am.	2	---	2
40	Peter Wylie	m.	m. s.	---	r.	y.	v. g.	m. Sept.	h. S. Car.	8	---	---
41	Rebecca	m.	m.	l. c.	r. o.	g. y.	b.	e. Sept.	N. Y.	10	---	1
42	Requa (<i>Rog. 23</i>)	---	l.	s. o.	r.	r.	g.	m. Sept.	h. Mass.	7	---	---
43	Rogers' No. 20	s.	l.	---	r.	a.	g.	m. Sept.	h. Mass.	---	---	---
44	Salem (<i>Rog. 22</i>)	l.	l.	s. b. c.	r.	d. r.	g.	e. Sept.	h. Mass.	7	---	8
45	Senasqua	l.	l.	sh. c.	r.	b.	g.	m. Sept.	h. N. Y.	6	---	4
46	Talman (<i>Champion</i>)	m.	l.	s. c. sh.	r.	b.	g.	b. Sept.	Am.	4	---	8
47	Taylor's Bullitt	s.	s.	s. sh. c.	r.	g. w. a.	g.	e. Sept.	Ky.	2	---	1
48	Telegraph (<i>Christine</i>)	l.	l.	c.	r.	b.	g.	m. Sept.	Penn.	4	---	5
49	To Kalon	l.	l.	sh. ov. r.	p. b.	v. g.	c. e. Sept.	N. Y.	7	---	3	
50	Union Village	l.	v. l.	sh. c.	r.	b.	g.	m. Sept.	Ohio.	6	---	3
51	Walter	m.	m.	sh. c.	r.	l. r.	b.	m. Sept.	N. Y.	6	---	4
52	Wilder (<i>Rog. 4</i>)	l.	l.	c. sh.	r.	b.	v. g.	m. Sept.	h. Mass.	7	---	8
53	Worden	l.	l.	c. sh.	r.	b.	v. g.	m. Sept.	Am.	7	---	7
54	York Madeira	m.	m.	sh. c.	r.	b.	g.	Oct.	Penn.	4	---	4

SECTION X.—GRAPES.—FOREIGN.

Foreign grapes are recommended strictly for cultivation under glass; and as, when thus situated, they may be considered as, for all practical purposes, independent of climate; and as they are, moreover, thus grown mainly, if not wholly, for dessert purposes, we have merely copied the list recommended by the American Pomological Society, with the accompanying descriptions; omitting any farther tabulations.

NO.	NAMES.	DESCRIPTIONS.			
		Color.	Flavor.	Season.	Vinery.
1	Barbarossa (<i>Prince Albert, Brigola</i>)	Black.	Sweet.	Very late.	Hot.
2	Black Champion	Black.	Sweet.	Early.	Cold.
3	Black Damascus	Black.	Sweet.	Late.	Cold.
4	Black Frontignan	Black.	Muscat.	Late.	Cold.
5	Black Hamburg	Black.	Sweet.	Medium.	Cold.
6	Black Prince	Black.	Sweet.	Medium.	Cold.
7	Black July	Black.	Sweet.	Early.	Cold.
8	Bowood Muscat	White.	Muscat.	Medium.	Hot.
9	Buckland Sweetwater	White.	Sweet.	Medium.	Cold.
10	Calabrian Raisin (<i>Raisin de Calabre</i>)	White.	Sweet.	Late.	Hot.
11	Cannon Hall Muscat	White.	Muscat.	Late.	Hot.
12	Chasselas Musque or Joslin's St. Albans	White.	Muscat.	Early.	Hot.
	(<i>Muscat blanc Halive</i> ?)				
13	Duc de Magenta	Black.	Sweet.	Early.	Hot.
14	Early Silver Frontignan	White.	Muscat.	Early.	Hot.
15	Golden Hamburg (<i>Stockwood Golden Hamburg</i>)	White.	Sweet.	Late.	Hot.
16	Golden Champion	Amber.	Sweet.	Medium.	Hot.

SECTION IX.—GRAPES—CONTINUED.—NATIVE.

NUMBER.	LOCALITY.					REMARKS.
	East.	Center.	South.	Southern Lake Shore.	Northern Lake Shore.	
34	---	---	---	†	†	Vigorous grower. Promising for the north especially.
35	*	---	---	*	---	Vigorous, healthy, productive. A good keeper.
36	---	---	---	*	---	Not yet well tested in Michigan. Foxy.
37	---	---	---	*	---	Mostly valued for wine. Needs a favorable season, or lake protection.
38	*	---	---	*	---	A strong grower and productive. But little grown in this State.
39	---	---	*	*	---	Not largely planted here. Hardy, good bearer, but lacks quality. May do for market.
40	---	---	---	*	---	A rapid healthy grower. Fruit fine. A promising South Carolina hybrid.
41	*	*	*	*	---	Wood and foliage feeble. Fruit excellent when produced.
42	---	---	---	†	†	Promising here, but requires farther trial.
43	---	---	---	†	---	Requires farther trial.
44	*	**	*	*	**	The largest, most attractive, and popular of the Rogers hybrids. Vigorous, productive. Bunches often imperfect. Mildews.
45	*	---	---	*	---	A cotemporary of the Croton. It has attracted much less attention.
46	---	*	---	**	---	Very early, vigorous and productive. Valuable chiefly as an early market grape. Much confusion as to its identity.
47	*	---	*	*	---	A Kentucky seedling. A strong plant. A pleasant, sweet, light-colored fruit.
48	---	---	---	*	---	Hardy and vigorous. Ripening with Hartford Prolific, and similar in quality.
49	*	---	---	*	*	A fine fruit but much inclined to rot before maturity.
50	*	*	*	---	*	A vigorous, coarse growing vine. Fruit large but not rich.
51	*	*	*	†	---	A cross of Delaware and Diana. Has not realized the anticipations of planters.
52	*	*	*	*	**	One of the finest and most popular of the Rogers hybrids. Will do for market.
53	---	*	---	†	---	A week earlier than Concord, and better in quality. Very promising.
54	---	*	*	---	---	Moderately vigorous and productive. But little known in this State.

SECTION X.—GRAPES—CONTINUED.—FOREIGN.

NO.	NAMES.	DESCRIPTIONS.			
		Color.	Flavor.	Season.	Vinery.
17	Grizzly Frontignan (<i>Red Frontignan, Red Constantia.</i>)	Red & Yellow.	Muscat.	Medium.	Hot.
18	Gros Colman	Purple.	Sweet.	Late.	Cold.
19	Lady Downs' Seedling	Black.	Sweet.	Very late.	Hot.
20	Muscat of Alexandria	White.	Muscat.	Late.	Hot.
21	Muscat Hamburg	Black.	Muscat.	Medium.	Hot.
22	Mrs. Pince's Black Muscat	Black.	Muscat.	Late.	Hot.
23	Queen of Nice	White.	---	---	---
24	Red Chasselas (<i>Rose Chasselas</i>)	Red.	Sweet.	Medium.	Hot.
25	Red Lombardy	Red.	Sweet.	Medium.	Hot.
26	Rio Virgin	---	---	---	---
27	Royal Muscadine	White.	Sweet.	Early.	Cold.
28	White Nice	White.	Sweet.	Late.	Hot.
29	West's St. Peter's	Black.	Sweet.	Very late.	Hot.
30	Wilmot's Black Hamburg (<i>Dutch Hamburg</i>)	Black.	Sweet.	Medium.	Hot.
31	White Sweetwater (<i>Dutch Sweetwater &c.</i>)	White.	Sweet.	Early.	Cold.
32	White Frontignan (<i>White Constantia Muscat Blanc</i>)	White.	Muscat.	Medium.	Hot.
33	Zinfandal	Black.	Sweet.	Medium.	Hot.

SECTION XI.—NECTARINES.

ABBREVIATIONS FOR THIS SECTION.

Form.		Color.			Flowers.	Glands.
<i>c. compressed.</i>	<i>ov. oval.</i>	<i>c. crimson.</i>	<i>r. red.</i>	<i>l. large.</i>	<i>g. globose.</i>	
<i>d. depressed.</i>	<i>r. round.</i>	<i>g. greenish.</i>	<i>y. yellow.</i>	<i>s. small.</i>	<i>r. reniform.</i>	
<i>o. oblong.</i>		<i>o. orange.</i>	<i>w. white.</i>		<i>s. serrate.</i>	

NUMBER.	NAMES.	DESCRIPTIONS.									USE AND VALUE. Scale 1 to 10.		
		Size.	Form.	Color.	Quality.	Flowers.	Glands.	Adhesion.	Season.	Origin.	Dessert.	Cooking.	Market.
1	Boston.....	l.	r. ov.	g. r.	v. g.	s.	g.	f.	b. Sept.	Mass.	6	---	---
2	Downton.....	l.	r. ov.	g. r.	v. g.	s.	r.	f.	e. Aug.	Eur.	8	---	---
3	Early Newington.....	l.	r. ov.	g. r.	v. g.	l.	s.	c.	b. Sept.	Am.	10	---	---
4	Elruge.....	m.	r. ov.	g. r.	v. g.	s.	r.	f.	b. Sept.	Eur.	9	---	---
5	Red Roman.....	l.	r. d.	g. y. r.	v. g.	l.	r.	c.	m. Sept.	Eur.	8	---	---
6	Stanwick.....	l.	g. w. r.	o. r.	g.	---	r.	---	e. Sept.	Eur.	8	---	---
7	Victoria.....	l.	r. d.	g. y. c.	v. g.	s.	r.	---	b. Sept.	Eur.	9	---	---
8	Violette Hative.....	l.	r. ov.	y. g. r.	v. g.	s.	r.	f.	b. Sept.	Eur.	10	---	---

SECTION XII.—PEACHES.

ABBREVIATIONS FOR THIS SECTION.

Form.		Color.			Flowers.	Glands.
<i>c. compressed.</i>	<i>ov. oval.</i>	<i>b. bright.</i>	<i>p. purple.</i>	<i>l. large.</i>	<i>g. globose.</i>	
<i>d. depressed.</i>	<i>r. round.</i>	<i>c. crimson.</i>	<i>r. red.</i>	<i>s. small.</i>	<i>o. obscure.</i>	
<i>o. oblong.</i>		<i>d. dark.</i>	<i>w. white.</i>		<i>r. reniform.</i>	
		<i>g. green.</i>	<i>y. yellow.</i>		<i>s. serrate.</i>	
		<i>o. orange.</i>				

NUMBER.	NAMES.	DESCRIPTIONS.									USE AND VALUE. Scale 1 to 10.		
		Size.	Form.	Color.	Quality.	Flowers.	Glands.	Adhesion.	Season.	Origin.	Dessert.	Cooking.	Market.
1	Alexander.....	m.	r.	g. w. r.	v. g.	l.	g.	c. f.	e. July.	Ill.	9	---	9
2	Amsden's June.....	m.	r.	g. w. r.	v. g.	l.	g.	c. f.	e. July.	Mo.	9	---	9
3	Atlanta.....	m.	r. c.	w. p. r.	b.	s.	r.	f. c.	e. Sept.	N. Y.	10	---	6
4	Barnard.....	m. l.	r.	y. d. r.	g.	s.	r. o.	f.	b. Sept.	Am.	7	---	9
5	Bergen's Yellow.....	l.	r. d.	o. d. r.	b.	s.	r.	f.	b. Sept.	Am.	9	---	6
6	Brigg's Red May.....	m. l.	r.	g. w. r.	v. g.	---	s.	f.	e. July.	Cal.	9	---	---
7	Cole's Early Red.....	m.	r.	w. d. r.	v. g.	s.	g.	f.	e. Aug.	Am.	7	---	5
8	Columbia.....	l.	r. d.	r.	v. g.	s.	r.	f.	m. Sept.	Am.	6	---	4
9	Coolidge's Favorite.....	l.	r.	w. c.	v. g.	s.	g.	f.	m. Aug.	Mass.	9	---	7
10	Cooper's Mammoth.....	l.	r. o.	y. r.	g.	s.	s.	f.	m. Sept.	Am.?	7	7	4

SECTION XI.—NECTARINES.

The Nectarine is so peculiarly subject to the depredations of the curculio, that it is little grown, except by amateurs, and for dessert uses. Hence experience with it is extremely limited; and for these reasons we only express the comparative values of the varieties in the column for dessert. This fruit, in common with the Almond and the peach, is liable to the killing of the fruit buds in severe winters, except in favorable localities. The starring is given with little regard for this fact.

NUMBER.	LOCALITY.					REMARKS.
	East.	Center.	South.	Southern Lake Shore.	Northern Lake Shore.	
1	---	---	---	*	*	Originated at Boston. Large, showy, not of high quality.
2	---	---	---	*	*	Intermediate between Elruge and Violette Hative.
3	---	---	---	*	*	Like the serrate peaches, the foliage sometimes mildews. Excellent.
4	---	---	---	*	*	An old but highly esteemed variety.
5	---	---	---	*	*	Old, one of the richest and best of the clings. Productive.
6	---	---	---	†	†	A comparatively recent, and very highly praised variety.
7	---	---	---	†	†	A cross of Stanwick upon Violette Hative, by the late Thomas Rivers. One of the best.
8	---	---	---	*	*	Hardy, productive; fruit delicious.

SECTION XII.—PEACHES.

Since the Peach is generally used in its fresh state, or for canning, which is only a mode of preserving it in a nearly fresh condition, we have generally omitted to give values in the column headed "cooking." Throughout Central Michigan, except in favorable localities, occasional severe winters prove fatal to the fruit buds of the Peach, and sometimes even to the trees. These facts cannot be properly expressed in the starring, and hence are disregarded.

NUMBER.	LOCALITY.					REMARKS.
	East.	Center.	South.	Southern Lake Shore.	Northern Lake Shore.	
1	---	*	*	*	*	A partial cling, much like its supposed parent, Hale's Early, and two or three weeks earlier. Profitable for market.
2	---	*	*	*	*	Almost exactly like Alexander in tree, fruit, and season of ripening.
3	---	*	*	*	---	Of the finest quality. Not a market fruit.
4	*	**	**	**	**	When thoroughly thinned, the size is large, often overbears, becoming small.
5	*	*	*	*	---	Lacks productiveness.
6	---	---	---	*	---	An exceedingly beautiful peach; but, like all serrate varieties, liable to mildew of the foliage.
7	*	*	*	*	---	This has been elbowed aside, the markets craving yellow peaches.
8	---	---	---	*	---	Lacks productiveness, and is not attractive in appearance.
9	*	*	*	*	*	One of the best pale fleshed, early market peaches.
10	---	---	---	*	---	Foliage mildews, unproductive. A floating name, imposed upon this in lack of the true one.

SECTION XII.—PEACHES—CONTINUED.

