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THE NEW YORK BOTANICAL GARDEN
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THE FORTY-FIFTH ANNUAL REPORT

OF THE

SECRETARY

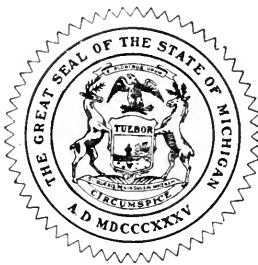
OF THE

STATE HORTICULTURAL SOCIETY

OF

MICHIGAN

FOR THE YEAR 1915



BY AUTHORITY

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REPORT OF THE SECRETARY OF THE MICHIGAN STATE
HORTICULTURAL SOCIETY.

BENTON HARBOR, MICHIGAN,

January 1, 1916.

To HON. WOODBRIDGE N. FERRIS, *Governor of the State of Michigan:*

In accordance with legal requirements, I have the honor to submit to you the accompanying report of 1915, with supplementary papers.

The Michigan State Horticultural Society gratefully acknowledges its indebtedness for this favor, and hopes that the stimulus to Horticulture received through this report will more than cancel the obligation.

Most respectfully,

ROBERT A. SMYTHE,

Secretary Michigan State Horticultural Society.

OFFICERS OF THE MICHIGAN STATE HORTICULTURAL
SOCIETY FOR 1916.

PRESIDENT—CHARLES A. PRATT, Benton Harbor.
VICE-PRESIDENT—CHARLES A. BINGHAM, Birmingham.
SECRETARY—ROBERT A. SMYTHE, Benton Harbor.
TREASURER—HENRY SMITH, Grand Rapids.
LIBRARIAN—HIRAM CHAMBERS, Lansing.

EXECUTIVE BOARD.

FRANK A. WILKEN, Detroit, 1 year; term expires 1916.
J. E. MERRITT, Manistee, 1 year; term expires 1916.
LUTHER HALL, Ionia, 2 years; term expires 1917.
THOMAS GUNSON, East Lansing, 2 years; term expires 1917.
E. O. LADD, Old Mission, 3 years; term expires 1918.
CHAS. A. BINGHAM, Birmingham, 3 years; term expires 1918.

STANDING COMMITTEES.

FRUIT CATALOGUE—CHAS. A. PRATT, Benton Harbor.
FRANK A. WILKEN, Detroit.
NEW FRUITS—H. J. EUSTACE, East Lansing.
E. O. LADD, Old Mission.
ENTOMOLOGY—PROF. R. H. PETTIT, East Lansing.
ROBT. H. SHERWOOD, Watervliet.
VEGETABLE PHYSIOLOGY—CHAS. W. WAID, East Lansing.
LANDSCAPE GARDENING—THOS. GUNSON, East Lansing.
J. POMEROY MUNSON, Grand Rapids.
FORESTRY—HON. CHARLES W. GARFIELD, Grand Rapids.
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ROBT. A. SMYTHE, Benton Harbor.



Pres. Chas. A. Pratt of Benton Harbor, Mich.

INTRODUCTORY.

In presenting the 45th Annual Report of the Michigan State Horticultural Society, it has been the desire to give to the members a complete record, as near as is possible, of the work done by the Society for the year 1915.

The Mid-Winter meeting was held at Muskegon, February 2-3, in the auditorium of the Hackley Art Gallery. As a very heavy sleet storm prevailed at this time all trains were delayed, and many members failed to arrive. The first day's published program was adhered to as far as was possible. The weather conditions being better on the second day, the sessions were well attended, the addresses all of great interest. Some of the papers will appear in the Report.

The Mid-Summer meeting was held August 12th at the farm of Mr. Amos Tucker, 3 miles west of Bravo. The meeting was well attended, there being over 300 present. An auto trip was taken to many of the fruit farms in the immediate vicinity. At that season of the year the fruit promised most favorable.

Following the fine dinner which was served on the lawn by the Ladies' Aid Society, an informal experience meeting was held which was most interesting, and a general discussion of the weather conditions markets, etc., was participated in.

Before the members departed a resolution was passed extending the thanks of the Society for the hospitality of Mr. and Mrs. Tucker and others who assisted in making the meeting such a pleasant occasion.

The 45th Annual meeting was held in the coliseum at Grand Rapids, December 7-8-9, and proved to be one of the best meetings the Society has ever held, both from a point of attendance and interest. The addresses were all most instructive and interesting, and the discussion brought out many vital points. All addresses and discussions will be published in this report.

The fruit display was very fine, demonstrating that the best of cultural methods had been employed. A list of the fruit exhibitors and the prizes awarded will be found elsewhere in the report.

It is the desire of the Society to make the display of fruit at the Annual meeting a real feature, and it is urged that all growers will remember this and save something for the next Annual which will be held in Grand Rapids, December 5-6-7, 1916.

It has seemed wise to hold the Annual meeting in Grand Rapids, for a series of years, as this meeting has grown too large for accommodation in many of the smaller cities, and the exhibitors will come year after year if a suitable place for displays is offered them. The railroad

facilities are first class for reaching Grand Rapids, and it is well supplied with good hotels at reasonable rates.

The following list of manufacturers and companies made displays:

Wolverine Nurseries, nursery stock, Paw Paw, Mich.
 I. E. Ilgenfritz Sons' Co., nursery stock, Monroe, Mich.
 R. A. Gill, fruit grader, Port Clinton, Ohio.
 Owosso Mfg. Co., fruit crates, Owosso, Mich.
 American Fruit Ladder Co., ladders, Kalamazoo, Mich.
 Kentucky Tobacco Product Co., Black Leaf 40, Louisville, Ky.
 B. G. Pratt & Co., scalieide, New York, N. Y.
 Corona Chemical Co., spray material, Milwaukee, Wis.
 Niagara Spray Co., spray material, Middleport, N. Y.
 Hardie Mfg. Co., spray machinery, Hudson, Mich.
 Haynes Pump and Planter Co., spray machinery, Galva, Ill.
 Friend Mfg. Co., spray machinery, Gasport, N. Y.
 Air Tight Steel Tank Co., spray machinery, Pittsburg, Pa.
 F. E. Meyers Pump Co., spray machinery, Ashland, Ohio.
 Henion and Hubbell, spray machinery, Chicago, Ill.
 Bean Spray Co., spray machinery, Lansing, Mich.
 Novo Gasoline Engine Co., gas engine, Lansing, Mich.
 Skinner Irrigation System, Jacksonville, Fla.
 Rural New Yorker, Farm Journal, New York, N. Y.
 Michigan Farmer, Farm Journal, Detroit, Mich.
 Fruit Belt, Fruit Journal, Grand Rapids, Mich.

These displays of Horticultural necessities are all very interesting and instructive and give the grower an opportunity to see and compare the various makes used.

In conclusion is the desire, that all members of the Society assist in continuing its good work as far as it is possible, by urging other persons to become members.

HISTORY OF HORTICULTURE IN MUSKEGON COUNTY.

MR. C. D. MC LOUTH, MUSKEGON.

I propose to divide my paper into three parts, as follows:

1. The Muskegon County Horticultural Society and the people who made and sustained it.
2. Crops that have succeeded and those that have failed in Muskegon county.
3. The geological history of the county in relation to horticulture.

1. The first meeting of the Muskegon County Horticultural Society of which I find a record preserved in writing was held on April 16, 1887. Ex-Lieutenant Governor, H. H. Holt, then president of the organization, occupied the chair. At this meeting it was resolved to re-organize the Society, incorporating under the statutes of the State. The drafting of articles of association was assigned to a committee of three members composed of C. L. Whitney, F. F. Bowles and Wm. M. Collier.

At a meeting following, May 28, the articles of association were adopted and acknowledged before a notary, E. N. Lattimer. Officers were elected as follows:

Henry H. Holt, President.

F. F. Bowles, Vice-President.

C. L. Whitney, Secretary.

Orman Baxter, Treasurer.

Wm. M. Collier, Geo. F. Ashton, members of the executive committee.

Some indication of the activities of the Society at that time is shown by the appointment of four standing committees "on transportation," "on fruits," "on flowers," "on vegetables," respectively.

In September of this year the Society held its first annual fair. Nearly 150 cash premiums were offered by the Society and about 20 special premiums, some of considerable value, were put up by business men of Muskegon. The outcome of the fair was successful and in the autumn of the following year another fair with a still larger list of premiums was held.

Records of the Society show that so far back as 1887 the question of a public market and ordinances relative to the sale of garden products in Muskegon were being discussed. About the year 1908 a market was established by act of the city council but it received only scant patronage and was soon abandoned.

In 1889 the Society received a report from L. N. Keating, relative to the subject of establishing a local cannery. This was a scheme long

cherished by Mr. Keating, but which has not yet materialized in Muskegon county.

According to the recollection of one of the original members the Society had been in existence about eleven years before its incorporation in 1887. It is believed that the first meeting was held in 1876. Charles W. Garfield, of Grand Rapids, assisted in founding the Society, and H. S. Tyler of Dalton township, was the first president. C. L. Whitney was the first secretary.

It would appear from the records that the membership of the Society has never been large. The treasury seems never to have held more than a very modest amount although I find no record showing that a deficit ever occurred. In the comparatively short experience of the writer as a member of the Society, lack of funds has always been a handicap in attempts to do educational work. That this has been a chronic condition is suggested by an entry in the minutes of a meeting in 1891, when the Society was popular and the meetings were often attended by many people. In the discussion of the varieties of strawberries, then popular with growers, the Fillmore strawberry was mentioned, at which point Mr. Robert Pett remarked: "Speaking of Fillmore reminds me that the treasury needs filling a little more." The secretary's record adds that this remark was met with no response.

It is notable that many of the names found in the records of this Society are those of men and women who have been prominent in the affairs of the community, and that a considerable number of these have been known politically and in other relations far beyond the limits of the county. This was especially true of the early years of the Society and indicates that the foresighted people who were pioneers realized the importance of developing the productivity of the land after the first great crop of lumber should be gathered and exhausted.

It is not only the services of the local Horticultural Society in developing the material interests of the community that entitles it to a distinctive place in local annals. Its social service to the community must not be overlooked. Its meetings have always been open to all. These meetings and occasional fairs were great social events to the rural population in the years from about 1880 to 1900. In the summer season and sometimes in winter these meetings were held at homes of members far and near. These meetings were characterized by hearty good-fellowship. Occasionally the attendance ran as high as 400. The basket dinner that has always featured at the meetings since 1889, whether held at homes of members, at picnic centers or at Society headquarters, intensified the democratic character of the meetings. A faithful few still sit at the common table on the date of each monthly meeting and enjoy the social hour as in years past, but when a few more of the older members shall have fallen out it seems doubtful that the custom will continue. The grange and various other organizations among the country population seem to have provided for the social requirements of the people. Moreover, the Society has never been organized or conducted in such manner that it has been of service to people remote from Muskegon, except at the smaller population centers connected with the city

by railroad, and a considerable part of the membership has always been within the city.

In the year 1914 more than one-half of the programs were devoted to technical topics. Experts from the State Agricultural College and Michigan University lectured on forestry, spraying, poultry raising, and marketing. Demonstrations were made in spraying and thinning of fruit. Demonstrations in selecting and packing of fruit were offered but the response did not justify bringing the demonstrator to the county. These programs seem to have accomplished considerable good. The spraying demonstrations were witnessed by more than two hundred people and great interest was shown. A practical result of the forestry movement was the setting of about a dozen plantations of forest trees purchased from the Agricultural College through the field agent, Mr. C. A. Tyler.