NUMBER.	NAMES.	DESCRIPTIONS.									USE AND VALUE. Scale 1 to 10.		
		Size.	Form.	Color.	Quality.	Flowers.	Glands.	Adhesion.	Season.	Origin.	Dessert.	Cooking.	Market.
11	Crawford's Early.....	l.	o.	y. r.	v. g.	s.	g.	f.	e. Aug.	N. J.	9	10	10
12	Crawford's Late.....	v. l.	r.	y. d. r.	v. g.	s.	g.	f.	e. Sept.	N. J.	7	10	10
13	Delavan White.....	l.	r. o.	w. r.	g.	s.	r.	f.	b. Oct.	Am.	6	7	7
14	Druid Hill.....	l.	r.	g. w. r.	b.	s.	g.	f.	e. Sept.	Md.	10	---	6
15	Early Admirable.....	m.	r.	y. w. r.	v. g.	l.	g.	f.	e. Aug.	Fr.	8	---	3
16	Early Beatrice.....	s.	r. c.	w. r.	v. g.	l.	r.	f.	m. Aug.	Eng.	8	---	7
17	Early Louise.....	m.	r. c.	g. w. p. r.	v. g.	s.	r.	f.	b. Aug.	Eng.	8	---	7
18	Early Newington Free..	l.	r. c.	y. w. r.	b.	s.	g.	f.	e. Aug.	Am.	10	---	5
19	Early Rivers.....	l.	r.	y. pink.	b.	l.	r.	f.	m. Aug.	Eng.	9	9	8
20	Foster.....	l.	r. d.	d. o. r.	v. g.	s.	g.	f.	e. Aug.	Mass.	8	8	9
21	George the Fourth.....	m.	r.	y. w. d. r.	b.	s.	g. o.	f.	e. Aug.	N. Y.	10	---	4
22	Grosse Mignonne.....	l.	r. d.	g. y. p. r.	b.	l.	g.	f.	e. Aug.	Eur.	10	---	6
23	Haines' Early Red.....	m.	r. d.	w. r.	g.	s.	g.	f.	e. Aug.	N. J.	6	---	7
24	Hale's Early.....	m.	r.	g. w. r.	v. g.	l.	g.	f. c.	m. Aug.	Ohio.	10	---	8
25	Heath Cling.....	l.	o. ov.	y. w. r. b.	v. g.	s.	r.	c.	b. Oct.	Md.	9	9	8
26	Hill's Chili.....	m.	ov. c.	y. d. r.	g.	l.	r.	f.	e. Sept.	N. Y.	6	9	10
27	Jacques Rareripec.....	l.	r. c.	d. y. r.	v. g.	s.	r.	f.	m. Sept.	Mass.	7	9	10
28	Keyport White.....	l.	r.	w. c.	g.	s.	r.	f.	b. Oct.	Am.	6	7	7
29	Lady Palmerston.....	m. l.	r.	y. d. r.	g.	s.	r.	f.	e. Sept.	Eng.	6	9	9
30	Large Early York.....	m. l.	r.	w. r.	v. g.	s.	g.	f.	b. Sept.	Am.	8	8	8
31	Large White Cling.....	l.	r.	w. b. r.	v. g.	s.	g.	c.	m. Sept.	N. Y.	8	9	9
32	Late Admirable.....	v. l.	r. ov.	y. g. r.	b.	s.	g.	f.	m. Sept.	Fr.	10	---	8
33	Late Red Rareripec.....	l.	r. ov.	y. r.	b.	s.	g.	f.	m. Sept.	Am.	10	---	6
34	Lemon Cling.....	l.	o.	y. d. r.	v. g.	s.	r.	c.	e. Sept.	Am.	6	7	9
35	Macon (<i>Local</i>).....	---	---	---	---	---	---	f.	---	Mich.	8	---	---
36	Moore's Favorite.....	l.	r. ov.	w. r.	v. g.	s.	g.	f.	b. m. Sept.	Mass.	8	6	8
37	Morris' White Rareripec.	m.	ov.	g. w. p.	v. g.	s.	r.	f.	e. Sept.	Am.	7	10	8
38	Mountain Rose.....	l.	r. c.	w. r.	v. g.	s.	g.	f.	b. Sept.	N. J.	7	---	9
39	Muscogee.....	l.	r.	y. b. r.	v. g.	s.	---	f.	m. Sept.	Ga.	7	---	---
40	Oldmixon Cling.....	l.	r. ov.	y. w. r.	b.	s.	g.	c.	m. Sept.	Am.	8	9	7
41	Oldmixon Free.....	l.	r. ov.	y. w. r.	v. g.	s.	g.	f.	m. Sept.	Am.	8	8	10
42	Pullen's Seedling.....	l.	ov.	y. r.	v. g.	s.	g.	f.	m. Sept.	N. J.	6	8	8
43	Reeves' Late Yellow...	v. l.	r. ov.	y. r. p.	v. g.	s.	g.	f.	Sept. Oct.	N. J.	---	10	10
44	Red Cheek Melocoton...	l.	r. ov.	y. b. r.	g.	s.	g.	f.	m. Sept.	Am.	7	---	8
45	Richmond.....	m. l.	r. c.	y. d. r.	v. g.	s.	r.	f.	b. Sept.	N. Y.	8	9	9
46	Ruding's Late Red.....	l.	r. c.	w. r.	g.	s.	r.	f.	m. Sept.	Am.	8	---	---

SECTION XII.—PEACHES—CONTINUED.

NUMBER.	LOCALITY.					REMARKS.
	East.	Centre.	South.	Southern Lake Shore.	Northern Lake Shore.	
11	**	**	*	**	**	Very popular with both market men and fruit growers. Much used for canning. Others often sell under this name.
12	*	*	*	*	---	Is growing in popularity. Lacks productiveness on light soils, and on young trees. Many place it first for profit.
13	---	---	---	*	---	Is liked by some planters, but is not generally known or valued.
14	*	---	*	*	---	An excellent late pale fleshed peach that should be better known.
15	*	---	---	*	---	Mainly valuable for the private garden.
16	---	---	*	*	*	As far as tried, it is too small for the market; although some esteem it profitable. Rich, beautiful.
17	---	---	---	*	*	Ripens in advance of Hale's Early or Beatrice. Very high quality. At Lawton said to sell well.
18	---	---	*	*	---	Sometimes clings slightly. A fine amateur peach. Fruit large and beautiful. Very profitable at Lawton.
19	---	---	---	*	*	An excellent very early sort; lacks color. Fruit large and beautiful. At Lawton very profitable.
20	---	*	---	*	*	A promising market peach, but almost identical in season with Early Crawford.
21	*	*	*	*	*	One of the best for home use. Two tender and delicate for market.
22	*	*	*	*	---	The true variety is one of the most delicious of peaches.
23	*	*	*	*	*	Hardy and productive. Well adapted to the market.
24	*	**	*	**	**	A fine peach and vigorous tree. Sometimes rots before maturity. By many highly esteemed for market.
25	*	*	*	*	---	One of the finest clings, but needs a long season in this latitude. Very profitable when it ripens fully.
26	*	*	*	**	---	Hardy. A good bearer, and a profitable late variety. Lacks quality. Seems to be losing reputation as compared with others.
27	*	*	*	**	---	Profitable, but not of high quality.
28	*	*	*	*	---	Does not mature perfectly in unfavorable seasons.
29	---	---	---	*	---	Originated by the late Thos. Rivers. Promising.
30	*	*	*	*	*	Has not become generally popular at the northwest.
31	*	*	*	*	---	A large and showy cling of good quality.
32	*	---	---	---	---	One of the finest for home use as a dessert peach.
33	*	---	*	---	---	Highly valued as a dessert peach. Comes before the preceding.
34	*	*	*	*	---	The largest and best of the yellow fleshed clings. Does not sell well.
35	---	---	*	---	---	Valued in northeastern Lenawee.
36	---	---	---	*	---	A beautiful and promising peach. May be valuable for market, if productive.
37	*	*	*	*	*	Valued for preserving and canning on account of its color.
38	*	*	*	*	**	This is attracting much attention as a market variety, and is highly prized where fully proved.
39	---	---	---	*	---	An unattractive looking peach. In quality better than it looks.
40	*	*	*	*	*	Where a cling is desired.
41	*	*	*	**	**	A very old variety, which still holds a high position as a market peach.
42	---	---	---	*	---	Originated many years since by the late Isaac Pullen. Somewhat grown at Douglas.
43	---	---	---	*	---	Much like Early Crawford; and more desirable where it will ripen with certainty.
44	*	*	*	*	---	An old sort. The parent of Crawford's Early and Late.
45	---	---	---	*	---	A new and promising variety. A few days later than Early Crawford, and less acid.
46	---	---	---	*	---	Promising amateur peach. Adaptation to market yet undetermined.

SECTION XII.—PEACHES—CONTINUED.

NUMBER.	NAMES.	DESCRIPTIONS.									USE AND VALUE. Scale 1 to 10.		
		Size.	Form.	Color.	Quality.	Flowers.	Glands.	Adhesion.	Season.	Origin.	Dessert.	Cooking.	Market.
47	Salway.....	l.	r. d.	y. c. r.	v. g.	s.	r.	f.	b. Oct.	Eng.	8	9	9
48	Scott's Nonpareil.....	l.	r. ov.	y. r.	v. g.	s.	g.	f.	m. Sept.	Am.	8	---	8
49	Silver Medal.....	m.	r. o.	w.	v. g.	s.	g.	f.	Sept. Oct.	Am.	8	10	10
50	Smock Free.....	l.	ov. c.	o. y. d. r.	g.	s.	r.	f.	Oct.	N. J.	6	9	10
51	Snow.....	m.	r.	w.	g.	s.	r.	f.	m. Sept.	Am.	5	10	5
52	Snow's Orange.....	m. l.	r.	b. y. d. r.	v. g.	s.	r.	f.	b. Sept.	Mich.	6	---	9
53	Steadley.....	l.	r. ov.	w. r.	v. g.	s.	r.	f.	b. Oct.	Am.	9	10	---
54	Stump the World.....	v. l.	r. o.	w. b. r.	v. g.	s.	g.	f.	e. Sept.	N. J.	8	8	9
55	Susquehanna.....	v. l.	r.	y. r.	v. g.	s.	r.	f.	m. Sept.	Penn.	7	9	8
56	Temple's Late White.....	m.	o. ov.	y. r.	g.	---	g.	f.	m. e. Sept.	Am.	---	---	---
57	Thurber.....	l.	ov.	w. r.	v. g.	s.	g.	f.	b. Sept.	Ga.	9	10	---
58	Tippecanoe.....	v. l.	r. c.	y. r.	v. g.	s.	r.	c.	e. Sept.	Penn.	9	9	9
59	Troth's Early Red.....	m.	r.	w. b. r.	g.	s.	g.	f.	e. Aug.	N. J.	5	---	8
60	Van Zant's Superb.....	m.	ov.	w. r.	b.	s.	r.	f.	e. Aug.	N. Y.	10	---	5
61	Variegated Free.....	l.	r.	w. c. p.	b.	s.	g.	f.	e. Sept.	N. J.	10	9	6
62	White Imperial.....	m. l.	r. c. d.	y. w. r.	v. g.	s.	g.	f.	b. Sept.	N. Y.	7	10	7
63	Yellow Alberge.....	m.	r.	y. p. r.	g.	s.	g.	f.	e. Aug.	Fr.	6	---	8
64	Yellow Oblong.....	l.	r. o.	y. r.	g.	s.	r.	f.	e. Sept.	Am.?	5	8	8
65	Yellow Rareripe.....	l.	r. o.	o. y. r.	v. g.	s.	g.	f.	b. Sept.	Am.	---	---	---

SECTION XIII.—PEARS.

ABBREVIATIONS FOR THIS SECTION.

Form.

a. acute. *o. oblong.* *p. pyriform.*
d. depressed. *ob. obtuse.* *r. roundish.*
e. elongated. *obo. obovate.* *t. turbinate.*
 ov. oval or ovate.

NUMBER.	NAMES.	DESCRIPTION.						USE AND VALUE. Scale 1 to 10.		
		Size.	Form.	Color.	Quality.	Season.	Origin.	Dessert.	Cooking.	Market.
1	Ananas D'Ete.....	l.	p. ob.	y. b. ru.	v. g.	Sept. Oct.	Hol.	10	5	4
2	Bartlett.....	l.	o. ob. p.	y. ru. r.	v. g.	Sept.	Eng.	8	8	10
3	Belle Epine Dumas.....	m.	obo. ob. p.	g. y. ru. b.	v. g.	Nov. Dec.	-----	7	6	5
4	Beurre Bosc.....	l.	p.	d. y. ru. r.	b.	Oct.	Bel.	9	7	8

SECTION XII.—PEACHES—CONTINUED.

NUMBER.	LOCALITY.					REMARKS.
	East.	Center.	South.	Southern Lake Shore.	Northern Lake Shore.	
47	*	*	*	*	---	Will only ripen at the south with certainty; may fail there in unfavorable seasons.
48	---	---	---	*	---	A variety originating from Old Red Cheek, and promising to be superior.
49	---	---	---	*	---	The finest of canning peaches, without either red or brown at the pit. Occasionally a faint red cheek.
50	*	*	*	**	---	One of the latest profitable market peaches in Southern Michigan. Valuable.
51	*	*	*	*	---	Young growth yellowish green. Fruit clear yellowish white; flesh clear white.
52	*	*	*	**	**	Similar to Barnard; brighter in color, and slightly later. Must be thinned to insure good size.
53	---	---	---	*	---	Excellent for either dessert or canning.
54	*	*	*	*	---	A large and beautiful market peach of fair quality. Very profitable.
55	*	*	*	*	---	A large, beautiful and fine, rather late peach. Said to lack productiveness. Growing in popularity.
56	---	---	---	*	---	Requires another season's trial.
57	---	---	---	*	---	From a pit of Chinese cling. Its value here for market yet undetermined.
58	*	*	*	*	---	One of the finest late yellow clings, for Southern Michigan.
59	*	*	*	*	---	An early and productive white fleshed peach of only medium quality.
60	*	*	*	*	---	Skin very smooth and beautiful. A fine amateur peach.
61	---	---	---	*	---	A beautiful and superior peach, originating with the late Isaac Pullen, of New Jersey.
62	*	*	*	*	*	Valued for drying, canning, and preserving.
63	*	*	*	*	*	This is one of the earliest of the yellow-fleshed peaches, and only desirable for that reason.
64	---	---	---	*	---	Promising market peach. Received from Penn., under this name. Origin and history unknown.
65	*	*	*	*	*	The genuine is a fine very early peach. The one grown here is probably spurious.

SECTION XIII.—PEARS.

ABBREVIATIONS FOR THIS SECTION.

Color.
b. brown. *g. green.* *r. red.*
c. crimson. *l. light.* *ru. russet.*
d. dark. *o. orange.* *y. yellow.*

NUMBER.	LOCALITY.					REMARKS.
	East.	Center.	South.	Southern Lake Shore.	Northern Lake Shore.	
1	*	*	*	*	*	A fine amateur variety.
	**	**	**	**	**	The leading market sort. Too musky to suit some tastes.
3	*	---	---	*	---	Tree vigorous; fruit lacks attractiveness and quality.
4	*	*	*	*	*	Fruit fair and even in size. Will bear to be planted for market.

SECTION XIII.—PEARS—CONTINUED.

NUMBER.	NAMES.	DESCRIPTIONS.					USE AND VALUE. Scale 1 to 10.			
		Size.	Form.	Color.	Quality.	Season.	Origin.	Dessert.	Cooking.	Market.
5	Beurre Clairgeau.....	l.	p.	y. o. c. ru.	g.	Oct. Nov.	Fr.	6	7	9
6	Beurre D'Anjou.....	l.	ob. p.	g. ru. c. b.	v. g.	Nov.	Fr.	9	9	10
7	Beurre de Brignais..... (Des Nonnes)	m.	r. ob.	g. y.	v. g.	Sept.	-----	6	6	6
8	Beurre Diel.....	l.	obo. ob. p.	y. o. ru. b.	v. g.	Sept. Dec.	Bel.	6	8	7
9	Beurre Giffard.....	m.	p.	g. y. r.	v. g.	e. Aug.	Fr.	10	6	6
10	Beurre Gris D'Hiver Nouveau.	m.	r. ob. p.	y. ru.	v. g.	Nov. Jan.	Eur.	6	8	6
11	Beurre Goubalt.....	s.	obo.	g. y.	g.	Sept.	Fr.	4	6	3
12	Beurre Hardy.....	l.	obo. ob. p.	g. ru. b.	v. g.	Sept. Oct.	-----	7	7	8
13	Beurre Langelier.....	m.	obo. ob. p.	y. c. ru.	v. g.	Nov. Jan.	Eng.	6	8	5
14	Beurre Superfine.....	m.	r. p.	y. c. ru.	v. g.	Oct.	Fr.	7	8	8
15	Bloodgood.....	m.	t. obo.	y. ru.	v. g.	Aug.	N. Y.	9	6	4
16	Brandywine.....	m.	e. ob. p.	y. g. ru. r.	v. g.	b. Sept.	Penn.	7	7	5
17	Buffum.....	m.	ob. obo.	d. y. r.	v. g.	Sept.	R. I.	6	7	7
18	Clapp's Favorite.....	l.	obo. ob. p.	l. c. y.	v. g.	Sept.	Mass.	8	8	9
19	Columbia.....	l.	o. obo.	g. y. o.	g.	Nov. Jan.	N. Y.	6	8	6
20	Dana's Hovey.....	s.	obo. ob. p.	g. y. ru.	b.	Nov. Jan.	Mass.	9	5	4
21	Dearborn's Seedling.....	s.	r. p.	l. y.	v. g.	Aug.	Mass.	7	5	2
22	Dix.....	l.	l. p.	d. y. ru.	v. g.	Oct. Nov.	Mass.	8	6	6
23	Doctor Reeder.....	s.m.	r. ob. p.	y. ru.	b.	Nov.	N. Y.	8	6	4
24	Doyenne Boussock.....	l.	obo. p.	d. y. ru.	v. g.	Sept. Oct.	Bel.	7	7	8
25	Doyenne D'Ete.....	s.	r. obo. p.	y. r.	v. g.	July.	Bel.	9	5	9
26	Doyenne du Comice.....	l.	r. ob. p.	y. c. ru.	b.	Oct. Nov.	Fr.	9	7	7
27	Doyenne Gray.....	m.	o. obo.	l. ru.	b.	Oct.	Eur.	10	8	8
28	Duchesse D'Angouleme.....	v. l.	o. obo.	g. y. ru.	v. g.	Oct.	Fr.	7	9	10
29	Easter Beurre.....	l.	r. obo. ob.	y. g. ru. b.	v. g.	Jan. Mar.	Eur.	6	8	3
30	Emile D'Heyst.....	l.	o. obo. p.	y. o. ru.	b.	Nov. Dec.	Bel.	10	8	8
31	Flemish Beauty.....	l.	obo. ob. p.	y. ru. r. b.	v. g.	Sept.	Bel.	7	7	8
32	Fondante D'Automne.....	m.	obo. ob. p.	y. g. ru.	b.	Sept.	Fr.	10	7	8
33	Glout Morceau.....	l.	obo. ob. p.	g. y. b.	g.	Dec.	Fr.	7	7	5
34	Howell.....	l.	r. p.	l. y. ru.	v. g.	Oct.	Conn.	8	7	8
35	Josephine de Malines.....	m.	r. ob. p.	g. y. ru.	v. g.	Jan. Feb.	Bel.	8	8	6
36	Kirtland.....	m.	ob. obo. p.	y. l. ru. r.	v. g.	b. Sept.	Ohio.	8	5	4
37	Lawrence.....	m.	obo. ob. p.	y. ru.	v. g.	Dec.	N. Y.	8	8	8
38	Louise Bonne de Jersey.....	l.	o. p.	g. b. r.	v. g.	Sept. Oct.	Fr.	7	9	8
39	Madelaine.....	m.	obo. p.	y. g. b.	v. g.	July.	Fr.	8	8	7
40	Manning's Elizabeth.....	s.	obo. op. p.	l. y. r.	v. g.	Aug. Sept.	Bel.	9	7	6

SECTION XIII.—PEARS—CONTINUED.

NUMBER.	LOCALITY.					REMARKS.
	East.	Center.	South.	Southern Lake Shore.	Northern Lake Shore.	
5	*	*	*	*	---	Soon becomes dry and insipid, when ripened. A showy market pear.
6	**	**	**	**	*	One of the best late autumn pears, whether for market or home use.
7	*	---	---	---	---	Not much disseminated. Lacks attractiveness.
8	*	*	*	*	*	Fruit apt to be astringent on young trees. Should be house-ripened.
9	*	*	*	*	---	Fruit requires to be gathered before maturity—decays rapidly.
10	*	---	---	---	---	A promising winter pear.
11	---	*	---	---	---	Not much disseminated. Not of high quality.
12	*	---	---	*	---	Not as well known as it should be.
13	*	---	---	---	---	Like winter pears generally, this has not been largely planted.
14	*	*	*	*	---	A fine pear. Sometimes a little too acid. Productive.
15	*	*	*	*	---	No garden should be without this. Fruit best when house-ripened.
16	*	---	†	---	---	But little disseminated.
17	*	*	*	*	*	Popular on account of the health, vigor, and productiveness of the tree. Market.
18	*	**	*	*	*	A strong grower. Fine, large fruit. Inclined to rot at the core. Promising for market.
19	*	---	---	---	---	Liable to drop or be blown from the tree prematurely.
20	*	---	---	*	---	One of the few winter pears of high quality.
21	*	*	*	*	*	Well known and esteemed, but too small to become very popular.
22	*	*	*	*	---	Too tardy bearer; hence is rarely planted.
23	---	---	---	---	---	A New York seedling from Winter Nelis.
24	*	*	*	*	---	Popular as a market pear. Also a good amateur fruit.
25	*	*	*	**	*	The best and most satisfactory very early pear. Valued for early market.
26	*	---	---	†	---	New; gives promise of value.
27	*	*	*	---	---	Excellent. Should be more widely planted.
28	*	*	*	*	*	When neglected proves unproductive. Profitable under good treatment, and on dwarf stocks. At north loses quality.
29	*	*	*	*	*	In a warm exposure and favorable season, this will be found satisfactory. Better south.
30	*	---	---	---	---	Little disseminated. A fruit of high promise.
31	**	**	**	*	**	Vigorous tree. Large, showy fruit, which decays soon at the center. Drops and sometimes scabs.
32	*	*	*	*	*	An excellent and profitable old variety.
33	*	*	*	*	---	On old trees, when well ripened, this is an excellent pear.
34	*	*	*	*	*	Quite freely planted and generally esteemed.
35	*	*	*	*	*	Not as freely planted as it should be.
36	*	*	*	*	---	Very fine, but comes in the height of the fall fruit season. Only amateur.
37	*	*	*	*	*	Tree healthy and vigorous. Should be grown on dry, warm soils.
38	*	*	*	*	**	A good market pear. Should always be grown as a dwarf.
39	*	*	*	*	---	The earliest pear of good quality. Sometimes slightly astringent.
40	*	*	*	*	---	One of the most desirable amateur pears of its season.

SECTION XIII.—PEARS—CONTINUED.

NUMBER.	NAMES.	DESCRIPTIONS.						USE AND VALUE. Scale 1 to 10.		
		Size.	Form.	Color.	Quality.	Season.	Origin.	Dessert.	Cooking.	Market.
41	Mount Vernon.....	m.l.	r. ob. p.	ru. y. b. r.	v. g.	Nov. Dec.	Mass.	8	8	6
42	Napoleon.....	l.	ob. p.	y. g.	g.	Sept.	Bel.	5	6	6
43	Onondaga.....	l.	obo. ob. p.	y. ru.	v. g.	Oct. Nov.	Conn.	7	8	9
44	Osband's Summer.....	s.	r.ov.obo.p.	y. r. ru.	v. g.	Aug.	N. Y.	7	7	8
45	Oswego Beurre.....	m.	ob. obo.	y. g. ru.	v. g.	Oct. Nov.	N. Y.	8	7	4
46	Paradiso D'Automne.....	l.	o.obo. a. p.	y. ru.	v. g.	Sept. Oct.	Bel.	8	6	4
47	Pound.....	l.	p.	y. g. b.	g.	Dec. Mar.	Eur.?	1	10	7
48	Rostiezer.....	s.	obo. o. p.	y. g. r. b.	b.	Aug.	Eur.	9	5	6
49	Seckel.....	s.	obo.	y. b. r. ru.	b.	Oct.	Penn.	10	---	7
50	Sheldon.....	m.	r. ob. obo.	g. y. ru. c.	v. g.	Oct.	N. Y.	8	6	9
51	Sterling.....	m.	r. ov. p.	y. ru. c.	v. g.	Sept.	N. Y.	7	5	9
52	Stevens's Genesee.....	l.	r.	y.	v. g.	Sept.	N. Y.	9	6	6
53	St. Ghislain.....	m.	p.	y.	g.	Sept. Oct.	Bel.	7	6	4
54	Tyson.....	m.s.	a. p.	y. ru. c.	b.	Aug. Sept.	Penn.	9	6	7
55	Urbaniste.....	m.l.	obo. p.	y. ru.	v. g.	Oct. Nov.	Fl.	9	7	6
56	Vicar of Winkfield.....	l.	l. p.	y. b.	g.	Nov. Jan.	Fr.	2	8	6
57	Washington.....	m.	o. obo.	y. r.	v. g.	Sept.	Del.	9	6	4
58	White Doyonne.....	m.l.	obo.	y. r.	b.	Oct.	Fr.	10	7	8
59	Windsor.....	l.	p.	y. g.	g.	Aug.	Eur.	1	5	6
60	Winter Nelis.....	m.	r. obo.	y. g. ru.	b.	Dec. Jan.	Fl.	9	7	7

SECTION XIV.—PLUMS.

In the grading and starrng of plums no reference is had to the prevalence of the curculio in the district.

ABBREVIATIONS FOR THIS SECTION.

Form.

- d. depressed.
- l. long.
- n. necked.
- o. oblong.
- ob. oblate.
- obo. obovate.
- ov. oval.
- r. roundish.

NUMBER.	NAMES.	DESCRIPTION.						USE AND VALUE. Scale 1 to 10.			
		Size.	Form.	Color.	Quality.	Adhesion.	Season.	Origin.	Dessert.	Cooking.	Market.
1	Bavay's Green Gage.....	l.	r. d.	g. y.	b.	f.	Oct.	Bel.	9	9	9
2	Bleeker's Gago.....	m.	r. ov.	y.	v. g.	f. c.	e. Aug.	N. Y.	8	7	8
3	Bradshaw.....	l.	ov. obo. n.	r. p.	g.	c. f.	e. Aug.	Am.	7	10	10

SECTION XIII.—PEARS—CONTINUED.

NUMBER.	LOCALITY.					REMARKS.
	East.	Center.	South.	Southern Lake Shore.	Northern Lake Shore.	
41	---	---	---	↑	*	A promising late autumn and early winter pear. Bears young.
42	*	*	*	*	---	An early and abundant bearer. Lacks quality.
43	*	*	*	*	*	A good constant bearer of large, showy fruit of fair quality in most seasons.
44	*	*	*	*	---	Tree vigorous; productive. Fruit sufficiently good for the market.
45	*	*	*	*	---	High vinous flavor; rich. Becomes productive with high culture.
46	*	---	---	---	---	Fruit somewhat like Beurre Bosc, but more variable.
47	*	*	*	*	---	Chiefly valued for the kitchen. Trees strong, healthy.
48	*	*	*	*	---	Tree vigorous and productive. Fruit excellent, but unattractive in appearance.
49	*	*	*	*	**	The standard of high quality among pears. Tree forms a beautiful pyramid. Profitable for market when known.
50	*	*	*	*	**	A hardy, productive tree; and a good fruit for general purposes; not attractive.
51	*	*	*	*	↑	Both tree and fruit well adapted for the market.
52	*	*	*	*	*	An excellent and fine looking pear, but soon decays at the core.
53	*	---	---	---	---	An old variety; now to a great extent superseded.
54	*	*	*	*	---	A beautiful tree. Fruit grown to some extent for the market. A tardy bearer.
55	*	*	*	*	---	Too tardy a bearer. Is being abandoned; probably for this reason.
56	*	*	*	*	*	Tree very vigorous and productive; its greatest recommendation for this climate. It often fails to ripen well.
57	*	**	*	*	---	This pear should be planted in every garden.
58	*	*	*	*	*	This old favorite is generally successful in this State.
59	*	*	*	*	*	The vigor and beauty of the tree, and the size of the fruit, are its sole recommendations.
60	*	*	*	*	---	The fruit is scarcely inferior to the Seckel. The tree must not be allowed to overbear.

SECTION XIV.—PLUMS.

ABBREVIATIONS FOR THIS SECTION.

Color.

b. blue. *p. purple.*
br. brownish. *r. red.*
c. copper. *y. yellow.*
g. green.

NUMBER.	LOCALITY.					REMARKS.
	East.	Center.	South.	Southern Lake Shore.	Northern Lake Shore.	
1	*	*	*	*	*	Nearly or quite as fine as Green Gage. Tree a better grower.
2	*	*	*	*	*	Hardy. A good regular bearer. Shoots downy.
3	*	**	*	*	*	Grows and bears well. A superior market variety.

SECTION XIV.—PLUMS—CONTINUED.