On the completion of the new courthouse in 1893, the board of supervisors set aside three convenient and suitable rooms in the basement for use of the Society. These rooms have been used thus continuously for more than twenty years. One room is used for the Society meetings, also as the dining room; another is fitted for kitchen purposes; the third contains a large book case with many volumes of horticultural reports and also serves as a coat room. Recognized as the Society is, as a county-wide institution, it is regrettable that no way has yet been found to make its usefulness felt to the entire county instead of being limited mostly to a few near-by residents.

Another organization that has been of considerable local importance to horticulturists is the Norton Fruit Growers' Association. The membership is mostly or entirely in Norton Township. After five years of co-operation in a rather desultory manner this association was organized and incorporated in 1904 with a capital stock of \$5,000. The primary use of this organization seems to have been the purchase of fruit growers supplies in large quantity. The officers elected at time of organization were: W. H. Patten, President; Chas. Poland, Vice-President; Geo. Randell, Secretary; E. J. Ronsell, D. B. Porter, P. Boller, directors. At present Tom Poland is President; Chas. Randell, Secretary.

2. I regret exceedingly my lack of definite knowledge of the history of the introduction, development and, in some instances, the decline of horticultural crops. It appears that, of fruits, the peach and strawberry were among the earliest grown commercially. On the Rood farm in Norton township, a peach orchard was in bearing in 1869. Another orchard on what is now the Storrs place in North Muskegon had passed its period of best productivity and was dying out in 1873. I do not know when these orchards were planted. The best peach orchards at the present are probably in Casnovia township and in the vicinity of Whitehall and Montague.

Strawberries, I am told, were at their highest tide between 1880 and 1900. It seems that the virgin soil in Muskegon county contains some element of fertility or possesses some mechanical condition that is favorable to strawberry development but which is lost after some years

of cultivation. Judging by records of discussions in the proceedings of the Horticultural Society the strawberry claimed more attention than any other fruit in the early days, but about 1890 dissatisfaction with the crop began to appear.

The raspberry became a crop of commercial importance about 1890 or at about the time when strawberry growing began to decline. About 1900 this crop reached its climax. It is still grown extensively and profitably but the disease called "club-root" locally has discouraged some of the former growers. The raspberry is profitably grown with greater success than strawberries on the drier soils. Such soils are certainly not congenial to the strawberry. Possibly the deeper rooting of raspberries makes part of this difference.

According to Mr. I. R. Sanford, one of our best posted residents on early Muskegon history, the earliest plantings of apple trees were made by his father and by Mr. Peck, in 1862. In the printed record of the Muskegon Pioneer and Historical Society for 1887, it is stated that the first settlers in Muskegon found a few apple and peach trees in bearing condition on the shore of Muskegon Lake, which were probably planted by Indian traders. It is also asserted that the first attempt of planting an orchard in Muskegon county was by George Ruddiman, in 1848. His trees came by boat from Rochester, N. Y., via Chicago. In 1887, thirty-six of these trees (apple, pear, cherry, plum), were growing and bearing near Muskegon Lake on the old mill site where Mr. Ruddiman planted them.

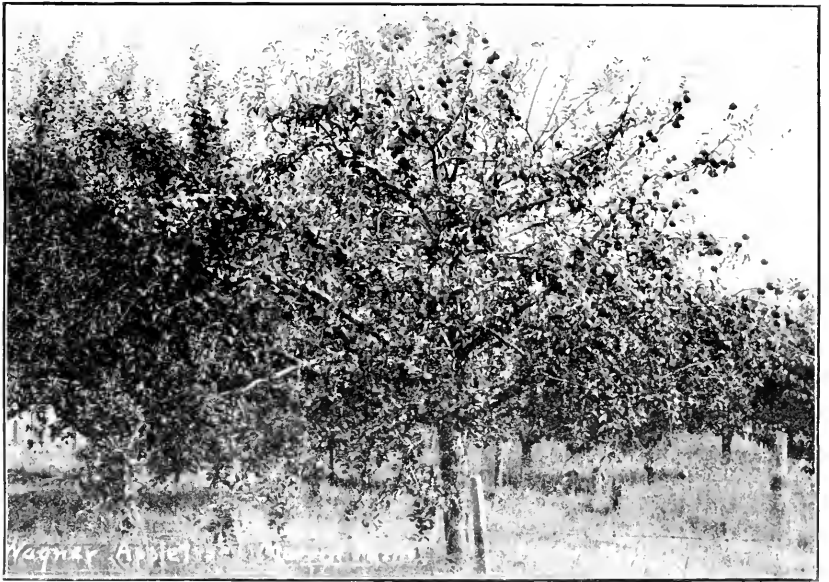
A few apple trees of the old Peck orchard still stand. The orchard, which also included peaches, and some grapes, covered about 20 acres between Peck and Jiroch streets on the west and east respectively and south of Irwin street. At the present time there is a considerable area in well-kept and profitable apple orchards in the townships of Casnovia, Holton, Whitehall, Montague, Ravenna and Norton. From my knowledge of the old standard varieties of apples which I gained as a boy in the old orchard planted in Lenawee county by my grandfather who was an early pioneer from New York, I conclude that there is a great amount of ignorance among Muskegon county apple growers as to identity of standard varieties or that fraud is often practiced by them in marketing under false names. Of course, there are many reputable growers whose intelligence or whose integrity are above impeachment by this charge. I believe that I am secure in asserting that no successful apple orchards are found on the sands unless there is clay near the surface.

Grapes have been grown quite generally but not in very large quantity in the county.

Plums, pears and cherries, seem never to have been planted very extensively.

There are a few successful growers of tomatoes and muskmelons. These crops must be irrigated when grown on sands. Mr. Frank Hile of Norton, regards tomatoes his leading crop with muskmelons following closely. He practises irrigation with success by method of flooding and predicts that in a few years irrigation will become general here.

The records of the Horticultural Society show that in 1887 and 1889,



Wagner Apple Tree. O. F. Marvin Farm, Holton, Mich.

Mr. A. R. Williams read papers on celery culture. It was at about this time that celery growing began here. The extensive marshes along Muskegon River and other smaller streams proved to be excellent soil for this crop and by the year 1893, Muskegon celery had gained a great reputation in the Chicago market, which I believe it has held to this day.

The production of peppermint oil, was at one time an industry of considerable importance in Moorland township where the black sand and loamy soil was found well adapted to the crop. With fall in price of the oil the industry dwindled near to extinction, but I am told that, with current price of the oil, it is possible to renew the business with profit, and a revival is predicted. It is said that before the growers went out of the business the lands on which mint had been grown for some years were showing symptoms of exhaustion, and that if the crop were to be grown again successfully a system of rotation will need be adopted.

In the 1887 annual of Muskegon County Pioneer and Historical Society it is recorded that Michael Crowley of Muskegon township received from J. H. Gregory, of Marblehead, Mass., the prizes offered for the largest cabbages grown in the United States in the years 1886 and 1887. The cabbage of the latter year weighed 81½ lbs. with stump and loose leaves. Patrick Dowd, who became known as the "Cabbage King" exhibited, at the horticultural fair in 1886, three cabbage heads trimmed for market, weighing respectively 42, 43, and 49 pounds. These were grown on a moist, loamy soil.

In 1887, an estimate of the onions raised in Moorland township was 25,000 bushels. This I suspect is more than the amount raised there in any season recently.

3. I have passed thus briefly over the history of horticulture in the county as a record of the people and what they have attained. I leave this portion of my paper with apologies to the old settlers who might have done the part much better and take up the third division of my subject for which I have more abundant data and a feeling of greater security in my conclusions.

What human kind has been able to do here as elsewhere in horticulture and agriculture has been largely determined by processes of nature in times antedating human experience. Little need be said of the climate except that it is what should be expected at this latitude, modified by the great water body, Lake Michigan. Everybody knows that we are in the fruit belt of western Michigan. The soil, however, unlike the climate, has no necessary relation to the latitude and the proper study of the same is somewhat intricate.

Ages ago natural forces began their work of preparing for Muskegon county, soils of considerable variety. When the soil materials had become settled in their places, plant life began its contentions for occupation and after a long term of struggle and adjustment, more than one thousand species of plants of the higher orders found congenial places for growth upon the hills and plains; in the valleys, swamps, marshes and lakes. Here the first civilized invaders of the wilderness found

them in their natural societies, each of which would have told observing and well-informed settlers much valuable truth about the soils in which their roots were anchored. For, just as the native plants require certain soil environments for their best development, so do cultivated plants require soils selected to suit their particular habits in order that they may be grown profitably.

Thousands of years ago a great ice sheet that had accumulated on the northern regions of the earth, moved slowly southward, probably pushed forward by the weight of its own accumulation in the far north. The causes that operated to bring about this gigantic movement are not entirely clear, but that such a movement actually occurred is proven beyond question by the trail left when the ice front gradually melted away and receded again to the polar regions where, today, observers find exactly such effects being produced by glacial ice as are evident in our locality and extending several hundred miles farther to the south.

Where we are today this ice sheet was possibly one thousand feet deep. It gouged its way through the rocks to a depth, at this place, of about 225 feet below present lake level, where we now find the bed rock that bears the scratches and grooves made by the slowly moving mass. When the ice melted away, great bodies of crushed or pulverized rock, boulders and gravel were released and deposited in various ways. Much of this was left in the form of ridges and peaks called *moraines* by the geologists. Other materials were caught by the floods that continued, probably for centuries, rushing from the front of the melting ice and were thus spread out into more or less extensive plains.

As everybody knows, a current of water carrying suspended matter drops the coarser and heavier particles first as the speed slows down. It so happened that the glacial streams dropped a large amount of coarse sand within the present boundaries of Muskegon county while much of the finer and better soil-making materials were carried farther and deposited elsewhere. This fact has made the problem of the sand soils of Muskegon county as it has also in other parts of Michigan.

The larger portion of this county is covered by a sand sheet that dips practically to the level of Lake Michigan at Little Black Lake near the extreme southwest corner of the county. From this point the surface rises gradually in all directions from eastward to northward, being 50 feet above lake at Muskegon, due north, about 100 feet at Moorland and 110 feet at Twin Lake. This gives an average gradient of between 6 to 8 feet per mile and suggests an interesting speculation as to the origin of this particular plain, which will be followed out somewhat in detail.

Along the borders of the county on the north and east most of the surface is undulating and hilly where the ice left great ridges and mounds of clay, loam and gravel. Nearly the entire surface of Casnovia township is of this character. At Casnovia village is the highest railroad station in the county, the Pere Marquette track there being 303 feet above mean lake level. Some of the surrounding hill summits exceed this height by about 100 feet.

Returning to the original sand plain and following it inland along Muskegon River from the lake to the county line we would find our-



O. F. Marvin's peach orchard in bloom at Holton, Mich

selves traversing its highest portion. In Cedar Creek Township, near where the river enters the county we come to the highest level. From this place the plain spreads out in broad fan shape becoming 15 miles or more in width along the coast. As pointed out before, this area slopes gradually downward, as it broadens toward the westward and southward. On the north there is evidently a short slope which is intercepted as it approaches White River, probably because White River has a similar area of its own region. All these features suggest but one thing, i. e., a river delta, and it is easy to see how it might have been formed.