NUMBER.	NAMES.	DESCRIPTIONS.						USE AND VALUE. Scale 1 to 10.			
		Size.	Form.	Color.	Quality.	Adhesion.	Season.	Origin.	Dessert.	Cooking.	Market.
4	Canada Egg (<i>local name</i>).....	l.	.....	.....	g.	c.	Sept.	Ont. ?	7	7	8
5	Coe's Golden Drop.....	l.	ov.	y.	v. g.	c.	e. Sept.	Eng.	8	6	9
6	Columbia.....	l.	r.	br. p.	g.	f.	b. Sept.	N. Y.	6	.....	5
7	Copper.....	m.s.	ov. n.	c. b.	g.	c.	e. Sept.	Eur.	4	8	9
8	Damson.....	s.	ov.	p. b.	g.	f. c.	Sept.	Am.	3	10	8
9	Duane's Purple.....	v. l.	o. ov.	r. p.	g.	f. c.	m. Aug.	N. Y.	7	4	5
10	General Hand.....	v. l.	r. ov.	g. y.	g.	f.	Sept.	Penn. ?	6	7	7
11	German Prune.....	l.	l. ov.	b. p.	g.	f.	Sept.	Eur.	6	8	8
12	Green Gage.....	s.	r.	g. y. r.	b.	f.	e. Aug.	Eur.	10	8	3
13	Huling's Superb.....	v. l.	r. ov.	g. y.	g.	c.	e. Aug.	Penn.	8	7	5
14	Imperial Blue (<i>local</i>).....	m.	r.	b. p.	v. g.	c.	b. Sept.	Mich.	8	9	9
15	Imperial Gage.....	l.	ov.	g. y.	b.	f.	b. Sept.	N. Y.	9	9	8
16	Italian Prune.....	m.	ov.	b.	g.	f.	b. Oct.	Eur.	6	8	8
17	Jefferson.....	l.	ov.	y. p. r.	b.	f.	b. Sept.	N. Y.	10	9	9
18	Kirke's.....	m.	r. o.	p.	g.	f.	b. Sept.	Eur.	.....	.....	.....
19	Lombard.....	m.	r. ov. d.	r. p.	g.	c.	b. Sept.	N. Y.	6	10	10
20	McLaughlin.....	l.	r. ob. d.	y. r.	b.	c.	e. Aug.	Me.	10	6	7
21	Monroe.....	m. l.	ov.	g. y. r.	g.	.....	b. Sept.	N. Y.	6	7	9
22	Orleans.....	m.	r.	r. p.	g.	f.	e. Aug.	Eur.	.....	.....	.....
23	Peach Plum.....	v. l.	r. d.	b. r.	g.	f.	b. Aug.	Eur.	6	10	10
24	Pond's Seedling (<i>Fonthill</i>).....	v. l.	ov. n.	y. r.	g.	c.	m. Sept.	Eng.	6	7	9
25	Prince Englebert.....	l.	ob. ov.	p. br.	v. g.	f.	b. Sept.	Bel.	8	.....	10
26	Prince's Yellow Gage.....	m. l.	ov.	y.	v. g.	f.	b. Aug.	N. Y.	8	8	9
27	Quackenboss.....	l.	o. r.	p.	g.	f. c.	Sept.	N. Y.	6	7	9
28	Red Magnum Bonum.....	l.	ov.	r.	g.	f.	b. Sept.	Eur.	5	7	7
29	Smith's Orleans.....	l.	ov.	r. p.	v. g.	c.	e. Aug.	N. Y.	8	8	8
30	Washington.....	v. l.	r. ov.	g. y. c.	v. g.	f.	e. Aug.	N. Y.	8	10	7
31	Yellow Egg.....	v. l.	ov.	y.	g.	c.	e. Aug.	.....	6	8	7

SECTION XIV.—PLUMS—CONTINUED.

NUMBER.	LOCALITY.					REMARKS.
	East.	Center.	South.	Southern Lake Shore.	Northern Lake Shore.	
4	---	---	---	*	*	Probably an unrecognized old variety.
5	**	**	**	**	*	Beautiful. Excellent. Perhaps may not ripen well at the extreme north.
6	*	---	---	---	---	Subject to rot. Tree vigorous and productive.
7	---	---	---	†	---	Valued for market and cooking.
8	*	*	*	*	*	A slow grower. Productive. Valued for preserves.
9	*	*	*	*	*	Too soft and uneven in size for market.
10	---	---	---	†	*	Promises well for market. Does not succeed well in Mason Co.
11	*	*	*	*	*	Valued for drying and preserving.
12	*	*	*	*	*	The standard of quality among plums. Tree a slow grower.
13	*	*	---	---	*	Tree very vigorous, upright, moderate bearer.
14	---	---	*	---	---	Originated in Lenawee Co. by Israel Pennington, who prizes it highly.
15	*	*	*	*	*	Productive, excellent, shoots dark, downy, vigorous.
16	---	---	---	†	---	Tree vigorous, spreading, branches smooth.
17	*	*	*	*	**	A slow grower, good bearer, very profitable at the north.
18	---	---	---	---	---	Branches smooth. The stone is broad and flat.
19	**	**	**	**	**	Tree vigorous, hardy, and productive. The leading market variety.
20	*	*	*	*	*	Tree not satisfactory at St. Joseph. Nearly or quite equal to Green Gage. Hardy, vigorous, productive.
21	*	*	*	*	---	Tree very vigorous and productive.
22	---	---	---	---	---	Vigorous. Branches gray and very downy.
23	---	---	---	*	*	Tree upright, vigorous. A moderate bearer.
24	---	---	---	*	**	Productive, vigorous. Branches smooth, grayish. Dorr's Favorite of Oceana Co. is identical with this.
25	*	---	---	*	*	Tree vigorous; a great bearer; valuable for market.
26	*	*	*	*	*	An old favorite. Hardy, productive.
27	*	*	*	*	---	A rapid, upright grower; productive.
28	*	*	*	*	*	The genuine has slender, smooth shoots.
29	*	*	*	*	*	One of the most vigorous, shoots glossy, reddish purple, very productive.
30	*	*	*	*	*	One of the largest and most beautiful, but inclined to rot on the tree. Free from rot at the north.
31	*	*	*	*	**	A fine market variety, but rots in some seasons at the south, and as far north as Mason Co.

SECTION XV.—QUINCES.

ABBREVIATIONS FOR THIS SECTION.

Form.

*ob. obtuse.**r. round.**p. pyriform.*

NUMBER.	NAMES.	DESCRIPTIONS.					USE AND VALUE. Scale 1 to 10.			
		Size.	Form.	Color.	Quality.	Season.	Origin.	Dessert.	Cooking.	Market.
1	Angers	v.l.	ob. p.	y.	v. g.	Oct. Nov.	Eur.	---	9	7
2	Apple Shaped	l.	r.	y.	v. g.	Oct. Nov.	Eur.	---	10	10
3	Portugal	v.l.	ob. p.	y.	b.	Oct.	Eur.	---	10	5
4	Rea's Seedling	l.	r. ob. p.	y.	---	Oct.	N. Y.	---	10	8

SECTION XVI.—RASPBERRIES.—RUBUS OCCIDENTALIS AND SUPPOSED HYBRIDS;
ROOTING FROM THE TIPS OF THE BRANCHES

ABBREVIATIONS FOR THIS SECTION.

Form.

*c. conical.**ob. obtuse.**r. roundish.*

NUMBER.	NAMES.	DESCRIPTIONS.					USE AND VALUE. Scale 1 to 10.			
		Size.	Form.	Color.	Quality.	Season.	Origin.	Dessert.	Cooking.	Market.
1	American Black	s.	r.	b.	g.	m. July.	N. Y.	5	7	5
2	American White	s.	r.	y.w.	g.	m. July.	Am.	5	6	4
3	Canana Black Cap	s.	r.	b.	g.	m. July.	Can.	5	6	5
4	Davison's Thornless	s.	r.	b.	g.	b. July.	N. Y.	6	7	5
5	Doolittle	m.	r.	b.	v. g.	m. July.	N. Y.	7	8	8
6	Ellisdale	l.	r. ob.	p.	v. g.	m. July.	Iowa.	5	7	3
7	Ganargua	v. l.	r. ob.	p.	v. g.	July.	N. Y.	8	9	5
8	Golden Thornless	m.	r.	y.	g.	July.	Am.	6	6	4
9	Gregg	v. l.	r.	b.	v. g.	m. July.	Ind.	6	9	9
10	Lum's Everbearing	m.	r.	b.	g.	July.	Ohio.	6	7	5
11	McCormick (<i>Mammoth Cluster</i>)	m.l.	ob. c.	b.	v. g.	July, Aug.	Am.	6	9	9
12	Miami Black	m.	r.	b. p.	g.	July.	Am.	7	10	6
13	Norwood	m.	r.	p.	g.	July.	Mass.	7	9	---
14	Ontario	m.	r.	b.	v. g.	July.	N. Y.	6	6	8
15	Purple Cane	m.	r.	p.	g.	July.	Am.	7	9	4
16	Seneca Black Cap	m.l.	r.	p. b.	g.	July, Aug.	N. Y.	6	7	6

SECTION XV.—QUINCES.

ABBREVIATIONS FOR THIS SECTION.

Color.

y. yellow.

NUMBER.	LOCALITY.					REMARKS.
	East.	Center.	South.	Southern Lake Shore.	Northern Lake Shore.	
1	*	---	---	---	---	A longer keeper than the Apple, but not equal in quality. Very unproductive at Traverse (Parmelee).
2	**	**	**	**	*	Well known and universally approved.
3	*	---	---	---	---	Tree a strong grower, but unproductive. Quality superior.
4	†	---	---	†	---	Larger than the Apple, and equally good. Tree thrifty.

SECTION XVI.—RASPBERRIES.—RUBUS OCCIDENTALIS AND SUPPOSED HYBRIDS;
ROOTING FROM THE TIPS OF THE BRANCHES.

ABBREVIATIONS FOR THIS SECTION.

Color.

b. black. *p.* purple. *r.* red. *y.* yellow.

NUMBER.	LOCALITY.					REMARKS.
	East.	Centre.	South.	Southern Lake Shore.	Northern Lake Shore.	
1	*	*	*	*	*	Desirable when great hardiness is required.
2	*	*	*	*	*	Fancied for its color, which, however, changes to a dirty brown when overripe.
3	---	---	---	*	---	Cannot compete with several other Black Caps.
4	*	*	*	*	*	Earlier and sweeter than most Black Caps. Canes thornless.
5	*	*	*	*	*	Ripens between Thornless and McCormick. Profitable.
6	*	---	---	*	---	Does not sucker. Much like Purple Cane.
7	*	---	*	*	---	Does not sucker. Supposed hybrid between Occidentalis and Strigosus. Thick bloom.
8	*	*	*	*	---	Canes have but few spines. Very productive.
9	*	*	*	*	---	Larger and better than McCormick. Rapidly becoming the leading Black Cap.
10	*	*	*	*	---	Bears its later specimens on canes of the current year.
11	*	*	*	**	*	Plant very vigorous with stout thorns. Very productive. Profitable.
12	*	*	*	*	*	The most juicy and luscious of the Black Caps.
13	*	---	---	*	---	Appears vigorous and hardy. Is little grown.
14	---	---	---	*	---	Fruit with a thick bluish bloom. Not very acid. Very firm.
15	*	*	*	*	*	A very old sort. Now but little grown.
16	---	---	---	*	*	With light bloom, juicy, sweet. Said to be vigorous and productive.

SECTION XV.—QUINCES.

ABBREVIATIONS FOR THIS SECTION.

Form.

*ob. obtuse.**r. round.**p. pyriform.*

NUMBER.	NAMES.	DESCRIPTIONS.						USE AND VALUE. Scale 1 to 10.		
		Size.	Form.	Color.	Quality.	Season.	Origin.	Dessert.	Cooking.	Market.
1	Angers	v. l.	ob. p.	y.	v. g.	Oct. Nov.	Eur.	---	9	7
2	Apple Shaped	l.	r.	y.	v. g.	Oct. Nov.	Eur.	---	10	10
3	Portugal	v. l.	ob. p.	y.	b.	Oct.	Eur.	---	10	5
4	Rea's Seedling	l.	r. ob. p.	y.	---	Oct.	N. Y.	---	10	8

SECTION XVI.—RASPBERRIES.—RUBUS OCCIDENTALIS AND SUPPOSED HYBRIDS;
ROOTING FROM THE TIPS OF THE BRANCHES

ABBREVIATIONS FOR THIS SECTION.

Form.

*c. conical.**ob. obtuse.**r. roundish.*

NUMBER.	NAMES.	DESCRIPTIONS.						USE AND VALUE. Scale 1 to 10.		
		Size.	Form.	Color.	Quality.	Season.	Origin.	Dessert.	Cooking.	Market.
1	American Black	s.	r.	b.	g.	m. July.	N. Y.	5	7	5
2	American White	s.	r.	y. w.	g.	m. July.	Am.	5	6	4
3	Canana Black Cap	s.	r.	b.	g.	m. July.	Can.	5	6	5
4	Davison's Thornless	s.	r.	b.	g.	b. July.	N. Y.	6	7	5
5	Doolittle	m.	r.	b.	v. g.	m. July.	N. Y.	7	8	8
6	Ellisdale	l.	r. ob.	p.	v. g.	m. July.	Iowa.	5	7	3
7	Ganargua	v. l.	r. ob.	p.	v. g.	July.	N. Y.	8	9	5
8	Golden Thornless	m.	r.	y.	g.	July.	Am.	6	6	4
9	Gregg	v. l.	r.	b.	v. g.	m. July.	Ind.	6	9	9
10.	Lum's Everbearing	m.	r.	b.	g.	July.	Ohio.	6	7	3
11	McCormick (<i>Mammoth Cluster</i>)	m. l.	ob. c.	b.	v. g.	July, Aug.	Am.	6	9	9
12	Miami Black	m.	r.	b. p.	g.	July.	Am.	7	10	6
13	Norwood	m.	r.	p.	g.	July.	Mass.	7	9	---
14	Ontario	m.	r.	b.	v. g.	July.	N. Y.	6	6	8
15	Purple Cane	m.	r.	p.	g.	July.	Am.	7	9	4
16	Seneca Black Cap	m. l.	r.	p. b.	g.	July, Aug.	N. Y.	6	7	6

SECTION XV.—QUINCES.

ABBREVIATIONS FOR THIS SECTION.

Color.

y. yellow.

NUMBER.	LOCALITY.					REMARKS.
	East.	Centre.	South.	Southern Lake Shore.	Northern Lake Shore.	
1	*	---	---	---	---	A longer keeper than the Apple, but not equal in quality. Very unproductive at Traverse (Parmelee). Well known and universally approved. Tree a strong grower, but unproductive. Quality superior. Larger than the Apple, and equally good. Tree thrifty.
2	**	**	**	**	*	
3	*	---	---	---	---	
4	†	---	---	---	†	

SECTION XVI.—RASPBERRIES.—RUBUS OCCIDENTALIS AND SUPPOSED HYBRIDS; ROOTING FROM THE TIPS OF THE BRANCHES.

ABBREVIATIONS FOR THIS SECTION.

Color.

b. black. *p.* purple. *r.* red. *y.* yellow.

NUMBER.	LOCALITY.					REMARKS.
	East.	Centre.	South.	Southern Lake Shore.	Northern Lake Shore.	
1	*	*	*	*	*	Desirable when great hardiness is required.
2	*	*	*	*	*	Fancied for its color, which, however, changes to a dirty brown when overripe.
3	---	---	---	*	---	Cannot compete with several other Black Caps.
4	*	*	*	*	*	Earlier and sweeter than most Black Caps. Canes thornless.
5	*	*	*	*	*	Ripens between Thornless and McCormick. Profitable.
6	*	---	---	*	---	Does not sucker. Much like Purple Cane.
7	*	---	*	*	---	Does not sucker. Supposed hybrid between Occidentalis and Strigosus. Thick bloom.
8	*	*	*	*	---	Canes have but few spines. Very productive.
9	*	*	*	*	---	Larger and better than McCormick. Rapidly becoming the leading Black Cap.
10	*	*	*	*	---	Bears its later specimens on canes of the current year.
11	*	*	*	**	*	Plant very vigorous with stout thorns. Very productive. Profitable.
12	*	*	*	*	*	The most juicy and luscious of the Black Caps.
13	*	---	---	*	---	Appears vigorous and hardy. Is little grown.
14	---	---	---	*	---	Fruit with a thick bluish bloom. Not very acid. Very firm.
15	*	*	*	*	*	A very old sort. Now but little grown.
16	---	---	---	*	*	With light bloom, juicy, sweet. Said to be vigorous and productive.

SECTION XVII.—RASPBERRIES.—RUBUS IDÆUS AND STRIGOSUS, INCREASING BY SUCKERS OR SPROUTS.

ABBREVIATIONS FOR THIS SECTION.

Form. Color.
c. conical. *ob.* obtuse. *r.* roundish. *b.* bright. *c.* crimson. *o.* orange.

NUMBER.	NAMES.	DESCRIPTIONS.					USE AND VALUE. Scale 1 to 10.			
		Size.	Form.	Color.	Quality.	Season.	Origin.	Dessert.	Cooking.	Market.
1	Arnold's Red.....	l.	r. ob.	r.	v. g.	July, Sept.	Ont.	6	---	2
2	Bristol.....	m.	r.	r.	v. g.	July.	Am.	6	---	---
3	Clarke.....	l.	c.	b. c.	v. g.	e. July.	Conn.	8	8	7
4	Cuthbert (<i>Queen of the market</i>)..	l.	r. c.	b. c.	b.	July.	N. Y.	10	---	9
5	Delaware.....	l.	r.	b. c.	g.	July.	Del.	8	9	9
6	Early Andrews.....	m.	r.	r.	v. g.	b. July.	Am.	---	---	---
7	Fastolf.....	l.	r. c.	p. r.	v. g.	July.	Eng.	7	8	6
8	Franconia.....	l.	ob. c.	p. r.	v. g.	July.	Eur.	8	8	7
9	Herstine.....	l.	r. ob. c.	b. s.	v. g.	July.	Penn.	10	10	9
10	Highland Hardy.....	m.	r. ob. c.	b. c.	v. g.	b. July.	Am.	8	10	8
11	Hornet.....	l.	c.	c.	g.	July.	Fr.	7	7	4
12	Kirtland.....	m.	r. ob. c.	b. c.	v. g.	b. July.	Ohio?	10	9	6
13	Montclair.....	l.	r.	p. c.	v. g.	July.	N. J.	9	---	9
14	Naomi.....	l.	r. c.	p. r.	v. g.	July.	Am.	7	8	6
15	Orange (<i>Brinckle's</i>).....	l.	c.	o.	b.	July.	Penn.	10	10	4
16	Philadelphia.....	m.	r.	p. r.	g.	July.	Penn.	6	8	8
17	Red Antwerp.....	l.	r.	d. r.	v. g.	July.	Eur.	---	---	---
18	Saunders.....	m.	r.	b. r.	v. g.	July.	Am.	8	8	---
19	Susqueco (<i>Brandywine</i>).....	m.	r. ob. c.	b. r.	v. g.	July.	Am.	8	9	9
20	Thwack.....	l.	r.	p. r.	g.	July.	Mo.	7	8	9
21	Turner.....	m.	r.	b. r.	v. g.	July.	Am.	9	9	10
22	Winant.....	m.	r.	r.	g.	July.	N. J.	---	---	---

SECTION XVII.—RASPBERRIES.—RUBUS IDÆUS AND STRIGOSUS, INCREASING BY SUCKERS OR SPROUTS.

ABBREVIATIONS FOR THIS SECTION.

Color.
p. purplish *r.* red *s.* scarlet.

NUMBER.	LOCALITY.					REMARKS.
	East.	Center.	South.	Southern Lake Shore.	Northern Lake Shore.	
1	---	---	---	*	*	One of Chas. Arnold's hybrids.
2	---	---	---	*	*	Not yet extensively proved.
3	*	*	*	*	*	Best early red, but does not set well. Not fully hardy away from lake protection. Unproductive on southern lake shore.
4	---	*	*	*	*	Very firm, productive and hardy.
5	---	---	---	*	*	Hardy, beautiful, productive, firm.
6	---	---	---	†	†	Yet on trial. Is claimed to be identical with Highland Hardy.
7	*	*	*	*	---	Of English origin. Requires winter protection away from lake influence.
8	*	*	*	*	*	Like nearly all foreign sorts, away from lake influence must have winter protection.
9	*	*	*	**	*	May not be fully hardy in the interior of the State. Lacks firmness. Valuable where it will stand.
10	---	*	†	*	---	Some growers think this identical with the Kirtland. Desirable for its earliness.
11	*	*	*	*	*	Recommended at the north, but not as hardy.
12	*	*	*	**	*	Desirable early sort, requiring winter protection in exposed localities. Best early sort on Southern Lake Shore.
13	---	---	---	*	---	Suckers very little. Fine flavor. Very firm. Not very bright colored.
14	*	*	*	*	*	Some claim this to be identical with Franconia.
15	*	*	*	*	*	Must have winter protection. Unequaled for amateur purposes.
16	**	**	*	**	*	Entirely hardy; dull color; lacks quality and size. Suckers but little. A bad shipper.
17	---	---	*	†	---	Very little known in this State. Tender.
18	---	---	---	*	---	Very fine flavor. Profitableness and hardiness yet undetermined.
19	*	*	*	*	*	Its beauty, size, color, and firmness are strongly in its favor.
20	---	*	---	*	*	Strong grower; fair quality. Bears a long time on successive shoots.
21	*	*	*	**	*	Strong grower; hardy, productive. Suckers profusely. Firm texture. Leading market variety in Berrien Co.
22	---	---	---	*	---	Needs further trial. Of doubtful value.

SECTION XVIII.—STRAWBERRIES.

ABBREVIATIONS FOR THIS SECTION.

Form.		Color.	
<i>c.</i> conical.	<i>o.</i> oblong.	<i>b.</i> bright.	<i>p.</i> pale.
<i>co.</i> cockscombed.	<i>ob.</i> obtuse.	<i>c.</i> crimson.	<i>r.</i> red.
<i>l.</i> long.	<i>ov.</i> oval or ovate.	<i>d.</i> dark.	<i>s.</i> scarlet.
<i>n.</i> necked.	<i>r.</i> roundish.		

NUMBER.	NAMES.	DESCRIPTIONS.								USE AND VALUE. Scale 1 to 10.		
		Size.	Form.	Color.	Quality.	Sex.	Texture.	Season.	Origin.	Dessert.	Cooking.	Market.
1	Afrique.....	m.	r. c.	d. s.	g.	p.	f.	14 June.	Mo.	7	---	4
2	Agriculturist.....	l.	ov. c.	d. c.	v. g.	p.	f.	11 "	N. J.	8	---	5
3	America.....	l.	r. c.	p. c.	v. g.	p.	m.	6 "	N. Y.	8	---	5
4	Bidwell.....	v. l.	l. c. n.	b. s.	v. g.	s.	f.	12 "	Mich.	9	---	8
5	Black Defiance.....	v. l.	r. ob. c.	d. c.	b.	s.	f.	10 "	N. J.	9	---	8
6	Boston Pine.....	l.	r. c.	d. c.	v. g.	s.	m.	12 "	Mass.	8	---	4
7	Boyden's No. 30..... (Seth Boyden.)	l.	ob. c.	b. c.	v. g.	s.	f.	13 "	N. J.	8	---	8
8	Burgess.....	m. l.	r.	b. s.	v. g.	s.	f.	12 "	Mass.	8	---	8
9	Burr Oak.....	l.	l. c.	c.	v. g.	s.	f.	18 "	N. Y.	8	---	---
10	Burr's New Pine.....	l.	r. c.	b. c.	b.	p.	s.	10 "	Ohio.	10	---	4
11	Captain Jack.....	m.	r. c.	b. c.	v. g.	s.	f.	10 "	Mo.	9	---	9
12	Caroline.....	m.	r. c.	c.	v. g.	p.	s.	13 "	Mass.	8	---	---
13	Centennial Favorite.....	l.	r. ov.	c.	v. g.	s.	f.	18 "	N. J.	8	---	---
14	Champion.....	l.	r. c.	d. c.	v. g.	p.	f.	10 "	N. Y.	7	---	9
15	Charles Downing.....	l.	r. c.	d. s.	v. g.	s.	m.	10 "	Ken.	8	---	10
16	Cinderella.....	l.	r. ov.	d. c.	v. g.	s.	f.	9 "	N. J.	9	---	---
17	Col. Cheney.....	l.	r. c. co.	b. c.	v. g.	p.	m.	10 "	N. Y.	9	---	8
18	Continental.....	l.	c.	b. r.	v. g.	s.	f.	13 "	N. J.	8	---	---
19	Cowing's Seedling.....	v. l.	r. ob. c.	b. c.	v. g.	s.	m.	12 "	Ind.	10	---	9
20	Crescent.....	l.	c.	d. s.	g.	s. obs.	s.	12 "	Conn.	6	---	9
21	Crimson Cone.....	m.	l. c.	d. c.	v. g.	p.	f.	18 "	Am.	7	---	6
22	Cumberland Triumph.....	v. l.	r. ob. c.	b. c.	v. g.	s.	m.	12 "	Penn.	9	---	9
23	Damask Beauty.....	m.	ov. c.	b. r.	v. g.	s.	f.	14 "	Ohio.	7	---	6
24	Downer's Prolific.....	m.	r. c.	b. s.	v. g.	s.	f.	10 "	Ken.	7	---	8
25	Dr. Warder.....	l.	r. c.	b. r.	g.	s.	s.	11 "	Am.	5	---	5
26	Duchesse.....	l.	r. ob. c.	b. c.	v. g.	s.	f.	8 "	N. Y.	8	---	8
27	Duncan.....	l.	c.	d. r.	v. g.	s.	f.	5 "	N. Y.	9	---	5
28	Early Hudson.....	v. l.	r. c.	b. c.	v. g.	s.	f.	13 "	Am.	8	---	9
29	Emperor.....	m.	r. c.	d. c.	g.	s.	s.	14 "	Ind.	6	---	---
30	Essex Beauty.....	v. l.	c. n.	d. c.	v. g.	s.	f.	-----	N. J.	8	---	7
31	Excelsior.....	m.	r. c.	d. s.	b.	s.	s.	12 "	Ohio.	7	---	6
32	Fillmore.....	m.	ob. c.	d. s.	v. g.	p.	f.	12 "	Am.	7	---	4

SECTION XVIII.—STRAWBERRIES.

ABBREVIATIONS FOR THIS SECTION.

Sex. <i>p. pistillate.</i> <i>s. staminate in the sense of perfect.</i>	Texture. <i>f. firm.</i> <i>m. medium.</i> <i>s. soft.</i>	Season. <i>The date (in June,) of the ripening of the first perfect specimens is given in each case as the most convenient mode of indicating the relative season.</i>
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NUMBER.	LOCALITY.					REMARKS.
	East.	Center.	South.	Southern Lake Shore.	Northern Lake Shore.	
1	---	*	---	*	---	Growth rather slender. Not productive. Seedling of Sam'l Miller.
2	*	*	*	*	*	Size variable. Occasionally very large.
3	---	*	---	*	---	Productiveness quite variable. Lacks color. Excellent.
4	*	*	*	*	*	Does not always ripen well at the tip. Valuable.
5	*	*	*	*	*	Very perfect in form. Moderate bearer. Holds its size well. Excellent.
6	*	*	---	*	---	Has been much used to fructify pistillate varieties.
7	*	*	*	*	*	To produce with certainty should be grown in hills, and on moist soils.
8	---	*	---	*	---	Very prolific. Said to have originated at New Bedford, Mass.
9	---	*	---	*	---	Possibly may prove to be Kentucky—much like it.
10	*	*	*	*	---	Has long stood unrivaled so far as quality is concerned.
11	*	**	*	*	*	Exceedingly productive. Even sized, but not quite large enough, or good enough.
12	---	*	---	*	---	Has not, so far, shown productiveness.
13	---	---	---	*	---	Seems to demand high culture. Will probably do best in hills.
14	*	*	*	*	*	Seems destined to take a leading position as a market sort. Windsor Chief is identical.
15	**	**	*	*	**	Succeeds generally as a fruit for near marketing. Plant vigorous.
16	---	---	---	*	---	Will only do for home use.
17	*	*	*	*	*	Needs a little more firmness for remote markets. Plant a weak grower.
18	---	---	---	*	---	Quite late. Continues a long time in fruit.
19	---	*	---	*	†	One of the very finest large berries. Succeeds on very light soils. On heavy soils often misshapen.
20	*	*	*	*	*	Vigorous plant. Very prolific, but lacks quality and firmness. Foliage healthy.
21	---	*	*	*	---	One of the best for preserving.
22	*	*	*	*	*	Excellent, as a berry for home use, or for near marketing.
23	---	---	---	*	---	An amateur berry. Plant vigorous.
24	*	*	*	*	*	Valuable for near market. Plant vigorous.
25	---	---	---	*	---	Must give way for better sorts. Too acid.
26	*	*	*	*	*	Seems to be promising wherever tried. Valued as an early berry.
27	*	*	*	*	*	A highly promising amateur berry. Plant vigorous. The first to ripen. Will do for early market.
28	---	---	---	*	---	Very fine for a near market. Uniformly large.
29	---	*	---	*	---	Will not compare with others of its season.
30	---	*	---	*	*	Should have hill culture.
31	---	---	---	*	---	Excellent for home use.
32	---	---	---	*	---	Valuable only to the amateur.

SECTION XVIII.—STRAWBERRIES—CONTINUED.