It is supposable and probable that at some time since the recession of the ice, the water of Lake Michigan extended to the hills of Casnovia and Moorland. Then Muskegon River with a flow probably much larger than at present, met the water of the lake near the county line and in time made this great deposit of sand and silt in what was then the bed of the lake. Afterwards, as the water of the lake receded towards its present limit, the river cut its way through the deposit it had made, forming the present deep broad valley and the channel in which it now flows. The result of what could have been predicted. The river cut its channel near the middle line of the fan so that it now flows through the area of coarsest materials and instead of "watering the fertile plain" as the function of a river is sometimes quoted poetically, it robs the adjacent sand plain of its water, since its bed, lying 50 to 100 feet below the surface of the porous sand makes the drainage of the soil and subsoil excessive. Consequently only plants capable of great privation of water are found native here and few settlers have attempted to bring the land under cultivation.

It is a well known fact that, for several miles away from the river on either side of this sand region, beech, maple, red oak and other trees of similar habit do not grow (except in a few isolated areas, possibly), while farther out toward the borders of the fan are belts of abundant and thrifty growth of these timbers.

A result of the geological history of this area as just outlined has been many misfits in attempts to establish the growing of fruits and other crops in the county. While the hilly country of the east and north is mostly of heavy soils that sustain plant growth well, making strong and healthy orchard trees and returning good crops of vegetables, grains, and small fruits, the sands have disappointed many who have failed to gain a comfortable living by cultivation of them. Those who tried the dry sands failed to read the signs of the native flora, and after a disheartening attempt to make the soil bring forth adequate returns for their labor they abandoned the struggle, leaving their deserted shacks and their fields going back to possession by hardy weeds and bushes,—a warning to others not to attempt the impossible.

Many sandy areas in Muskegon county have proved to be excellent garden spots but that is because one sand field may be radically different from another. The problem is to differentiate these and to find for each that use to which it is best suited.

One sand area may have a very dry soil, the water table being 20 or more feet below surface. Not only is the water content of such soil

insufficient to support a succulent growth of horticultural varieties of vegetables but the perpetual filtering of water through the soil has leached away most of the elements of soil fertility, leaving little but washed silica in reach of shallow rooting plants. Only a mile or two away may be found a sandy swamp without natural surface drainage, where the soil water is charged with nutrient materials and always available to growing plants. Here the intelligent gardener or the grower of small fruit may succeed after suitably draining the land. On the dry sand no success is possible without soil building, liberal fertilizing and irrigation. The requirements of the latter situation have exceeded the intellectual and financial resources of most of those who have sought to build homes on such lands.

The causes of so great differences in character of sand soils in adjacent areas are easily found. *First*, all the drier sands are near the large drainage channels. They are dry because, as noticed before, the water that falls upon them settles nearly to the level of the river and oozes laterally into the stream. In such lands we find few streamlets feeding the main stream. The water never accumulates to the extent that it must escape by surface channels. As we go back from the river at right angles to its course we find the water table rising gradually toward the surface until, at a few miles distance, we find it *at* the surface, the soil therefore saturated, causing swampy or semi-swampy conditions. This progressive rising of the water table away from the stream is clearly caused by the increased resistance to lateral movement of underground water with increase of distance from the receiving stream, hence the water piles higher and higher as the required pressure becomes greater.

A *second* important cause of the moist areas of sand is related to the underlying formation. If the overwashed sands forming these plains could be removed completely we would find the exposed surface to be much like that of Casnovia township, only that the hills would be much lower as compared with lake level, and the valleys perhaps shallower. Some of these summits of buried hills rise to the present sand surface, others are at varying distances below. These sand-filled valleys form water pockets that never dry out. Here vegetation has grown and accumulated humus for ages and when the land is cleared it becomes a productive field if properly managed. If nature has mixed in some of the clay that lies close below, the soil is thereby made almost ideal for gardening.

What we find here described in the vicinity of Muskegon River, is doubtless repeated many times, in varying degrees, along the west coast of the State, and much of the description applies to similar extensive tracts in the interior of the State.

A historian, having drawn lessons from the records of the past, naturally turns to look into the future. I presume that at this point I may be allowed a few words of opinion. It is notorious that many people from the larger cities have been deluded in the belief that certain lands in this county and others similar to them in other parts of the State, held on the market at small price, offered to them a place for home building where they would be free and independent. In numerous

instances, I am told, these people have invested their savings and have lost. The speculator has gained by their loss and perhaps the dollars he has thus filched have been sufficient as a salve to soothe his small conscience.

But what the deceiver has done deliberately in such robbery of the unwary settler, the well-meaning "booster" may also do by indiscriminate laudation of the sand lands of west Michigan. Lecturers and writers in the past few years have been treating the public with well-intentioned assertions of the possibilities of sand lands without any adequate recognition of the varieties among such lands. Along with this promotion movement there should be a *careful survey of the lands*, including their *geological* history and *topographic* and *botanical* features. When the lands have been thus properly studied and classified on these bases they can be put upon the market with an approximation to their true values and recommended according to their natural adaptations.

MODERN METHODS OF DISPOSING OF OUR FRUIT.

MR. JAS. NICOL, SOUTH HAVEN.

Along the west shore of Lake Michigan we seem to be in same position as the boy whose father pays all his bills and when he dies leaves him a good estate.

Marketing was too easy a proposition. All we had to do was pick and pack our fruit, ship to South Water Street and wait for our check.

When things are made too easy for you results are generally poor.

We have no quarrel with South Water Street. They undoubtedly average as honest as we do, and they are the greatest fruit market in the world.

But look at the conditions from St. Joseph, as far north as can be reached in a night's run. We load fruit for Chicago. We have no knowledge how much our neighbors or what other towns are forwarding, neither has the commission merchant.

If you wrote him your fruit would arrive ahead of the letter and he would not have time to read it anyway.

There has been experts appointed to consider traffic conditions in Chicago. In their report they say the downtown or Loop district in Chicago is the most congested business district in the world. We load South Water Street with fruit, a most perishable article, until they can hardly move. They could not close their doors at night unless they disposed of the bulk of the day's receipts, and next day's receipts may be larger. They have only a guess as to what tomorrow's arrivals may be.

When we consign our fruit to the most congested business district in the world; when a building rents, if favorably located, in one year for all it cost when erected; whose traffic congestion makes hauling and other expenses high, *remember*, we pay the bill.

I heard a leading commission merchant on South Water Street say: "The wonder is not how little we get for the fruit, but that we get as much as we do under the circumstances. After the moving rush is over if canners and bargain hunters only knew how badly we were loaded, I doubt if they would even pay charges."

Who is to blame for these conditions? We are, and we are the only one who can change them. We must have some system so that the bulk of our shipments are sold before they leave our home town, or distributed when demand is about as great as the supply, so that only a small portion has to be consigned. If we arrange so that Chicago market only received what it needed, we could get good returns, for South Water Street market will pay fine prices when not overloaded.

It would make little difference whether we are large or small growers. The largest fruit grower in Michigan is only a speck compared to the market. We have fine home markets in summer, but a dozen growers could take care of that demand.

For the past fifteen years at Horticultural Institute and Grange meetings we discuss and acknowledge the necessity of co-operation. Why don't we get together in buying and selling? Many say, "Oh you cannot get farmers to work with their neighbors." Why not? You sign each others notes; you lend and borrow tools; do errands for each other, and your neighbors average just as good as any neighbors anywhere.

Last winter a professor in Pennsylvania University wrote some articles in the Youth's Companion under heading, "Why I Am Raising My Sons to be Farmers." And one of the reasons he gave was, (now remember this was in *Pennsylvania*, not Michigan); he said; "There is less competition with brains than in any other business." Was not that an awful indictment of us? Is it true?

If you want to raise some heavy object we know how easy it can be done with leverage. Why not use leverage in the business end of the farm and buy and sell in business-like way?

Now I believe the farm of the future will pay as good returns as any other business with like investment and labor. Our labor will not be increased, rather the reverse, and you cannot prevent it.

The question is, shall we allow it to come by elimination, or proceed to collect our just share? Elimination is slow but when we notice that the average age of farmers in the middle west is 55 years, we see it coming. Why not let us get benefit in our lifetime? We own the earth, why let some one else collect the income?

In times of war panic, etc., the first business to right itself is the food products. It has the soundest basis of any business. We cannot expect some one else to adjust our affairs, we must do it ourselves and its an old but true maxim, "When you want a job done right, do it yourself."

In South Haven we made a start by organizing under the name of South Haven Fruit Exchange. While fruit is our main crop we can buy and sell anything a farm has to offer or needs. We employ a manager by the year, other help as needed. Members notify manager about July 1st what fruit they expect to sell through the Exchange. They can

sell all, part or none as they choose. The manager has these lists in his office and can estimate how many packages will be needed, and what fruit he will have to sell. That enables him to contract for packages at favorable rates and sell fruit in advance.

Fruit is picked into crates, hauled to central packing house, weighed, graded, packed and loaded into refrigerator cars. Growers can draw reasonable advances on fruit as soon as delivered at packing house. Final settlement is based on average price for grade and variety.

Small fruit is handled in a different manner. As soon as your fruit is in the packing house it is covered by insurance, so that all possible risks are reduced to a minimum.

Through our neighborhood it has been the practice towards harvest for the buyers to drive through the county telling growers how cheap and plentiful fruit is going to be and contracting orchards when price suits them. The majority of the buyers do not have any great amount of capital; a few represent good concerns. As a general proposition if the buyer does not have a sure profit your fruit is not sold.

On account of not having anything back of him, the buyer cannot stand a loss. Often there is ten to twenty buyers in same district inside of a week. All their expenses and time have to come out of the grower. The same is true when they have something they want to sell us. It is a most expensive way for us, either to buy or sell.

When you do your buying and selling through an association you greatly cheapen cost of doing business. Think of the disadvantage you are at when a buyer comes to your farm. He is thoroughly posted in every phase and change in the market. When you tell that buyer you are not posted on prices and only know local conditions, and it is impossible for you to quote values on your fruit, he knows you are telling the truth and he respects you. You tell him he can buy your fruit of your salesman at the warehouse, office, exchange, packing house or salesroom, whatever you care to call it, in the town. Where he can have it packed and packages that suit his trade. If he is a genuine fruit dealer he will pay more for fruit handled in that manner than any other way and the other kind of buyer will not buy your fruit unless he thinks he has it all his own way. Any desirable buyer will always go to the Exchange first; should he think prices too high. He may then drive through the country.

But the salesman in town will always have first chance at buyer. As soon as you have started doing business with him and when you pack the way he wants, he is bound to be satisfied. He will then order by wire or phone and still further reduce cost of handling. In grading I would never grade 1 and 2, or A and B. No consumer is very willing to pay much for 2 or B grade. A grade that is 2 in one market might be first in another, because it is all that locality needs. *Brand* your fruit and sell it by brands, not grades. The buyer soon gets to know your brands and will so order.

While a State grade may make uniform packing, it may not help the selling price. For instance, a dealer may offer No. 1 Michigan apples at cost. He may do it to bother a competitor or to get trade to his store where he can sell other goods. But the other man will not use

your fruit because there is no profit in selling. Now the brand gives the retailer a talking point. When the consuming buyer tells him he can buy fruit cheaper, he will say not *that* brand of fruit, Michigan grown, carefully packed in central packing house, etc., so while retailer is talking for himself he is also advertising your brand. A central packing house helps to solve the labor question. In case a grower should be sick and unable to attend to marketing his crop, it would make no difference, his fruit would be sold just as well, whether he was conscious or unconscious, and if he was alone the Exchange could send pickers to his farm and care for his fruit without ever bothering his household. Suppose you had a quarantine against your house; your crop would be handled without going near the house. The more fruit the Exchange has to sell the better. When a buyer or retailer begins using your brands he wants them daily or weekly all through the season and you ought to have the goods. When a buyer cannot get fruit of you he will soon get in the habit of trading elsewhere. You save all the expense of handling empty packages to farm.

Having a packing house in town you can give the buyer the package his district likes and that may change daily. When you pack at home you use package at hand regardless of whether it is suitable for the market that is paying the best price. At the town packing house you get your help easier. I believe today we can hire help cheaper in town than we can on the farm. Our women help are expected to work until time to quit and not knock off an hour to cook dinner at home. They can bring their dinner or go home for noon as they choose. If we are packing evenings, as we are all through peach season, we furnish supper for them at nearby restaurant and they take an hour's rest, but are not allowed to go home. If they go home they will work and they need their hour's rest just as much as the men. We want efficient help and we take precautions to see that we get what we are paying for.

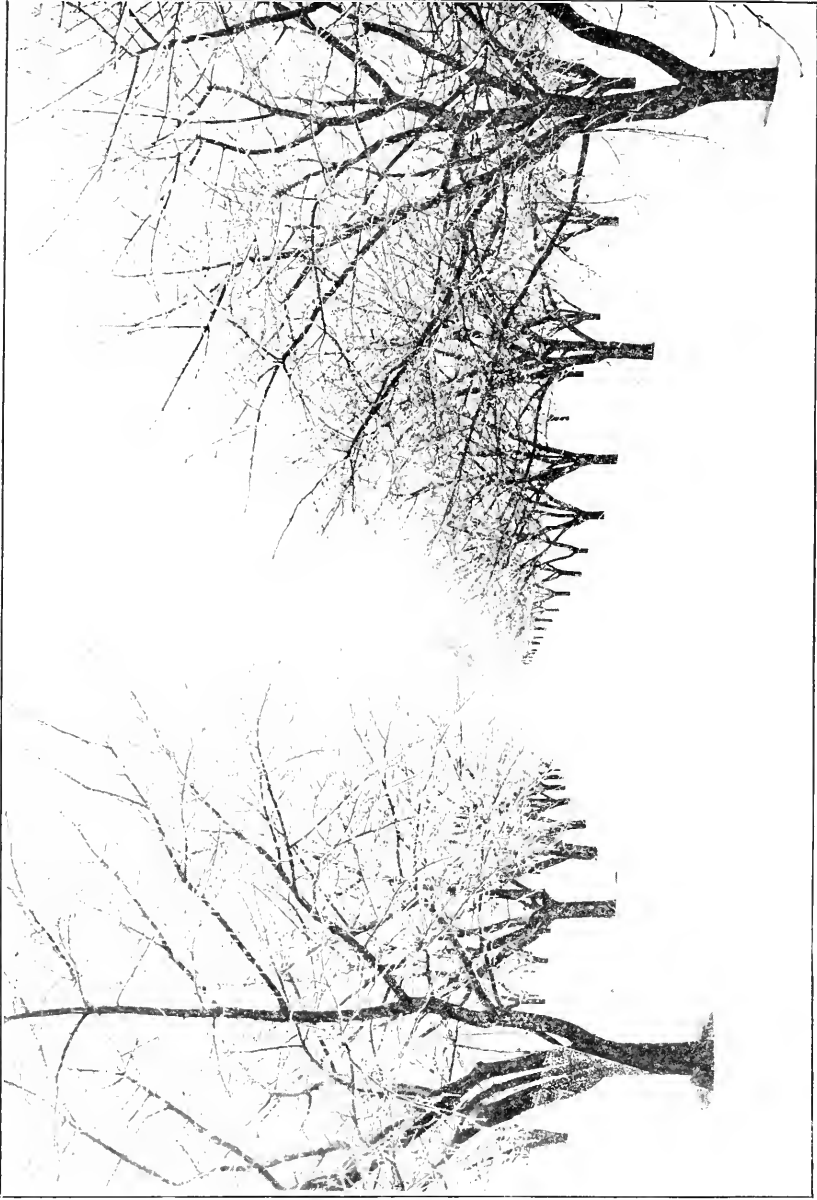
We never have, but it would not be much of a trick to run our packing house night and day.

We find one variety of fruit sells another. It is not the apple or peach alone that makes the successful business. The dealer that is pleased with the pears and plums gets interested in ordering other fruits. The small fruits give us a chance to get started gradually and the buyer who likes our apples is ready to start next year using all kinds of fruits. Then they call for beans and potatoes and you find enquiries and orders for all kinds of farm produce.

No one grower will make the Association, nor will the lack of some prominent grower hinder you in the least.

Give your manager loyal and steadfast support; stand back of him as you would of your country and you will soon have your buying and selling on a sound basis, the financial end will demonstrate that your income is steadily increasing and the farm paying a proper return. It is a mistake to try and manage an Association or any other business on insufficient capital.

A farm harvesting 500 bushels of small grain yearly would figure on having a binder. A membership in the Exchange would not cost any more with this difference. Your binder would steadily decrease in



A Grand Traverse-Mountmorency Cherry Orchard in the winter.

value and have to be renewed; your Exchange membership will yearly increase in value and become a permanent investment.

It is absolutely necessary that we establish the selling end of what we produce on a sound basis, otherwise, extinction. Now we are not going to fail; we are not going to sell out; we are going to win.

MAKING MONEY OUT OF CHERRIES.

E. O. LADD, OLD MISSION.

The primary object of any fruit growing enterprise conducted on a commercial scale is making money. This, however, is not always the only consideration as many people have a natural liking for some kind of work and look at the business not only from a money-making standpoint, but also as a means of recreation and enjoyment. Success along any line of endeavor is often prized quite as much from the satisfaction of having met and conquered the difficulties connected with it as from the money returns.

Gaining money is secondary to the wise use of it in supplying the necessities and comforts of life, in promoting the general welfare of the community and adding to the joy of living.

The "Fruit Belt" of Michigan has outgrown its narrow limits of fifty years ago and our State is rapidly coming to be recognized as one of the leading fruit growing states in the Union. The apple is perhaps most widely distributed, but cherries may be successfully grown in many parts of the State. Michigan, as we all know is peculiarly favored as a fruit growing section on account of its close proximity to large bodies of deep water. These have an influence on the climate tending to modify the cold winter and the heat of summer. Here it is that on favorable locations the more tender varieties of fruit, such as peaches and sweet cherries may be grown to greatest perfection.

SOIL AND LOCATION.

The cherry delights in a deep, rich, sandy loam, well supplied with humus and under a good state of cultivation. It should be sufficiently elevated to furnish good natural conditions for both water and atmospheric drainage. Some protection from prevailing winds and cold storms is desirable. The cherry blossoms very early and is extremely sensitive to cold during the early part of the blossoming season. An eastern or southeastern slope has the advantage of the early morning sun in drying off the fruit and foliage, as well as in furnishing some protection from the cold northwest storms. On almost every farm some parts are better adapted to fruit growing than others. These most favorable locations should be selected for the sweet cherries.

VARIETIES.

In starting a commercial cherry orchard it is well to select a few sorts of both the sour and sweet varieties. This will give a succession in the ripening and distribute the labor of picking and marketing over the longest possible season. For the sour cherries I know of nothing better than the Early Richmond, Montmorency and English Morello. For the sweet cherries we have the Black Tartarian, Schmidt's Bigarreau, Windsor and Elkhorn. The Black Tartarian is the most tender but is of excellent quality and worth risking a few at least.

SETTING OUT THE TREES.

I would always get my trees in the fall if I could, heel them in during the winter and set them out in the spring just as soon as the ground could be gotten into condition for planting. This is especially important with the sweet cherries as they start to grow very early in the spring. I believe that late setting is responsible for the loss of so many young sweet cherry trees. They are generally delivered in the spring and heeled in for a few days or a few weeks. During this time they start to grow and when removed from the trench and set out the growth is checked and many of them never recover from it. I would select well grown, one year old trees, form the head pretty low, so that the lower limbs will shade the trunks and help to prevent sun scald.

For sour cherries two year old trees are generally selected. They are easier to get started and more reliable bearers. It is not uncommon to set out several hundred and not lose a single tree. But with the most careful handling it is difficult to get a full stand of sweet cherries at the first setting.

Sour cherries may be set 20 feet apart but for Montmorency I believe 25 feet would be better in the long run, and for the sweet ones 30 or 33 feet. Trees will do better if they have plenty of room. Sunshine and free circulation of air will add to the vigor of the tree and the quality of the fruit.

CARE OF THE YOUNG ORCHARD.

In growing an orchard of any kind two things should be kept constantly in mind. We should strive to get a good uniform growth, early in the season, each year, and as large a growth as is consistent with the thorough ripening up of the new growth before winter sets in. This to the end that when the trees arrive at the bearing age they shall have the size and bearing surface that will enable them to produce good crops of fruit. We should also try to keep the soil in good physical condition and increase its fertility against the time when the trees must draw more heavily upon it for the production of fruit.

The cherry makes its growth and ripens its fruit early in the season. Early cultivation followed by a cover crop in July or not later than the first of August will generally give good results.

For a cover crop I like one bushel of oats and 20 pounds of winter vetch per acre. The oats make a large growth in the fall and help to hold the snow and protect the ground from severe freezing during the

winter. The next spring they act as a mulch to hold moisture and encourage the growth of the vetch; then about the time the trees are going out of blossom in May, we have all the growth we want to turn under with the plow or thoroughly work up with the disk.

I have also seen in addition to this treatment the wonderful effects of a little stable manure and wood ashes, and these are about the only fertilizers I have ever used in the cherry orchard.

PRUNING.

I am in favor of a rather low headed tree. Leave 4 or 5 main scaffold limbs distributed in such a way as to make a well balanced head and avoid the formation of crotches. Cherries as a rule do not need severe pruning. The top should be kept well balanced and open enough for convenience in spraying and gathering the fruit, as well as for the admission of air and sunlight.

Some of the smaller growing sour cherries however, such as the Osteine and English Morello require a different method of pruning. They are apt to form many long fine drooping branches. Part of these should be cut out and the remaining one cut back to guard against the tendency to excessive bearing, and encourage the growth of new wood.

SPRAYING.