NUMBER.	NAMES.	DESCRIPTIONS.								USE AND VALUE. Scale 1 to 10.		
		Size.	Form.	Color.	Quality.	Sex.	Texture.	Season.	Origin.	Dessert.	Cooking.	Market.
33	Forest Rose.....	v. l.	r. c.	b. c.	v. g.	s.	f.	8 "	Ohio.	8	---	8
34	Fowler's Seedling.....	---	---	---	---	s.	---	---	Iowa.	---	---	---
35	French.....	l.	l. c. co.	b. s.	v. g.	s.	s.	12 "	N. J.	6	---	6
36	Frontenac.....	m.	r. c.	b. c.	b.	p.	s.	20 "	N. Y.	10	5	3
37	General Sherman.....	l.	r. c.	p. c.	v. g.	s.	m.	14 "	Mass.	6	---	5
38	Glendale.....	v. l.	l. c.	b. s.	v. g.	s.	f.	16 "	Ohio.	9	---	7
39	Golden Defiance.....	l.	r. c.	l. s.	g.	p.	f.	14 "	Penn.	5	---	5
40	Grace.....	l.	r. ov.	d. s.	v. g.	s.	s.	12 "	Mass.	6	---	4
41	Great American.....	v. l.	r. c.	d. c.	v. g.	s.	s.	11 "	N. J.	6	---	6
42	Green Prolific.....	l.	r. ob. c.	b. s.	v. g.	s. obs.	s.	9 "	N. J.	8	---	6
43	Hervey Davis.....	l.	r. c.	b. c.	g.	s.	f.	12 "	Mass.	8	5	5
44	Hooker.....	s.	ob. c.	d. c.	v. g.	s.	m.	14 "	N. Y.	8	---	4
45	Hovey's Seedling.....	v. l.	r. ov.	b. s.	v. g.	p.	f.	14 "	Mass.	6	---	6
46	Hudson's No. 10.....	v. l.	r. c.	d. s.	v. g.	s.	f.	13 "	Am.	8	---	7
47	Ida.....	s.	r. c.	d. r.	g.	p.	f.	13 "	Penn.	4	---	5
48	Iowa Prolific.....	l.	r. ob.	b. c.	g.	p.	s.	15 "	Iowa.	---	---	---
49	Jucunda.....	v. l.	ob. c.	b. s.	g.	s.	f.	14 "	Am.?	6	---	9
50	Kentucky.....	l.	l. r. c.	b. s.	v. g.	s.	f.	16 "	Ken.	8	---	8
51	Kissany.....		ob. c.	s.	g.	s.	f.	13 "	Am.	6	7	8
52	Large Early Scarlet.....	s.	r. ov.	b. s.	v. g.	s.	s.	10 "	Am.	8	---	6
53	Lennig's White.....	l.	r. ob. c.	w. r	b.	s.	s.	12 "	Penn.	10	---	3
54	Longworth's Prolific.....		r. ob.	b. c.	v. g.	s.	f.	14 "	Ohio.	8	---	7
55	Luckhurst.....	l.	r. c.	d. r.	v. g.	s.	f.	14 "	N. Y.	7	---	7
56	Major McMahon.....	l.	r. c.	d. c.	v. g.	s.	f.	14 "	Fr.	9	---	7
57	Marvin.....	v. l.	l. c.	b. c.	v. g.	s.	f.	20 June.	Mich.	8	---	10
58	Matilda.....	v. l.	r. co.	b. s.	v. g.	s.	m.	11 "	N. Y.	8	---	8
59	Metcalf's Early.....	s.	r. o.	b. s.	g.	s.	s.	6 "	Mich.	5	---	3
60	Michigan.....	l.	r. c.	p. c.	v. g.	s.	s.	16 "	Mich.	7	---	5
61	Miner's Prolific.....	l.	r. c.	c.	g.	s.	s.	14 "	N. J.	8	---	8
62	Monarch of the West.....	v. l.	l. c.	d. c.	v. g.	s.	f.	10 "	Ill.	9	---	8
63	Napoleon III.....	l.	r.	b. s.	v. g.	s.	f.	18 "	Eur.	8	---	6
64	New Jersey Scarlet.....	m.	c. n.	b. s.	v. g.	s.	f.	10 "	N. J.	6	---	6
65	Nicanor.....	m.	r. ob. c.	b. s.	b.	s.	m.	6 "	N. Y.	9	---	5
66	Photo (Martha).....	l.	l. c.	b. r.	g.	s.	s.	9 "	Ohio.	8	5	---
67	President Lincoln.....	l.	o. co.	p. c.	g.	s.	f.	13 "	N. Y.	8	7	---
68	President Wilder.....	l.	r. ob. c.	b. s.	b.	s.	f.	16 "	Mass.	9	---	4

SECTION XVIII.—STRAWBERRIES—CONTINUED.

NUMBER.	LOCALITY.					REMARKS.
	East.	Centre.	South.	Southern Lake Shore.	Northern Lake Shore.	
33	---	*	---	*	---	Promises to be one of the most valuable. Does not do well on light, dry soils.
34	---	---	---	*	---	Needs farther trial to properly develop its character.
35	---	---	*	*	---	Very productive—vigor medium.
36	---	*	---	*	---	Although of the highest quality it is sadly unproductive.
37	---	---	---	---	---	Imperfectly tested; not very promising.
38	---	---	---	*	---	A late sort. Variously estimated.
39	---	---	---	*	---	Worthy of trial for market. An excellent handler.
40	---	---	---	*	---	Strictly an amateur fruit.
41	---	*	---	*	---	Appears variable. Must have good cultivation. Unproductive under ordinary treatment.
42	*	**	*	*	*	Berries often imperfect. Should be planted with staminate variety.
43	---	*	---	*	---	Worthy of a full trial, whether for home or market.
44	*	*	*	*	---	Plant vigorous. A good amateur berry. Not attractive in color.
45	*	*	*	*	*	Plant vigorous. Productiveness variable. Mostly out of use.
46	---	---	---	*	---	Strong plant. Very productive and even sized. Worthy of attention.
47	*	*	*	*	*	Vigorous; prolific; acid. Ripens a long time in succession. Too small.
48	---	*	---	*	---	Prolific of plants. Exceedingly productive; fruit firm, but too small and sour.
49	*	*	*	*	*	Vigorous. Profitable when grown in hills and on strong soils. At the north this succeeds on sandy soils.
50	*	**	*	**	*	Vigorous. A good late market berry.
51	---	---	---	*	---	If a little more prolific would be profitable for market.
52	*	*	*	*	*	Nearly superseded by newer and larger varieties.
53	*	*	*	*	*	Delicious pineapple flavor. Unproductive; amateur.
54	*	*	*	*	---	Vigorous; productive; acid. Its popularity has long since waned.
55	---	---	---	*	---	Vigor medium. Suited to a near market. Has not become popular.
56	---	---	---	*	---	Stems short. Fruit beautiful, even sized, excellent.
57	*	*	*	*	*	One of the most promising very late berries.
58	---	*	---	*	---	Very promising for near market.
59	---	---	---	*	*	Has few qualities other than earliness to recommend it.
60	*	---	*	*	*	Fine even size but quite too soft. Vigorous, productive. Succeeds even under a hot sun.
61	---	---	---	*	*	Vigorous and productive. Very promising for near market.
62	*	**	*	**	*	Very productive. Ripens slowly at the tips. Promising for market. Popular in Berrien Co.
63	*	*	*	*	**	Like all foreign sorts should be kept in hills.
64	---	---	---	*	*	Plant vigorous. Moderately productive.
65	*	*	*	*	*	One of the best early amateur varieties.
66	---	---	---	*	---	An attractive fruit; for home use only.
67	---	*	---	*	---	Not fully tested. Promising. Very irregular in form.
68	*	---	---	*	---	Fails on light soils. Unproductive.

SECTION XVIII.—STRAWBERRIES—CONTINUED.

NUMBER.	NAMES.	DESCRIPTIONS.								USE AND VALUE. Scale 1 to 10.		
		Size.	Form.	Color.	Quality.	Sex.	Texture.	Season.	Origin.	Dessert.	Cooking.	Market.
69	Romeyn.....	v. l.	r. c. co.	b. c.	v. g.	s.	s.	18 "	N. Y.	7	---	7
70	Russell's Advance	l.	r. ov.	b. s.	v. g.	s.	f.	10 "	N. Y.	7	---	6
71	Russell's Prolific.....	l.	c. co.	s. c.	v. g.	p.	s.	12 "	N. Y.	8	---	7
72	Scarlet Globe.....	l.	r. c. co.	s.	g.	s.	s.	14 "	Am.	6	---	5
73	Seedling Eliza.....	m.	r.	b. s.	g.	s.	f.	15 "	Eng.	8	7	---
74	Seneca Chief.....	v. l.	c. co.	d. c.	v. g.	s.	f.	17 "	N. Y.	8	---	8
75	Seneca Queen.....	l.	r. c.	b. c.	b.	s.	m.	11 "	N. Y.	8	---	9
76	Sharpless	v. l.	o. c. co.	b. r.	v. g.	s.	m.	14 "	Penn.	9	---	9
77	Shirts	v. l.	l. c.	b. c.	v. g.	s.	f.	14 "	Mich.	9	---	10
78	Springdale.....	v. l.	r. c.	d. s.	b.	p.	m.	17 "	Penn.	9	---	6
79	Star of the West.....	l.	r. ob. c.	d. c.	g.	s.	s.	17 "	Mo.	7	---	4
80	Starr.....	l.	r.	p. c.	g.	s.	s.	13 "	Am.	8	---	---
81	Sterling.....	l.	c.	d. s.	v. g.	p.	m.	17 "	Ohio.	7	---	7
82	Triomphe de Gand.....	l.	r. ob. c.	b. r.	b.	s.	f.	12 "	Bel.	10	---	9
83	Victoria (<i>Golden Queen</i>).....	v. l.	r. c.	b. c.	v. g.	s.	m.	10 "	Eng.?	8	---	6
84	Walden	m.	c.	p. c.	v. g.	p.	s.	20 "	Mass.	10	---	---
85	Wilding Seedling.....	l.	ov. c.	b. s.	v. g.	s.	f.	14 "	N. Y.	9	9	---
86	Wilson's Albany.....	l.	r. c.	d. c.	g.	s.	f.	11 "	N. Y.	6	---	9

SECTION XVIII.—STRAWBERRIES—CONTINUED.

NUMBER.	LOCALITY.					REMARKS.
	East.	Centre.	South.	Southern Lake Shore.	Northern Lake Shore.	
69	---	---	---	*	---	Much like Champion. Not firm enough to bear rough treatment.
70	---	*	---	*	---	Very productive. Retains its size till last pickings.
71	*	*	*	*	---	Very productive. Too soft for remote marketing.
72	---	---	---	*	---	Only moderately productive. Acid.
73	---	---	---	*	---	Does well for a foreigner. Amateur.
74	*	*	*	*	*	Productive and vigorous. Prefers strong soils.
75	---	*	---	*	---	Continues large to the last. A promising market berry. Very desirable.
76	*	*	*	*	*	Is attracting much attention. Lacks firmness for distant marketing.
77	*	*	*	*	*	Very rich in color and fine in quality. Promising for home use, and possibly for market.
78	---	*	---	*	---	May lack firmness as a market berry. Flavor superior.
79	---	---	---	*	---	Doubtful if it can realize its early promise. A thin bearer.
80	---	*	---	*	---	Rather pale in color. Not good enough.
81	---	*	---	*	---	Bears but moderately.
82	*	*	*	*	*	Flavor rich, excellent. Must be grown in hills to warrant success for market.
83	*	*	*	*	*	Flavor excellent. Must be kept in hills. Will pay for high culture.
84	---	*	---	*	---	Excellent family berry. Productiveness doubtful.
85	---	---	---	*	---	An excellent berry. Lacks productiveness.
86	**	**	**	**	**	Colors early. Only good when fully ripe. Later pickings fail in size The leading market berry.

ANNUAL STATEMENT OF LIBRARIAN.

To the Executive Board of the Michigan State Horticultural Society:

GENTLEMEN:—I herewith submit to you my report as Librarian of the State Horticultural Society for the year ending December 1, 1881. The following number of copies of our State Pomological Reports have been received and distributed:

	1871	1872	1873	1874	1875	1876	1877	1878	1879	1880
On hand Dec. 1 1880	6	82	27	21	138	777	736	531	1671	
Rec'd past year.....	4	3	1	4						6000
Distributed	10 1	85 8	28 11	25 8	138 9	777 51	736 58	531 58	1671 158	6000 *5158
On hand Dec. 1 1881	9	77	17	17	129	726	678	473	1513	850

*Includes 1,000 copies supplied Secretary of State for distribution to crop correspondents. See act No. 33, Public Acts 1881.

A record is kept of date of shipment of reports, how shipped, name and title of person or society to whom consigned, and number of copies sent. A list of books in the library was given in my last report, since which there have been donated to the library, and received through exchanges, the following:

HORTICULTURAL REPORTS.

American Pomological Society—1873-75.
 Illinois—1880.
 Kansas—1880.
 Massachusetts—1880.
 Michigan—Four copies '71, three copies '72, one copy '73, 4 copies '74.
 New Jersey—1881.
 New York (Western)—1881.
 Ohio—1848, '49, '52, '53, '54, (55-6), ('74-5), ('75-6), ('77-8), ('79-80), ('80-1).
 Ohio (Montgomery county)—1880.
 Pennsylvania (Fruit Growers' Association)—1880.
 Province of Ontario (Fruit Growers' Association)—1880.
 Montreal—1879-80.
 American Fruit Growers' Guide (Elliott).
 Hoare on the Grape Vine.
 Grape Culture and the Strawberry.
 Downing's Fruits and Fruit Trees of America.
 Farmers' Companion and Horticultural Gazette—1853-54.

AGRICULTURAL REPORTS.

Department of Agriculture (United States)—1862.

Connecticut—1880.

Massachusetts—1837, '41, '45, '46, '48, two copies '50; 51, '52, two copies '53; two copies '54; two copies '55; '56-7-8-9, 60-1-2-3-4, ('55-6).

Massachusetts (Essex Agricultural Society)—1847-8-9, '50-2-3-4-6-7-8, 1862.

Michigan—1849, '51, '53, '54, '56, '57, 1880.

Ontario School of Agriculture—1880.

MISCELLANEOUS.

Public Instruction and School Law—1852 (Michigan).

List of Officers American Institute—1828-1881.

Pamphlets.

We are indebted to Mr. J. C. Holmes, of Detroit, for many of the above reports.

Very Respectfully,

FRANK W. KING,
Librarian.

MEETING OF EXECUTIVE BOARD.

An important special meeting of the executive board was held in the office of W. K. Gibson, Jackson, December 19, 1881, a short account of which will close the proceedings for the year.

The members of the board were all present except Messrs. Guild and Coryell. There were also present at the meeting Messrs. E. H. Scott and A. D. Healy, incoming members of the board, and Prof. Beal of the Agricultural College, all of whom were invited to take part in the proceedings of the meeting.

It was decided to hold the first meeting of 1882 at Hudson, in acceptance of an invitation extended by the Lenawee and Hillsdale Farmers' Union.

Mr. S. B. Mann was chosen to look after the interests of this proposed meeting, and was authorized to visit Hudson in behalf of the State Horticultural Society, and make arrangements in his discretion.

The Lugham County Horticultural Society was given the use of our room in the Capitol for its monthly meetings.