Spraying is a necessity in a cherry orchard. There are fungus diseases that prey upon the foliage and the fruit as well as insect enemies; but by intelligent and prompt action they may be kept under control. The diseases that have been most troublesome to us are the short hole fungus on the foliage and the brown rot of the fruit. Under ordinary conditions these diseases may be controlled by the use of lime-sulphur solution, but in seasons favorable for the development of fungus diseases I have sometimes thought that the Bordeaux mixture was more lasting in its effects. We use the lime-sulphur 1 to 9 for the dormant spray; then after the blossoms have fallen, lime-sulphur 1 to 40 or Bordeaux mixture, with 2 or 3 pounds of arsenate of lead to 50 gallons. Some later sprayings may be needed depending on the character of the season. We like to spray once with Bordeaux mixture after the fruit is gathered. It seems to keep the foliage in good healthy condition the rest of the season and we believe this helps the maturing of the fruit buds and the new growth.

HARVESTING THE CROP.

The busiest season in the cherry orchard is the time of gathering the fruit. The picking comes at a time of the year when the schools are closed and when many people from the cities like to get out into the country for a summer vacation. By providing them with a place to live and facilities for light housekeeping it is not difficult to get pickers at a uniform price of 25 cents for a 16 quart case. This is the package in which most of our cherries are sent to the market.

The gross returns have been more per acre than for any other fruit

we have grown, but the expense of caring for the trees and the harvesting and marketing are correspondingly high. It is not uncommon to get a yield of 500 or 600 cases to the acre and much larger yields are sometimes obtained.

The most critical time of the year for the production of cherries is just as the blossoms are opening in the spring. They come out very early and a cold storm at this time may injure the blossoms and prevent the setting of the fruit. Sweet cherries are also apt to crack if we have a rain just before they are ripe enough to pick and there is sometimes considerable loss from this cause.

In considering the money that may be made out of cherries we must take into account the average for a term of years rather than the product of any single year. I think it is safe to say that sour cherries may be grown up to the time they are ready to pick at an average cost of 25 cents a case and sweet cherries at about 50 per cent more. The cost of picking is 25 cents and the case 13 cents. The cost of looking after the pickers and packing and delivering to the shipping stations would bring the cost of a crate of sour cherries up to somewhere between 75 and 90 cents. There would be little profit in selling them for 4 or 5 cents a pound, the price usually paid by the canning factories, or about one dollar a case including the package. Cherries for the canning factories are often put into baskets which are emptied and returned to be refilled.

Sweet cherries though more difficult to grow will bring more money on the market and especially so if care is exercised in packing and they are graded up to a high standard. Carefully put in ten pound boxes (about six quarts) they often bring from \$1.50 to \$2.50 a box.

MARKETING.

The most difficult problem in connection with the cherry business is in marketing the fruit. Nearly 200 car-loads of cherries were shipped out of Traverse City last summer, most of them going to Chicago and Detroit. These markets were kept full most of the time and often the returns were not very satisfactory. It is coming to be evident that if we are going to get anything like adequate returns for the cherries that will soon be grown in the Grand Traverse Region we must adopt some means for wider distribution of the crop and not send them all to one or two points. An association has been organized in Traverse City known as "The Grand Traverse Fruit and Produce Exchange," taking in a radius of 50 miles around Traverse City. This association has recently closed a contract with "The North American Fruit Exchange" for the marketing of our fruit and potatoes and other farm products. The North American Fruit Exchange has headquarters in New York City and representatives in all the leading marketing centers in the country. A rigid system of inspection will be inaugurated to insure uniformity in grading and packing. They promise to put our cherries and apples into markets where they have never been known before. We are very hopeful that this system will lead to better grading, wider distribution and larger returns.



Row of cherry trees. Chas. R. Henry, Alpena, Mich.

“HOW TO KEEP THE BOY ON THE FARM.”

R. H. SHERWOOD, WATERVLIET.

I trust the girls won't feel slighted about this subject, for it is understood without question of doubt if the boys stay on the farm, the girls will stay and keep them company.

This question is often discussed and we read hardly a magazine or paper but there is some allusion to it which emphasizes its importance and the solving of it certainly is debateable. I will give my own views from personal experience and observation. I may not introduce any new ideas but such as I give I thoroughly believe in, though I may be mistaken in my conclusions.

“Men are simply grown up boys,” and I fear many fathers and mothers have forgotten that they were once young and had “foolish notions”—“wanted to have a good time”—have a good looking rig to drive”—“go with a girl or boy to some entertainment or dance,” and possibly have forgotten the resolve made then (if their parents objected) viz., if ever they had boys or girls of their own they would encourage them to have a “good time.” But merely to have a “good time” is not “the whole duty of man.” The pleasure and the happiness we enjoy are, however, very important incidents in our career.

I think the farm with its necessary diversity of work, some more disagreeable than others, has been made to appear too irksome and discouraging.

“How skillful grows the hand
That obeys Love's commands.
It is the heart and not the brain,
That the highest doth attain.”

The following I believe are the essentials to the successful solving of this very important question of “How to Keep the Boy on the Farm” viz., Adaptability—Education—Parent's Responsibility—Profit.

The old-fashioned family used to have a doctor, lawyer, preacher and farmer among its boys, and sometimes the vocations were very unjudiciously allotted. I don't believe that every farm boy should be a farmer, for we must spare some for city life, for bankers, merchants, professional men and politicians. The majority of the best and most successful city men are farm bred. I think that every farm boy that is ambitious, honest and sincere has a marked advantage over the average city boy. The farm educates us to be natural and real. The development of the crops, animals and the constant environment of nature, it so becomes a part of us, and impresses our lives with the fact that there is a Creator and man is an important incident in the wonderful affairs of creation. In fact we are educated to be natural in thought and action. The city boy hears of these things but has no practical understanding of them, his life is artificial, sky scrapers, pavements, made

parks, lakes and quick transportation are the things that pertain to his every day life.

If a boy has not acquired any taste for farm life it is a decided mistake to expect him to stay on the farm. I think however, it is the fault of the parents and not the boy's that they leave the farm, in many cases it's the parents duty and privilege to be intimately acquainted with our boys and girls, we should learn to interest ourselves in our children, study their ambitions, ideals, habits, and impress upon them that we are their dearest chums. Make them our confidants in all matters, their physical well-being, their love affairs, their ambitions and their material successes.

Recently in Iowa babies were judged by the scale of proper care and development and some farmers having competing babies found fault with this method who were receiving prizes on their stock judged from this standard. If farmers will be as particular about the mating of their boys and girls as their stock there will be fewer unhappy farm homes.

The boy who is fitted for a farmer must show a taste for farm life and his education should be encouraged along that line. As parents we should expect him to excel us, if we don't encourage the best in him and allow him to profit by our mistakes he is not developing as we should expect. If the father cannot give the boy a full course at the Agricultural College, give him what he can afford. I know of a farm in Cass county that has been rented by one man for over twenty-five years. He had a family of girls, they all have been given an education and are now successful home-makers and teachers. I think we all will agree that farmer used good sound sense, if so why don't we do it with more boys and girls. This question is solved by having a more intimate relation between the parents and their children. Educate them to love and respect you and then this becomes practical. Common sense is a big factor in the successful management of our home affairs. If the parents constantly showed their children that they were interested in all matters, trivial or important, a mutual confidence would be encouraged. Then when the parents needed the aid it would be anticipated and given with hearty appreciation. The relations would then be reciprocal and that universal law of compensation practically illustrated.

I firmly believe the duty of every parent is to educate our children in Christian living. We desire in our children the best development mentally, physically, and spiritually. By christian education I mean that it should encourage and stimulate those characteristics that may represent the best qualities of our personality, for the life and teaching of the only Perfect man as applied to ourselves can only be for our entire betterment.

"The fear of the Lord is the beginning of wisdom." The practical and sensible application of a christian life in the home, makes better husbands and wives and consequently happier children. This is an incentive to act and think aright and when applied to ourselves it means better fathers and mothers, better boys and girls, consequently better homes.

I am particularly interested in young people and think our homes

should be made the best place for our children's entertainment. I wish to emphasize that word *entertainment* for it has a strong and important bearing direct upon this question of farm life for our boys. Educate children to love good reading, have magazines and papers that interest them, have books of travel, history and fiction that will interest them, cultivate their taste for good music. A good phonograph with a number of records can be procured for the price of a good cow. We should encourage our children to entertain their friends at home, cards and dancing are incidents to their social life and pleasure.

If boys are bound to smoke let them smoke at home if they are drinking have them do it at home, but discourage these things, but do it with reason and sense. Encourage the boys to bring their best girls home and introduce them into the family, have the daughter feel anxious to introduce her "best and only" to her home people. Emphasize the fact that the home is for them and for their entertainment. Let the boys go with the girls and the girls with the boys. Emphasize the fact that good company is always a credit to one and bad company a discredit. Always cultivate the best if possible of stock, fruit or grain. Educate the boys to excel in the line of farming you follow. Attendance on our fairs, Farmers' Institutes, Horticultural Society and International stock shows are incentives to the boy to stay at home, but encourage him to acquire the best stock, fruit or grain.

The question of profit is one that has many phases,—land fertility, markets and business management all are essentials to the actual profit of our farms. I believe the average farmer would receive more home encouragement and actual profit if the sons and daughters were more intimate with the affairs and finances of the farm, viz., its profits, losses, expenses, debts, in fact an acquaintance with the farm economy. Boys should be allowed to buy and sell the products and stock on the farm, if they make a mistake explain the error and let them try again, for this is simply part of their education and the economy of business is one of the most important phases of life. The farm boys should be encouraged to save their money and when using it be judicious and careful. The reason why many boys leave the farm is this question of money. If they work hard they should be compensated then their interest is encouraged. Money is acquired by labor and truly "labor should be rewarded," the saving and the judicious expenditure of money is a matter of experience. Many times the over-stating the "hard times" story leaves a very unfavorable impression upon the boy. Dinah was wrong when she said, "It beats de dickens in dis world we hab to work ourselves to def to keep the bref of life in us."

This question is too broad a one to adequately consider in a paper of this kind. It is a fact that farm life today is becoming more attractive by the use of improved machinery, modern built houses with bathrooms, gas and electricity, phonographs that we may enjoy the best music in the world, automobiles, rural free delivery, telephones, and one of the most important advantages to our rural life is the improvement of our highways.

The conservation of our soil fertility is a very important and much needed improvement as combined with growing demand for better

methods of farming or as commonly termed "intensified farming." Last August the second annual conference of the bankers committees of thirty states met in Minneapolis to discuss the question of agricultural development and education. This was called to discuss the peculiar needs of the farmer with reference to the betterment of his condition by bigger profits and larger production. "Our soil is our heritage" and we must not only conserve its productiveness but we must improve it. Another very important question discussed at this conference was, that educated farmers needed more capital. The fertilizers, improved machinery, blooded stock, all require capital and I think the time is ripe to devise some means to have available "long time" loans at low interest rates for farm property. Fifty years ago the capitalists were quite disturbed about financing the great railroad promotion of that period, it was solved and this country has the record for railroad building during that time. We are now fast approaching the time when we will not be sufficient producers of our food products and I believe that this important question of "better farming" will be made a government enterprise of the near future.

All these questions are pertinent to the importance of "Keeping the Boy on the Farm." If he is physically adapted to farm work, if he acquires an agricultural education that will stimulate him for the best of achievement, and this aided by sufficient profits to be an incentive to this work and all backed by the inspiration of high ideals, of thought and action, I think that farm life will be made so attractive that the farm boys will stay on the farm and many of the city boys will want to be farmers, and the present situation will be reversed, viz., from the city to the country.

REPORT OF THE FORTY-FIFTH ANNUAL MEETING OF THE
MICHIGAN STATE HORTICULTURAL SOCIETY, HELD
AT COLISEUM, GRAND RAPIDS, MICHIGAN,
DECEMBER 7, 8, 9, 1915.

The meeting was opened on time with President Chas. A. Pratt, Benton Harbor, in the chair. He said: "We have now come to the time of the forty-fifth annual meeting of the State Horticultural Society of Michigan. We are glad to see such a goodly number present at this first session and trust that we will have a most profitable gathering.

We will open this meeting by prayer from Rev. Bental."

PRAYER.

Almighty God, our Heavenly Father, Thou who hast given to us every good and perfect gift, we come to Thee as those who are privileged to enjoy and help to raise the things that Thou doest grow upon the earth. We ask Thee that Thou wouldst come very near to us as we meet together to talk over and consider the problems and various opportunities

that we have before us and while we are doing this may we feel conscious of Thy Holy Spirit. May we learn of Thee, to understand more clearly our duties and our relationships to each other. Grant that these times of fellowship together may be spent truly as though in Thy service; that we may be better men and better women; that we may learn the golden rule in loving our neighbor as our self.

To this end that Thou wouldst bless the officers of this society and all those who attend so that when we go to our homes it will be with the feeling and thought of what a good time we have had. We ask it all for Jesus' sake. Amen.

Chairman: This has been an unusual season for farmers and especially for fruit growers. There have been many experiences not counted on at the beginning of the year. There have been disappointments and losses that we did not anticipate. Out of these experiences there are lessons to be learned and we thought it would be very appropriate for us to have an experience meeting to start with. I will call on Mr. Garfield of Grand Rapids, for his experience.

Mr. Garfield: I do not, Mr. President, know whether any experience I have had will be of any value, but I can perhaps say some things that you all know, and you can nod your approval. One is that a good deal of the fruit of the past season, owing to its peculiarity, has been lacking in quality. I tried all the season through to find a canteloupe that really tasted good and failed clear up to the last. I suppose that this which is a semi-tropical vegetable, may have been affected worse than many other things. But it was true also of tomatoes that grew in the open. The same variety of tomato that I have thought was of exceptional quality this year certainly was lacking in quality.

A little experience that is common most of the years, has come to me this year. The fences on my orchard have been taken away because we put a road through it, but I have been pestered by people particularly with the early variety of apples, who came up with automobiles, and would drive in under a tree and shake the fruit right off the tree into the automobile and then skite off with their booty. I have had more of this miserable kind of petty-thieving this year than usual. You would think that anybody who was able to own an automobile ought to be willing to pay for the little fruit desired. I do not mean to be petty about these things. I am glad to have anybody go through the orchard and pick an apple to eat and put one in his pocket, but when they come to shaking the trees of their fruit into the automobile and drive off without saying a word it seems to me that this is a little more than is just. Those who have orchards near the city are pestered most in this way.

The eliminating of this is largely a matter of education. People have not got used to the fact that a thing need not be fenced in to give us the title to it. When things are all open the people are more apt to take advantage than otherwise. I used to plant wild flowers along the border of my place, under the shrubs; but for a while because they were in the road, the people seemed to think that they did not belong to

me, and would cull them and cull them by yanking them out and destroying the plant. It was some years before I succeeded by various ways in educating the people that the things planted in the road were mine just as though planted on my place, as I owned to the center of the road. These things in a sense belonged to all of the public and they should have the advantage of them, but when some one else takes an advantage, to the exclusion of all the others they are doing something they should not do. This education comes slowly, but it is something that should receive consideration and especially in the education of the young we should make it as important a thing to talk about to the children as to have them speak grammatically. And more so. To quicken the moral sense it is more important to teach in the schools than almost anything else. With this bit of experience and the moral to be drawn from it I will sit down.

Chairman: I will call next on Miss Sly.

Miss Sly: I don't know just what experience you want but one thing that came up to my mind was the experience I have had in fruit growing during the past ten years. Ten years ago I came back from the East, where I had been with my father who it seemed to be my lot to care for. The pigs were eating the apples because they had no commercial value. I began to look into the matter and it seemed to me that this was not as it should be. I sent to the Department of Agriculture, and to the experiment stations for bulletins, and I made up my mind that there could be something done with that orchard. I followed their suggestions and directions explicitly and I think that you who attended the meeting at Birmingham, are aware of the results of that effort. One man who took some apples asked if I would guarantee a worm hole in every apple, and he was told that for every apple that he found a worm hole in he would be given a bushel without any worm-holes. Well we now have no trouble to sell our apples to the best grocers of Detroit. We do not have to hunt them up, and beg them to buy but they telephone me their order, and take all that I have. From this experience I am convinced that there is no question but what you will find a ready market and a good price for your fruit, if you always have first class quality.

Chairman: We would like to hear from Mr. Ladd, of Old Mission.

Mr. Ladd: Mr. Chairman: We have had about the same experience in the growing of fruit mentioned by Mr. Garfield—in some cases it has lacked in quality and flavor and because of the peculiarity of the season the yield has been cut short. However in many cases while there has been some disappointments in the harvesting and packing of the fruit, on the whole we have had a pretty good year. I do not wish to complain of the season. We had frost late in the spring and early in the fall. This affected not only the fruit but the corn, the feeding value of which is not satisfactory to the stock. But these seasons come once in a while—once in a number of years. I do not remember of seeing such a one during the last thirty years. Some of our grapes did exceedingly well both in quality and in yield. The season has averaged colder than usual and that has been very favorable to the growth of oats—more so than to fruit.

Chairman: We will now hear from Mr. Thomas, from the southern part of the State.

Mr. Thomas: It seems to me that I am a little out of place and to be called upon without warning reminds me of a story: A fellow who was going along, came to a stream where he saw a boy struggling in the water. When he helped him out, he asked, "how did you come to fall in?" "I did not come to fall in, I came to fish."

That's my experience here. While I am interested in fruit, I am mixed up in all kinds of farming. We are on the dividing line of fruit on one side and stock farming on the other. We began this spring in our farming operation and everything for a time looked well. The first shock was after the corn was planted it began to rain and we could not cultivate it until it was six inches high. You know the results, it was practically a failure. Then, along came the harvesting of the wheat and we had it in the shock. I didn't care to have the threshing dragging along when taking care of the peaches, so I bought a thrasher machine intending to get my threshing out of the way in quick order. I put my wheat into shock intending to thresh it out just as soon as it was dry. But three days after it was shocked it began to rain and it rained and rained and we shocked that wheat over six times. The outside would be dry but the inside would be wet and the wheat sprouted. When we threshed that wheat we got only about 700 bushels and it is of such a poor quality that we are using it for hog feed. Then the early apples came on, they were beauties, but when I came to market them as I have done in previous years, in the manufacturing towns in Northern Indiana,—Michigan City, etc.—I could not get into South Bend, because they have a commission house there that takes care of all that place—I say when I made the trip that had been my method of disposing of my early apples heretofore, I found that I could hardly give them away, and so did not attempt to dispose of any in this way again. Many of the early apples staid on the trees and finally I was able to dispose of them to peddlers, who took them at 15 to 20 cents a bushel. Then peaches came along—we sold what we could and gave the rest away. And in this we did better than some others. Many came with cars and took them away. They bought them on the trees for they looked much better there than after they were on the market, because peaches did not hold up very well this year. They would not stand shipping. Finally, on the late apples, I sold from 150 trees two thousand dollars' worth. This helped out so that we had enough to live on and see us through the winter.

Chairman: We will now hear from Mr. Hall of Ionia.

Mr. Hall: Mr. President, I was very much interested in Mr. Garfield's troubles—I want to call to mind the conditions that we used to have and the conditions prevailing at the present time. You understand that we are living in the shadow of two of your State institutions, the criminally insane, and the intermediate. I think if you will just send these lawless people that he referred to up there they will get a discipline that will do them some good. At least we are not troubled with that kind of pilfering. We are glad to have them go into our orchards and if they take any fruit we insist that they take the best.

If they do not wish to buy we see to it that what they do take is the best we have. That is one of our ways of advertising.

We have had about the same experience, especially on the early variety of apples—they were off quality this year. The first that I noticed this year was pies made out of Gideon apples. I always thought they were premium pie apples but when I say that my wife cannot make a good pie out of good apples with flour and such other ingredients as enter into it I am paying her a very poor compliment. But later on when it came to what we make our specialty—cold storage fruits—it was very satisfactory. We have harvested the best crop and the highest grade of fruit that we have ever taken off the orchard, and we have had no trouble to get rid of it. I do not know but that I might be pardoned in a meeting of this kind in going into details in a personal way. We sold the crop of tree run at 90c a bushel. That takes everything on the tree. What we call drops or windfalls we had no trouble in cleaning out everything at 50c a bushel and they came to the orchard and got them. They came with lumber wagons, top carriages, automobiles and motor trucks. We could not supply the demand. I fully believe and endorse what Miss Sly said in regard to quality in raising fruit to sell. We have never had enough first class fruit. I believe that if we give more attention to the quality of our fruit, that it will be the solution of a large part of the troubles that come to many orchardists. We had a good start of corn but it didn't come on right. We turned to the hogs. The condition of the hog market is such that there is not very much money in them, but we managed to get something out of this way of disposing of what was really a bi-product, as some of you know I am a crank on orchards and hogs. So on the whole, while we have had some reverses I think I can say that it has been a very successful year with us for which we are thankful.

Chairman: We will now hear from Mr. Whitney.

Mr. Whitney: My experience has not been any better than that of the rest of you. My bearing orchard is small but the early frost did not seem to affect the orchard immediately but after that there was some dropping and when it came time to harvest the apples there was a very large percentage of small fruit. I packed my apples in boxes and I had plenty of customers for all the No. 1 box apples that I had to dispose of.

The season has been a hard one on corn and potatoes have not done much. Unfortunately for me I did not, like Mr. Ladd, raise oats, although oats were a good crop in our neighborhood. While this is an exceptional year—I heard some one say who had lived in the neighborhood for twenty-six years, that he had not seen such a season there before. While this has been a hard year, I do not think that we need to get discouraged, but take what has come to us this year, learn what lessons we can from our experience and then get ready to do a little better next year.

Chairman: We will now hear from Mr. Munson, the former President of this association.

Mr. Munson: It seems to be the habit of farmers when they come together to talk about the weather and crops, so that seems to be our theme this morning. Well we had the biggest crop of cherries we ever had. We had rain all the time in August and we feared that our crop would never ripen up but later the sun came out and the cherries matured in good shape. Just in this waiting time I took a trip

up North and I saw the havoc wrought by the frost they had there that destroyed their crops so I came back pretty well satisfied. The grapes were not of as good quality this year as usual, but some varieties stood the bad weather better than others. The Delaware grape which is a rather shy bearer did the best of any we had, while the Blue grape was not as good as it should be. We had a frost the 10th of October, which froze all of our grapes to a greater or less extent and especially where they were not covered up with leaves. We didn't have any more frost, however, until the grapes were gathered. We sold every grape there was. As for apples the Ben Davis did not bear any—we had hardly one in the orchard, so we did not have to pick them. Take it all together I think we have come out about equal to an average year.

Chairman: We will next listen to Mr. Benthall, of Old Mission.