The secretary was asked to correspond in relation to the medals and diplomas which our society took at the Centennial, and ascertain, if possible, why they were not received.

A suggestion was received from Prof. Tracy concerning the holding of the June meeting of 1882 in Detroit. The board desired to meet in Detroit if arrangements satisfactory could be made.

Messrs. Lyon, Garfield, and J. N. Stearns were chosen as a committee to attend the meeting of the State Agricultural Society in Detroit, January 9th, and were given power to act upon any matters concerning our society that might arise.

A resolution of gratitude was unanimously adopted, thanking the State Board of Auditors for assistance in the boxing of our reports for shipment.

Messrs. A. C. Glidden, C. D. Lawton, and C. Engle were appointed delegates to the convention of agricultural societies to be held in Paw Paw.

The secretary was authorized to procure a seal for the society.

A general discussion was entered into by all the members on the advantages to be derived from our system of branch societies, and it was resolved to continue the work of organizing them. One hundred dollars was set aside for the secretary to draw upon at will for the purpose of organizing auxiliary societies.

The appointment of the business committee was hereafter placed in the hands of the president.

The secretary presented a communication from Hon. H. G. Reynolds, of the State Board of Agriculture, which stated that the following resolution had been adopted by that body.

"Resolved, That in view of the coming meeting of the State Horticultural Society, the selection of a man for the position of Professor of Horticulture and Superintendent of the horticultural department in the State Agricultural College be deferred until after such meeting, and that this board would be pleased to have the Horticultural Society recommend for our consideration the names of such men as would in their opinion most usefully fill the position. And this Board would also be pleased to receive any further suggestions as to the efficient working of the department."

A good deal of discussion was indulged in concerning this resolution. The courtesy thus extended to our society by the State Board of Agriculture was fully appreciated, and on motion the following resolution was unanimously adopted and the President instructed to communicate the same to the Board of Agriculture:

Resolved, That the Executive Board of the Michigan State Horticultural Society in response to an invitation from the State Board of Agriculture to present the name of some suitable person as a Professor of Horticulture in the State Agricultural College, do respectfully present the name of Charles W. Garfield, the present secretary of our society, as the unanimous choice of the board, and in accordance with the known wishes of horticulturists generally throughout the State; and in case Mr. Garfield shall not be able to accept said position, the board respectfully suggest that Prof. W. J. Beal receive the appointment of Professor of Horticulture therein.

On motion the sum of \$75 was voted President Lyon for special work on fruit catalogue.

The whole matter of premium list for 1882 was placed in the hands of President Lyon for adjustment, the same to be reported back at the next meeting of the board.

The following resolution was unanimously adopted:

Resolved, That we hereby desire to acknowledge our gratitude to Messrs D. M. Ferry & Co. for their valuable aid in our work of inducing rural districts to embellish their school premises by the distribution of flower seeds, and that we respectfully request them if consistent, to continue their assistance upon the same plan, and this society agrees to cooperate with them by offering appropriate premiums.

Resolved further, That D. M. Ferry & Co. be requested to secure the services of Prof. W. W. Tracy in furnishing the society a plan by which the premiums before mentioned shall be offered.

On motion a sufficient amount was voted from the general funds of the society to make the life membership whole.

The treasurer and chairman of the business committee submitted the following

FINANCIAL STATEMENT:

Amount on hand Dec. 8, 1880.....		\$557 51
Receipts for year ending Dec. 7, 1881.....		1,646 89
Total		\$2,204 40
Forty-nine checks paid in year ending Dec. 7, 1881.....		1,391 86
Balance in treasury Dec. 7, 1881.....		\$812 54
Amount voted to complete life fund to \$1,660.....	\$350 00	
Set aside for branch society work.....	100 00	
Seven checks paid in December, 1881.....	288 75	738 75
Balance in general fund Jan. 1, 1882.....		\$73 79

To this should be added the amount of a mortgage (with accrued interest) given by H. Dale Adams to the society, amounting to about \$265. This amount belongs to the general fund. There are 166 life members, making the permanent fund of the society \$1,660.

LIST OF ANNUAL MEMBERS FOR 1881.

NAME.	P. O. ADDRESS.	COUNTY.	No. OF CERTIFI- CATE.
Adams, J. Q.	Benzonia	Benzie	235
Adair, J. H.	Sand Beach	Huron	25
Aiken, Martha	Muskegon	Muskegon	213
Aiken, N. J.	Grand Rapids	Kent	440
Allard, J.	Lawton	Van Buren	190
Alford, Chas.	Lamont	Ottawa	76
Armstrong, Wm. L.	Sand Beach	Huron	15
Anderson, David	Berlambont	Van Buren	105
Antisdale, S. G.	Benton Harbor	Berrien	105
Anderson, W. H.	Sparta	Kent	414
Appleton, W. M.	Lausing	Ingham	237
Appleton, H. B.	Brighton	Livingston	88
Ashley, Mrs. John	Greenville	Montcalm	153
Atkins, Chas. J.	Buckport	Maine	45
Avery John	Greenville	Montcalm	145
Avery, Henry	Burlington	Iowa	60
Avery, Harry	Traverse City	Grand Traverse	68
Bailey, Chas. E.	Benzonia	Benzie	264
Barber John	Cressey's Corners	Barry	7
Barber, Philip	Cressey's Corners	Barry	20
Bartholomew, Wm. L.	Muskegon	Muskegon	224
Baxter, Hattie M.	Muskegon	Muskegon	214
Baxter, Orman	Muskegon	Muskegon	215
Beal, W. J.	Lansing	Ingham	140
Beebe, O.	South Haven	Van Buren	100
Beecher, N. A.	Flushing	Genesee	52
Belknap, Mrs. J. W.	Greenville	Montcalm	152
Bellows, E.	Frankfort	Benzie	255
Bevins, J. E.	Le Roy	Osceola	89
Bigley, B. S.	Greenville	Montcalm	186
Birch, Albert	Bay City	Bay	175
Birdsell, George	Lawton	Van Buren	194
Bitely, N. H.	Lawton	Van Buren	188
Bixby, M. H.	South Haven	Van Buren	224
Blodgett, D. A.	Hersey	Osceola	40
Blowers, J. M.	Lawrence	Van Buren	78
Bloomer, Reuben	Lisbon	Kent	500
Bogie, George	Commerce	Oakland	55
Bomer, Wm.	Casnovia	Muskegon	512
Bower, Albert	Wixom	Oakland	95
Brandsteller, J. F.	Prairieville	Barry	19
Briggs, E. L.	Grand Rapids	Kent	62
Brown, D. N.	Benton Harbor	Berrien	109
Brown, Alphonzo	Frankfort	Benzie	256
Brown, Chas. E.	Yarmouth	Nova Scotia	22
Buell, B. G.	Little Prairie Ronde	Cass	44

NAME.	P. O. ADDRESS.	COUNTY.	NO. OF CERTIFICATE.
Bnell, E.	Kalamazoo	Kalamazoo	111
Burroughs, Chas. T.	Benzonia	Benzie	236
Butler, A. G.	Frankfort	Benzie	263
Case, D. L.	Lansing	Ingham	138
Case, Lucius W.	Benzonia	Benzie	250
Case, Morris	Homestead	Benzie	251
Caldwell, William	Commerce	Oakland	54
Campbell, A.	Jackson	Jackson	416
Chambard, P. F.	Fayette	Ohio	37
Chase, Lewis	Rochester	New York	*269
Clark, J. T.	Clinton	Lenawee	*265
Churchill, W. L.	Muskegon	Muskegon	225
Chapman, B.	Chandler	Ionia	281
Clug, August	Dalton	Muskegon	208
Comings, S. H.	St. Joseph	Berrien	115
Comings, G. F.	St. Joseph	Berrien	119
Cook, Chas. H.	Montague	Muskegon	48
Cook, A. J.	Lansing	Ingham	133
Corbin, A.	Bay City	Bay	182
Cockburn, R. R.	Muskegon	Muskegon	199
Cobb, Geo. N.	Muskegon	Muskegon	204
Collier, Wm. M.	Muskegon	Muskegon	218
Cowgill, George	Joyfield	Benzie	230
Cowing, G.	Muncie	Indiana	84
Cody, N.	May	Tuscola	67
Coats, Edwin C.	Benzonia	Benzie	282
Collins, Jas. S.	Columbia City	Indiana	61
Coffinbury, W. L.	Grand Rapids	Kent	513
Crandall, E. B.	Muskegon	Muskegon	202
Crittenden, L. C.	Benton Harbor	Berrien	104
Crawford, Matthew	Cuyahoga Falls	Ohio	24
Crawford, Allen	Springport	Jackson	79
Culver, Charles	Muskegon	Muskegon	222
Daggett, Jno. F.	Muskegon	Muskegon	211
Davis, J. W.	Adrian	Lenawee	273
De Cou, B. F.	Grand Rapids	Kent	407
De Haven, John	Bangor	Van Buren	106
Dennison, E. B.	Bay City	Bay	184
Devine, W.	Greenville	Montcalm	154
Dewey, D. M.	Rochester	New York	63
Doolittle, John S.	Cressey's Corners	Barry	33
Doney, H. W.	Jackson	Jackson	419
Doster, Michael	Prairieville	Barry	6
Dutton, Dell	Muskegon	Muskegon	31
Dutton, C. A.	Holland	Ottawa	426
Eberts, Peter	Lake Harbor	Muskegon	206
Edgell, H. J.	South Haven	Van Buren	406
Emery, Mrs. J. H.	Lansing	Ingham	228
Engle, C.	Paw Paw	Van Buren	71
English, J. C.	Lowell	Kent	280
English, D. H.	Saranac	Ionia	279
Farley, Benj.	South Frankfort	Benzie	244
Fenton, Henry	Bay City	Bay	167
Fisher, D. A.	Denver	Indiana	46
Fleming, W. H.	Bay City	Bay	164
Fletcher, R. H.	Bay City	Bay	177
Flower, Warren	Prairieville	Barry	29
Foster, W. P.	Muncie	Indiana	27

* The numbers marked with a star were taken in 1880.

NAME.	P. O. ADDRESS.	COUNTY.	No. of CERTIFICATE.
Francis, Wm. H.	Frankfort	Benzie	254
Francis, Henry	Bay City	Bay	277
Freeman, Mrs. E. O.	Bay City	Bay	170
Frost, E. B.	Frankfort	Benzie	231
Fuller, S. R.	Eaton Rapids	Eaton	86
Fuller, Marcellus	Joyfield	Benzie	233
Gaffney, Wm.	Bay City	Bay	157
Gardener, Chas.	Lansing	Ingham	226
Gardener, J. H.	Centerville	St. Joseph	58
Garfield, C. W.	Grand Rapids	Kent	408
Garvil, David	Bay City	Bay	179
Gates, A. C.	Weymouth	<i>Nova Scotia</i>	23
Gibson, W. K.	Jackson	Jackson	425
Giles, Capt.	Muskegon	Muskegon	203
Gladden, Wm.	Lansing	Ingham	131
Glidden, A. C.	Paw Paw	Van Buren	420
Goodnoe, C.	Lansing	Ingham	143
Gray, Dexter	Hudson	Lenawee	42
Gregersen, Hans P.	Frankfort	Benzie	232
Gridley, Rev. A. L.	Benzonia	Benzie	267
Gould, A. J.	Jackson	Jackson	*260
Graham, Elwood	Grand Rapids	Kent	411
Gulley, A. G.	South Haven	Van Buren	417
Gustine, R. P.	Bay City	Bay	172
Hall, Fred. T.	Greenfield	Wayne	247
Halstead, L. L.	Lawton	Van Buren	192
Hanchett, Wm.	Dalton	Muskegon	205
Hanford, J. S.	Englishville	Kent	511
Hardman, G. W.	Lawton	Van Buren	196
Healy, A. D.	South Haven	Van Buren	92
Heffron, E. S.	Benzonia	Benzie	249
Helmer, Jonas E.	Platte	Benzie	242
Hills, Chauncy	Lainingsburg	Clinton	83
Hollister, Aschel	Shelby	Oceana	4
Holt, H. H.	Muskegon	Muskegon	221
Holmes, R. H.	Lansing	Ingham	139
Holt, Henry	Cascade	Kent	410
Honeywelle, Chester	Cressey's Corners	Barry	3
Hurlbut, W. H.	South Haven	Van Buren	103
Hopkins, Chas. T.	Benzonia	Benzie	271
Hopson, John	Sand Beach	Huron	13
Howard, D. F.	Traverse City	Grand Traverse	53
Hoyt, Z. B.	Irving	Barry	16
Hubbard, T. S.	Fredonia	<i>New York</i>	39
Hubbell, John J.	Benzonia	Benzie	269
Huntington, E. T.	Benzonia	Benzie	284
Hunt, Samuel	Evansville	<i>Wisconsin</i>	91
Irwin, John	Buchanan	Berrien	1
Jenks, J. J.	Sand Beach	Huron	12
Jenks, J. M.	Sand Beach	Huron	14
Johnson, B. W.	Milo	Barry	18
Jones, John	Bay City	Bay	183
Jones, Ezra	Lansing	Ingham	129
Jones, W. T.	St. Joseph	Berrien	128
Judson, C. E.	Lenawee Junction	Lenawee	69
Kelley, Wm.	East Saginaw	Saginaw	75
Keyes, Theodore	Prairieville	Barry	34
Kies, Geo. D.	Clinton	Lenawee	*263
Kimball, W. S.	Clinton	Lenawee	*258