Mr. Benthall: Mr. Ladd has told you my experience as we live close together. We started out with every expectation of a good crop, and prepared for the marketing of six thousand barrels. The buyers of the crop estimated that there would be that number of bushels of apples. We bought 6,000 barrels. When we came to harvest even Mr. Ladd was surprised for we had only about 1,800 barrels. We ran quite heavy to Baldwins but they did not grow. Well, as expensive as this experiment has been and as disappointing, I have tried to learn a valuable lesson from it. As I said we prepared for harvesting six thousand barrels; we bought the barrels and went to all the other expenses incident to the raising of a crop of this size; we sprayed four times; thin sixty acres—we have about one hundred and five acres of apple trees—we used seventy-five barrels of lime-sulphur solution; twelve hundred lbs. of lead, and kept two or three machines going; did a fair amount of cultivation, though no pruning. Well, the marketing of a little less than eighteen hundred barrels instead of six thousand just paid the running expenses, with about two hundred dollars profit. So you see, if we had gotten what we expected to get, our orchard would have paid very well.

Chairman: We will now listen to the experience of Mr. Nichols.

Mr. Nichols: The experience that we had this year that was new was the fighting of the aphid. We had four trees of a special variety that seemed to be affected more than any other of the trees. They were flanked on one side of Greenings and on the other side by Russets that were not very much affected. I sent specimens to the Department of Agriculture and they called it aphid.

At first the apples looked like Siberian Crabbs. We sprayed them three times. They did not show any great improvement until the aphid was gone. When we sprayed these trees we put in an extra dose of Black-leaf-Forty. The apples were fifty per cent. nol. We sprayed them three times, two extra sprayings, and picked 600 pounds to the tree. I cannot tell you yet just how we will come out for I haven't received our late returns but our men said that the cider apples paid for the trimming so the result was worth all the Blackleaf-Forty spray I used.

Chairman: We have been calling upon those who have had a lot

of experience in orcharding, now we will ask a man to say a few words who is just starting, Mr. Pickford.

Mr. Pickford: I do not like to speak about my experience because it is a rather sad affair. We didn't have any apples. The aphid has been very destructive in our section of the country and one farmer especially that I know was a heavy loser from the green aphid. I have heard that the green aphid was not particularly destructive, but it was not until I had been in the northern part of the State that I found that this aphid was causing more trouble than any other. So I saw the necessity of fighting it with Black-leaf-Forty. One orchard on a bad side hill had no spraying and the apples were an absolute failure while the rest of the orchard that was sprayed had apples of No. 1 quality. It is a matter of expense mostly. If you want to go to the expense and trouble the aphid can be controlled all right. Right here I want to make a criticism of some of our nursery-men. They have allowed trees to be sent out from their nurseries with the woolly aphid. I didn't feel so bad about it being sent to us because we had it there already but if it had been a new community where it was unknown it would be a bad thing. I will not mention any names but some of our nursery-men are doing this thing.

Chairman: We have had this down in our country recently but we never had it before. We will now hear from Mr. Farrand.

Mr. Farrand: We all have had a lot of experience this year and for the most part it is much the same. For the last two hours coming up here on the train we talked over our different experiences. One man asked me what was the cheapest price at which I sold peaches. I told him that we had some co-operative sales that didn't net us very much. In one case the peach growers sent out seventeen dollars' worth of wires to commission men in one day and without results. Then they spent ten dollars for wires and got an offer for a car and I was asked if I would put in a hundred and fifty bushels. After waiting a considerable time on the first car, we received a check for fifty dollars and on the second car they sent back and wanted me to send them fifteen dollars to help pay the freight. When it came to late apples our experience was different—very much better. But one thing I have learned is that it is not always a safe proposition to have all your fruit in one basket. Better to have it in several different things. Some crops do not make a cent, especially has this been the case with the peach crop this year. One man that I asked a short time ago how he came out said that he thought he came out a little ahead if he didn't figure too many items of the cost of production. Bartlett pears made good money this year. Late apples made good money and cherries did well—in fact berries of all kinds, and the fruit grower who had a variety of fruit has nothing to complain of as to the result, but if they had but one kind and that kind a failure then they would be up against it for sure. It would not have been safe this year to have your basket filled with Baldwin apples only, for they were not a success. We want a variety of stuff. In this way we can keep our help longer through the season and be sure, pretty sure, of a good profit at the end of the season. Another experience—a young man came to



Sod mulch apple orchard. E. J. Shanley, Bear Creek Twp., near Petoskey.

our place one day from the Minnesota Agricultural College. He was looking for work in the orchards. I asked him why he came to this section. He replied that he took the reports of the government as to the yield of fruit and found that Van Buren and Berrien counties had more fruit than any other two counties in the United States. That is something I had never known before, and I also learned that Benton Harbor with the surrounding country for twenty miles grew more fruit than any other twenty miles in the United States. This is worth knowing—that we have a space in Michigan that is first in all the United States in fruit growing. I believe that the time is coming when we will be the first State in the production of apples and fruit in general. Then we will be on our feet again.

WHAT THE U. S. DEPARTMENT OF AGRICULTURE IS DOING FOR THE FRUIT GROWER.

PROF. HALLIGAN, EAST LANSING.

Ladies and Gentlemen of the Michigan State Horticultural Society: I am very sorry to say to you that Prof. Eustace cannot be here to take part in this program. He has been given a year's leave of absence and is engaged by the Bureau of Pomological investigation and is traveling around through different sections of the country, studying the relationship of one section to another and suggesting lines of investigation of work that is to be taken up by the Bureau of Pomological Investigation. He has traveled through New York and the New England States and is now in Florida. I tried to get him up here, but he is too far away to make the trip.

I will say that I feel that this subject is an important one because there are various lines of work that should be brought to our attention. I want to lay particular emphasis on what our own experiment stations are doing in our own State. We can draw a division pretty well between the station experiments and the Department of Agriculture. The Department of Agriculture practices what it preaches. Many experiments that we are carrying on in this State are in co-operation with the Department of Agriculture.

Many of you are familiar with the educational work, the college training that is being given at Lansing; but I fear that many are not familiar with the large scope of investigational work. As I travel about the State I am frequently impressed with the services of an office at Washington, called the Office of Farm Management. The service that this office is trying to perform is to study the type of farming that should exist in various parts of the country, and of systems of culture, different crops, and of combination crops best adapted to the particular location and prevailing conditions.

There is another thing that many of us have found out that more stock should be kept on the farm if we wish to utilize and uniformly distribute our labor and maintain and utilize all of our farms. The

Department of Animal Husbandry is devoting its energies to the study of different methods of breeding, feeding and care of the dairy cows. You know that the feeding and the breeding of dairy animals is now being more scientifically performed than we feed ourselves. The Department of Animal Husbandry is devoting its energies to investigations along the lines of beef cattle with the feeding of steers and swine production. One experiment that they have been carrying on particularly interested me was the feeding of hogs and hog pastures. Mr. C. B. Cook who used to attend these meetings, and he may be here now, used to talk about poultry and stated that a man to be successful with poultry should be half chicken himself. But I desire to say that a man to be successful with hogs must now be a hog himself; in other words, the usual practice of pasturing the hogs in alfalfa is not now considered the best. It has been found that pasturing moderately with the alfalfa and then supplement with a grain ration will prove most successful. In an experiment that was carried on where certain parts of an alfalfa field was not pastured and one part of it pastured moderately and another intensively it has been possible to ascertain the amount of alfalfa either used or destroyed by the hogs. I think that this experiment is going to change our notion altogether on the alfalfa and hog proposition.

The Department of Farm Crops has been doing some very interesting work for a number of years, especially on the breeding of corn and grain selection. There has already been distributed throughout the State samples of grain for experimentation as to its adaptation to particular locations and we are hoping for some interesting and profitable results.

The Department of Chemistry is doing a great work for the farmers of this State. It is analyzing the fertilizers used in this State and sold by the commercial manufacturers. It is annually publishing bulletins in the analysis of these fertilizers and within the last couple of years it has taken up through an act of the Legislature the collection of commercial samples of spraying materials and analyzing them and publishing a bulletin. Already one such bulletin has appeared.

This Department is also working in co-operation with the Horticultural Department on some interesting fertilizing experiments. These have been carried on now through two years at Manistee on peaches, apples, and cherries and we have had some very interesting results especially on the peaches. The orchard in question is not in bearing yet and will not be until next year, so we cannot give out any data on the fertilizing of this orchard until it comes into bearing and the fruit is raised. The Department of Potato Culture, which is one of the largest of the State, with its attendant diseases in keeping its hands full these times.

Among the phases that are interesting to you is that of cankers. You recognize the brown rot of the peach and you are familiar with the canker stage of the fire blight and some other of the fungus diseases. This is one of the most serious stages of the fungus and one that we know the least about. There is every effort being put forth to determine if possible, the control of fruit canker.

The Department is also carrying on fertilizing and spraying experi-

ments on potatoes and we have one man who devotes all of his time from early spring until this time of year on extension work traveling around, promoting better methods of potatoe culture, and in the winter helping in the greenhouse with vegetable production.

Then, there is special work being done on cover crops. Everybody that has been doing this has pronounced views on the subject. So you will pardon me for having a few ideas of my own. I want to say here that I do not think that there is any best cover crop. Each cover crop of commercial advantage has its special advantage, otherwise it would not be important. I have arrived at the conclusion that in most cases there is no one crop that is ideal, even for any particular case, but usually it is a question of cover crop combination. As we have a variety of grass seed in growing lawns—we don't use just one kind but we combine them—so I think the question of cover crops is only a temporary proposition at most. We want some that are slow in starting, others that are quick, to act as protection should be used. So if we want to grow the most fibre in our soil we must come to the cover crop combination and this we have been testing out. Unfortunately the soil conditions which we have at the College are not the same as in the peach belts, and that is why we are carrying on these experiments at different places.

We are carrying on very interesting storage experiments. A year ago as the fruit ripened—cherries, goose-berries, etc., they were placed in a cold storage plant at a temperature of sixteen degrees and later at various times we took them out and handed them over to the economic Department and had them make cooking tests. We have included sweet corn which when it comes out looks just as fresh as when it went in, but had a very peculiar flavor. With currents, sour cherries, raspberries, and gooseberries we have been very successful. The material while still frozen is put in cold water and then cooked up. These experiments seem to indicate that the time is not far distant when the commercial consumers such as packers, hotels, etc., instead of canning their fruits, will be buying them in season, putting them in cold storage and taking them out and cooking them instead of canning them. We have also been successful with plums and some of the other fruits. We worked with asparagus and found that we could put the butts in the cold storage at 32 degrees, and when they came out they had just as good appearance and the cooking qualities were all right.

Q. Is there any bulletin published on potato culture?

Prof. Hallagan: There have been some leaflets published at the station on Potato Culture—on the spraying of potatoes and on the best methods of doing it. I don't know whether or not the Bulletin on Potato Culture printed two or three years ago is exhausted or not.

A Member: Have you arrived at any results in these experiments you have made?

Prof. Hallagan: I cannot say that we have; we do not have any definite data as it is only two or three years since we have been doing it. It will take eight or ten years to arrive at any definite conclusion on the subject of potato culture and the experiments we are carrying forward, are not at the college.

A Member: Will you tell us about top grafting—are there any special trees to prefer in top grafting?