NAME.	P. O. ADDRESS.	COUNTY.	NO. OF CERTIFICATE.
King, Henry	South Haven	Van Buren	102
Kinney, P. M.	Benton Harbor	Berrien	113
Knight, Nathan	Bay City	Bay	161
Lannin, Joseph	South Haven	Van Buren	421
Lathwell, John N.	Joyfield	Benzie	253
Lawton, C. D.	Lawton	Van Buren	195
Lindberg, J. A.	Fruitland	Muskegon	209
Leslie, J. W.	Benton Harbor	Berrien	101
Le Valley, E.	Ionia	Ionia	96
Lewis, George	Marcellus	Cass	112
Lincoln, Wm	Greenville	Montcalm	149
Little, John	Fish Creek	Ontario	36
Logan, John M.	New Era	Oceana	32
Loveday, D. C.	South Haven	Van Buren	104
Lusk, L. N.	Kalamazoo	Kalamazoo	87
Lytle, D. W. C.	Lawton	Van Buren	191
MacVicar, M.	Ypsilanti	Washtenaw	*267
Mack, H. O.	Benzononia	Benzie	270
Mann, Robert	Lansing	Ingham	142
Manchester, John	Sparta	Kent	508
Marlette, M. H.	Bay City	Bay	168
Marsden, George	Ann Arbor	Washtenaw	*272
Marshall, O.	Lansing	Ingham	135
Marrs, Samuel	Stevensville	Berrien	121
Marshall, Robert	Prairieville	Barry	9
Mason, Thomas	Chicago	Illinois	123
Matteson, D. E.	Joyfield	Benzie	229
McBain, Randall	Joyfield	Benzie	239
McCullock, J. A.	Benton Harbor	Berrien	102
McDonald, Jno. N.	Bay City	Bay	173
McDonell, A.	Bay City	Bay	165
McGlocclin, Chas.	Kawkawlin	Bay	56
McKelvey, James	Frankfort	Benzie	258
McKinstry, B. N.	Grant Park	Illinois	59
Meach, A. W.	Grand Rapids	Kent	*75
Mead, O. E.	Benton Harbor	Berrien	112
Mersel, Herman	Bay City	Bay	166
Merrill, H. P.	Bay City	Bay	174
Merry, H.	Benton Harbor	Berrien	108
Miller, Mrs. Robert	Battle Creek	Calhoun	81
Miller, Robert	Battle Creek	Calhoun	82
Moody, Elisha	Lockport	New York	43
Monroe, C. J.	South Haven	Van Buren	427
Monroe, L. S.	South Haven	Van Buren	429
Neff, Nathan	Trenton	Wayne	21
Nichols, L. A.	Orange Mills	Barry	5
Niz, J. H.	St. Joseph	Berrien	124
Northrup, Daniel	Lawrence	Van Buren	30
Nowland, A. R.	Benton Harbor	Berrien	107
Oaks, E. W.	Bay City	Bay	158
O'Harrow, Mrs. R.	Muskegon	Muskegon	198
Olds, A. A.	Decatur	Van Buren	77
Osborne, O. B.	St. Joseph	Berrien	126
Overacher, Ira	St. Joseph	Berrien	117
Overholt, Wm. H.	Mason	Ingham	132
Owens, D. A.	Battle Creek	Calhoun	403
Parker, Chas. H.	Joyfield	Benzie	266
Parker, N. A.	Frankfort	Benzie	261
Parker, Solomon	Clinton	Lenawee	51
Parker, F. H.	Eaton Rapids	Eaton	93

NAME.	P. O. ADDRESS.	COUNTY.	NO. OF CERTIFICATE.
Parks, Geo. W.	Lansing	Ingham	134
Parks, L. C.	Grand Rapids	Kent	409
Parshall, J. J.	Ann Arbor	Washtenaw	428
Partridge, B. F.	Bay City	Bay	160
Patterson, N.	Muskegon	Muskegon	207
Paine, Lawson	Englishville	Kent	415
Pearce, James A.	Frankfort	Benzie	260
Pearsall, J. D.	Bay City	Bay	57
Peck, S. B.	Muskegon	Muskegon	212
Pennell, J. W.	Grand Rapids	Kent	412
Peters, W. T.	St. Joseph	Berrien	127
Pettitt, James A.	Benzonina	Benzie	268
Phelps, C. P.	St. Joseph	Berrien	116
Phillips, M.	Lawton	Van Buren	197
Phillips, Geo. W.	Romeo	Macomb	418
Potter, E. M.	Kalamazoo	Kalamazoo	422
Powell, Martin	Bay City	Bay	162
Prescott, Mrs. G. W.	Grand Rapids	Kent	72
Preston, S. R.	Lansing	Ingham	141
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Snyder, Chas.	Greenville	Montcalm	148
Snyder, F. C.	Greenville	Montcalm	150
Souter, A.	Shelby	Oceana	*246
Southard, W. B.	Kalamazoo	Kalamazoo	107
Spaulding, M. J.	Joyfield	Benzie	248
Spicer, H. M.	Frankfort	Benzie	262
Speed, A. B.	Fruitland	Muskegon	210
Stafford, Wm. R.	Port Hope	Huron	11
Stannard, J. D.	Lowell	Kent	278
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Stoughton, J. C.	Greenville	Montcalm	147
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Toms, James.	Ann Arbor	Washtenaw	*271
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Warner, Albert	Plainwell	Allegan	8
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Webber, Wm. L.	East Saginaw	Saginaw	49
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White, John J.	Clinton	Lenawee	50
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Wood, L. B.	Lenawee Junction	Lenawee	70
Woodruff, H. D.	Auburn	New York	10
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Wyckoff, C. G.	White Lake	Oakland	

SUMMARY OF ANNUAL MEMBERSHIPS IN THE STATE HORTICULTURAL SOCIETY FOR 1881.

Allegan county	1	Livingston county	1
Benzie "	43	Maine	2
Barry "	15	Muskegon county	32
Bay "	34	Montcalm "	15
Berrien "	29	Macomb "	2
Cass "	3	Manistee "	1
Clinton "	1	Nova Scotia	2
Calhoun "	5	New York	6
Eaton "	2	Ottawa county	2
Grand Traverse county	2	Osceola "	2
Genesee "	1	Oakland "	5
Huron "	6	Oceana "	3
Iosco "	1	Ohio	4
Ionia "	3	Ontario	1
Ingham "	18	Saginaw county	2
Iowa	1	St. Joseph "	1
Illinois	3	Tuscola "	1
Indiana	4	Van Buren "	32
Jackson county	7	Wayne "	2
Kent "	20	Washtenaw "	5
Kalamazoo "	8	Wexford "	1
Lenawee "	11	Wisconsin	1

LIFE MEMBERS OF THE STATE HORTICULTURAL SOCIETY.*

Adams, H. Dale, Galesburg, Kalamazoo, county.
Adams, Mrs. H. Dale, Galesburg, Kalamazoo county.
Archer, Thomas, St. Joseph, Berrien county.
Armitage, James, Monroe, Monroe county.
Arnold, W. D., Ionia, Ionia county.
Avery, C. P., Old Mission, Grand Traverse county.
Ball, John, Grand Rapids, Kent county.
Baldwin, H. P., Detroit, Wayne county.
Baldwin, J. D., Ann Arbor, Washtenaw county.
Baxter, W. J., Jonesville, Hillsdale County.
Becker, Albert J., Saginaw, Saginaw county.
Bradfield, Edward, Ada, Kent county.
Bagley, John J. (deceased), Detroit, Wayne county.
Beal, W. J., Lansing, Ingham county.
Bates, T. T., Traverse City, Grand Traverse county.
Bruchner, George W., Monroe, Monroe county.
Bragg, L. G. Kalamazoo, Kalamazoo county.
Burham, W. P., Ionia, Ionia county.
Burrows, George L., Saginaw City, Saginaw county.
Bullock, R. D., Jackson, Jackson county.
Bidwell, H. E., Plymouth, Wayne county.
Bailey, L. H., South Haven, Van Buren county.
Bryant, C. T., South Haven, Van Buren county.
Castello, George, Saginaw City, Saginaw county.
Chandler, Z. (deceased), Detroit, Wayne county.
Cook, A. J., Lansing, Ingham county.
Cook, W. N., Grand Rapids, Kent county.
Curtis, H. W., Old Mission, Grand Traverse county.
Chapman, H. B., Reading, Hillsdale county.
Chapman, Alvin, Bangor, Van Buren county.
Chapman, Austin B., Rockford, Monroe county.
Chilson, Nathaniel, Battle Creek, Calhoun county.
Chilson, Miss Ida, Battle Creek, Calhoun county.
Crosby, M. S., Grand Rapids, Kent county.
Cooper, George S., Ionia, Ionia county.
Cooley, Elisha (deceased), Jackson, Jackson county.
Clark, M. W., Jackson, Jackson county.
Dickinson, G. W., Grand Rapids, Kent county.
Dietrich, C. J., Chicago, Ill.
Dorr, S. W., Manchester, Washtenaw county.
Dyckman, A. S., South Haven, Van Buren county.
Dykman, J., East Saginaw, Saginaw county.
De Lisle, Wm. H., Bay City, Bay county.
Dixon, A. S., East Saginaw, Saginaw county.
Doyle, Thomas, Monroe, Monroe county.
Dean, A. J., Adrian, Lenawee county.

* NOTE. A Life Membership is \$10. The fund thus gathered is invested in good securities and only the interest employed for general purposes.

Davis, P. C., Kalamazoo, Kalamazoo county.
 Dieckman, Mrs. Josephine M., East Saginaw, Saginaw county.
 Fields, Miss Jennie E., East Saginaw, Saginaw county.
 Fuller, S. L., Grand Rapids, Kent county.
 Ferry, T. W., Grand Haven, Ottawa county.
 Foster, W. D. (deceased), Grand Rapids, Kent county.
 Foster, Mrs. Mary E., Ann Arbor, Washtenaw county.
 Fowler, S. W., Manistee, Manistee county.
 Griggs, George W., Grand Rapids, Kent county.
 Gilbert, John (deceased), Ovid, Clinton county.
 Geddes, David, Saginaw, Saginaw county.
 Greening, J. C., Monroe, Monroe county.
 Guild, E. F., East Saginaw, Saginaw county.
 Humphrey, J. W., South Haven, Van Buren county.
 Hannah, Ferry, Traverse City, Grand Traverse county.
 Haviland, J. B. (deceased), Traverse City, Grand Traverse county.
 Husted, James D., Lowell, Kent county.
 Husted, Noah P., Lowell, Kent county.
 Hall, Frederick, Ionia, Ionia county.
 Hathaway, B., Little Prairie Ronde, Cass county.
 Hanford, H. B., Bristol, Indiana.
 Hayden, Mrs. H. A., Jackson, Jackson county.
 Ilgenfritz, I. E., Monroe, Monroe county.
 Ilgenfritz, C. A. Monroe, Monroe county.
 Ives, Caleb, Monroe, Monroe county.
 Jerome, Mrs. David H., Saginaw City, Saginaw county.
 Johnson, William, Vassar, Tuscola county.
 Knapp, S. O., Jackson, Jackson, Jackson county.
 Knapp, E. U., Grand Rapids, Kent county.
 Knisely, A. J., Benton Harbor, Berrien county.
 Kedzie, R. C., Lansing, Ingham county.
 Kelsey, E. P., Ionia, Ionia county.
 Kidd, J. H., Ionia, Ionia county.
 Lawton, George W., Lawton, Van Buren county.
 Littlejohn, F. J. (deceased), Allegan, Allegan county.
 Linderman, A. T., Whitehall, Muskegon county.
 Linderman, Harvey, South Haven, Van Buren county.
 Lincoln, L. C., Greenville, Montcalm county.
 Lincoln, Mrs. L. C., Greenville, Montcalm county.
 Lyon, T. T., South Haven, Van Buren county.
 Loomis, P. B., Jackson, Jackson county.
 Mitchell, W. H. C., Traverse City, Grand Traverse county.
 Marshall, Wm. A., Old Mission, Grand Traverse county.
 Montague, A. K. Traverse City, Grand Traverse county.
 Mason, L. M., East Saginaw, Saginaw county.
 Mason, Mrs. Sarah A., East Saginaw, Saginaw county.
 McCallam, E. H., Old Mission, Grand Traverse county.
 Monroe, Judge (deceased), Lawrence, Van Buren county.
 McClatchie, G. C., Ludington, Mason county.
 Mann, S. B., Adrian, Lenawee county.
 Noble, W. A., Monroe, Monroe county.
 Odell, Samuel W., Muskegon, Muskegon county.
 Partridge, B. F., Bay City, Bay county.
 Pearsall, S. M., Grand Rapids, Kent county.
 Perry, George L., Lansing, Ingham county.
 Petty, Thomas, Spring Lake, Ottawa county.
 Parmelee, George, Old Mission, Grand Traverse county.
 Parmelee, Mrs. George, Old Mission, Grand Traverse county.
 Parke, Mrs. Amos S., East Saginaw, Saginaw county.
 Pierce, N. B., Ludington, Mason county.
 Reynolds, E. H., Monroe, Monroe county.
 Reynolds, H. G., Old Mission, Grand Traverse county.
 Ransom, W. D., St. Joseph, Berrien county.
 Rose, D. Forsyth, East Saginaw, Saginaw county.
 Renwick, T. R., Grand Rapids, Kent county.
 Rich, Hampton, Ionia, Ionia county.

Rust, C. E., Ionia, Ionia county.
Ramsdell, J. G., Traverse City, Grand Traverse county.
Ramsdell, Mrs. J. G., Traverse City, Grand Traverse county.
Rowe, William, Grand Rapids, Kent county.
Rowe, William N., Grand Rapids, Kent county.
Root, Amos, Jackson, Jackson county.
Rose, Mrs. Sophie E., East Saginaw, Saginaw county.
Russell, Dr. George B., Detroit, Wayne county.
Slayton, Asa W., Grattan, Kent county.
Scott, J. Austin, Ann Arbor, Washtenaw county.
Scott, E. H., Ann Arbor, Washtenaw county.
Staunton, G. W., Grand Rapids, Kent county.
Savidge, Hunter (deceased), Spring Lake, Ottawa county.
Shoop, Rev. D. R., Hastings, Barry county.
Sleeper, F. S., Galesburg, Kalamazoo county.
Soule, J. B., Fruitport, Muskegon county.
Sterling, F. S., Monroe, Monroe county.
Sterling, J. M., Monroe, Monroe county.
Sterling, J. C., Monroe, Monroe county.
Sterling, W. C., Monroe, Monroe county.
Sterling, W. P., Monroe, Monroe county.
Sterling, Mrs. Emma M., Monroe, Monroe county.
Shirts, E. J., Shelby, Oceana county.
Suttle, John (deceased), Grand Rapids, Kent county.
Smith, E. T., Ionia, Ionia county.
Smith, N. E., Ionia, Ionia county.
Steere, B. W., Adrian, Lenawee county.
Stearns, J. N., Kalamazoo, Kalamazoo county.
Sessions, Alonzo, Ionia, Ionia county.
Sessions, William, Ionia, Ionia county.
Sigler, Artemus, Adrian, Lenawee county.
Sinclair, W. G., Spring Lake, Ottawa county.
Smith, H. H., Jackson, Jackson county.
Tracy, Will W., Detroit, Wayne county.
Thompson, W. D., Jackson, Jackson county.
Thompson, J. P. (deceased), Detroit, Wayne county.
Taylor, George, Kalamazoo, Kalamazoo county.
Taylor, George C., Kalamazoo, Kalamazoo county.
Towles, George W. (deceased), Benton Harbor, Berrien county.
Vick, James, Rochester, New York.
Waife, Gilbert M., Paw Paw, Van Buren county.
Walker, S. S., St. Johns, Clinton county.
Watkins, L. D., Manchester, Washtenaw county.
Wells, H. G., Kalamazoo, Kalamazoo county.
Williams, S. P. Monroe, Monroe county.
Wier, Antoine, Monroe, Monroe county.
Webber, George W., Ionia, Ionia county.
Webber, Miss Francis E., East Saginaw, Saginaw county.
Wooding, Charles F., Lowell, Kent county.
Woodward, David, Clinton, Lenawee county.
Winchester, A. O., St. Joseph, Berrien county.
Wurtz, Elias H., East Saginaw, Saginaw county.
Whittlesy, John, St. Joseph, Berrien county.
Zeigler, J. C., Saginaw City, Saginaw county.

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