Prof. Hallagan: I would prefer Tolman Sweet because they are straight grained, long lived, and do not split easily, but some other varieties are often used.

A Member: How about the Astrakan?

Prof. Hallagan: I haven't had any experience with top grafting with this variety.

A Member: The reason I asked this question is that I have seen some very thrifty Astrakans, that gave good results.

A Member: Have you ever tried the Salome?

Answer: I have tried the Salome and while it is good, it is not as good as the varieties I mentioned.

A Member: This apple (showing a specimen) was handed to me with the request to know what it was; it is said to have every appearance of a Spy and yet it came off of a tree that was near a Delicious tree. It looks somewhat like a Delicious, and the query was whether trees growing so close together could not interchange their fruit qualities. What is your theory on cross pollination—is there any such a thing as cross pollination?

Prof. Hallagan: We have been carrying on experiments along this line and have found that if a Spy apple is crossed with a Greening apple, it does not effect the resulting fruit, but the seed. If you planted the seed you would get a cross between the Greening and the Spy. But once in a while you would get an apple which may be green in color and when cross pollinated with the Baldwin you will find just a section of that red, perhaps a quarter or an eighth of the apple which we are convinced from our experience this is an example of cross pollination.

HORTICULTURAL INTERESTS OF MICHIGAN.

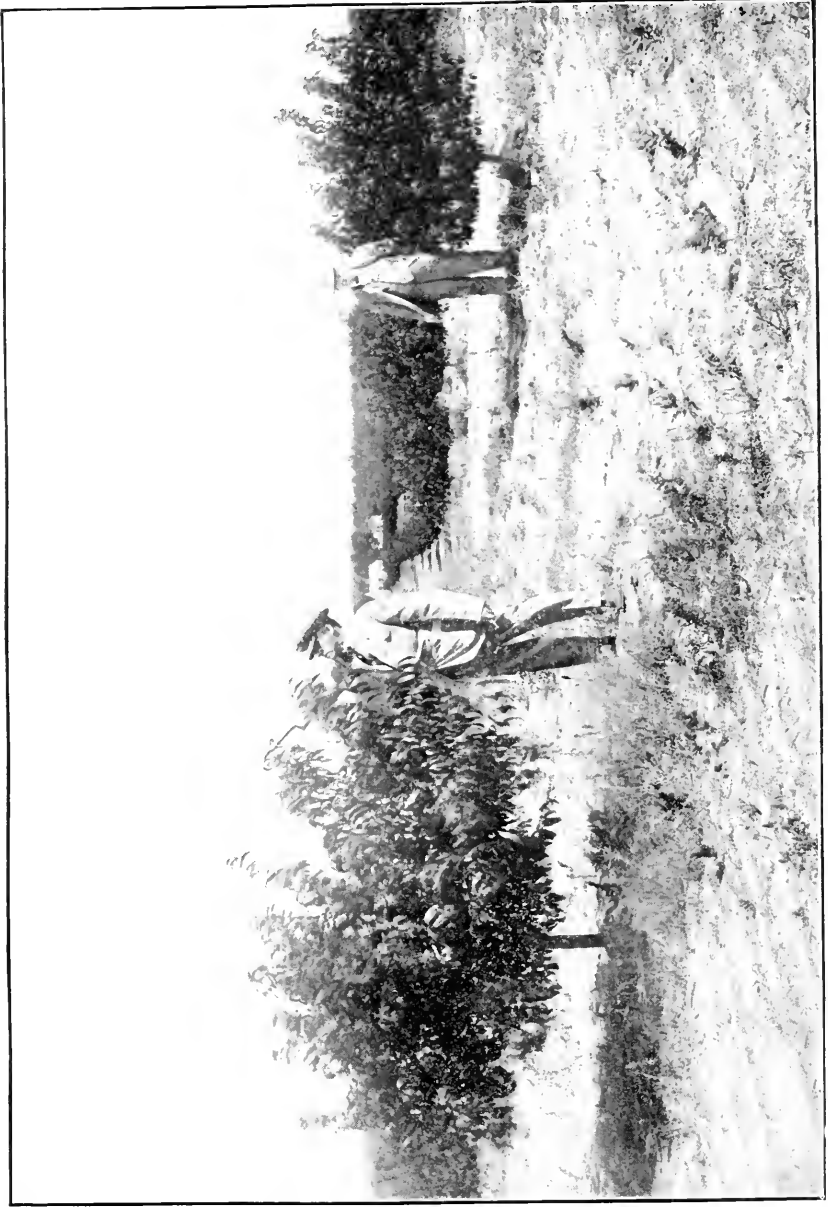
HON. C. J. MONROE, SOUTH HAVEN.

Michigan has five great industries, viz.: Agriculture, manufacturing, lumbering, mining and marine.

Quoting from a bulletin on "Michigan Agriculture, Its Present Status and Wonderful Possibilities," by Dean Shaw of our Agricultural College, "These industries are sufficiently developed so that all are important to the nation as well as the commonwealth; none are incidental, all having been developed somewhat uniformly."

Quoting again from the same bulletin, "The agriculture of Michigan is notable because of its annual production and the unsurpassed variety of its product." "This industry might well be divided into two groups, viz.: Agriculture and Horticulture, because of the prominence of the latter."

Horticulture's prominence among the industries of our State may be judged not merely from number of trees, acreage and value of prod-



Four year old peach orchard. Nettie Whitney Fruit Farm near Manistee.



ucts, but from the standing it gives the State among the States of the Union.

In comparing the 49 States, the 13th Census gave Michigan the rank of eleventh in manufacturers, tenth in production of rough lumber, the lead in production of beech and maple, second in iron ore production, third in copper, eighth in cement production, first in salt, third in gypsum.

Based on crop valuation for 1909, the ranking on cereals and other field crops was: corn, 15th; wheat, 12th; oats, 9th; barley, 11th; rye, 1st; buckwheat at 3d; dry edible beans, 1st; dry peas, 2d; grass seeds, 6th; flower and vegetable seeds, 6th; hay and forage, 8th; potatoes, 4th, (second in yield); vegetables, 7th; sugar beets, 3d; chicory, 1st; mint, 1st.

In total number of farm animals, our average rank was not so high, the different kinds ranking as follows: Horses, 14th; all cattle, 15th; dairy cows, 10th; swine, 19th; sheep, 8th; poultry, 11th, and for colonies of bees, 13th.

Michigan's rating in horticultural production, based on crop values for 1909, was: total orchard fruits, 3d; total small fruits, 2d; apples, 2d; peaches, 4th; pears, 3d; plums, 8th; grapes, 3d, and cherries 4th.

In the treatment of this subject, I am including among the horticultural products, in addition to those mentioned in the preceding paragraph, poultry, bees, dry beans, dry peas, and potatoes, because of the attention given them in connection with the products more generally recognized as horticultural.

These rankings have been attained, please note, in the face of the fact that at the time the figures were compiled, only 51.5 per cent of the total land area of Michigan was included in farms, with enormous areas of good lands remaining to be reclaimed.

Of the land in farms, 67.8 per cent was improved, so that only 34.9 per cent of the entire land area of the State was improved for agricultural production.

In other words, of the fraction over half of the total land area of the State that was included in farms, only a slight fraction over two-thirds was improved for agricultural production, or a little over one-third of the total land area was improved for agricultural production.

Dean Shaw makes a comparison with Iowa, one of the richest and most exclusively agricultural states in the country, of which 95 per cent was in farms, with 86 per cent of the farm land in the improved class.

Development of our undeveloped land, as well as the further improving of that included in farms, will probably increase the production of the agricultural products in somewhat larger proportion than those of the horticultural, due to the nature of the lands involved. But they will increase the production in both lines and thus help in maintaining our high rankings, and possibly lifting us even higher among our sister states.

Even more significant than the figures and rankings that I have quoted are these facts.

Although Michigan was tenth in number of bearing trees of all

orchard fruits, she was third in production and third in value; 7th in bearing apple trees but second in production and second in value; eleventh in bearing peach trees, but fifth in production and fourth in value; third in all three particulars in pears; fifteenth in bearing plum trees, but ninth in production and eighth in value; sixth in bearing cherry trees but fourth in production and value; third in all three particulars in grapes; third in acreage of small fruits, fourth in production but second in value.

These facts just quoted should do something more than simply appeal to our pride; they should impress us as highly significant of how firmly horticulture is established as an industry of this State, and how Michigan products stand in the nation at large.

With nine States ahead of us in number of bearing trees of all orchard fruits, only two had larger production in bushels and greater value. That shows a high production rate per tree, and high income ratio per tree.

With six states having more bearing apple trees, only one could surpass us in production and value. With ten having more bearing peach trees, only four produced more peaches, and we passed one of these in value, climbing to fourth place in that regard.

So we could continue through the list, but I pause only to point out that with a standing of third in acreage of small fruits, we stood fourth in production, but second in value, testifying to higher prices because of superior quality and more advantageous market facilities. This latter is particularly vital in successful small fruit raising.

We have heard so much about "The Michigan Fruit Belt," and meeting, as we are, in its heart, and in a city that has been prominently connected with the fruit industry since it was established in Michigan, we may fall into the error of assuming that the fruit industry of Michigan is largely confined to our "Fruit Belt."

Here, again, the bulletin of Dean Shaw offers thought-compelling facts.

Every one of the eighty-three counties of Michigan reported apple, plum and cherry trees. All but nine counties had peach trees, all but three had pears, all but ten had grapes, and all but three had small fruits.

Of the products that I am including with the more strictly horticultural products, potatoes and poultry are reported from all counties, peas from all but two, and bees from all but eight.

In not all the counties reporting them, were these products then being raised on a commercial scale, but their presence indicated commercial possibilities.

From personal observation the writer is quite sure there are many favorable places in each of the counties that will produce all the crops mentioned in the table of Dean Shaw's Bulletin, No. 70, and that the next census will show it.

The Michigan State Horticultural Society, organized at Grand Rapids, July 5, 1871, declared in Article 1 "The object of the Society is to develop facts, and promulgate information as to the best varieties

of fruit for culture in the State of Michigan, and the best methods of cultivation."

The Society had at its organization 364 annual members, representing 29 counties, and including one member each from Missouri, Ohio, New York, Indiana and Illinois.

It has held since that time an average of four meetings each year for the consideration and discussion of various pertinent questions and making exhibits. It has visited nearly every place where there was sufficient local interest to insure a fair attendance and pay the local expenses.

Forty-three annual reports have been issued, which the Secretary has compiled, and the State has published. These reports furnish valuable text-books and reference works, similar to the library of a lawyer or physician. They can readily be obtained by anyone interested at small cost.

The State formerly aided the Society by an appropriation of \$1,500 per year, which was later cut to \$1,000 per year, and a few years ago was cut off altogether. The cutting off of the appropriation has hampered the Society but has not deterred its members from continuing the work, for they realized it benefited the State as a whole, even more than themselves personally, and that its benefit was many times the value of the pittance granted it.

Many of the states make a liberal appropriation to the work similar to that done by our Society, in addition to the appropriation for agricultural colleges, experiment stations and institutes.

These appropriations, in some cases, are expended under the direction of a commissioner or a committee, for the general aid of horticulture within the State, and supplementing the work of the other agencies. Exhibits at expositions and fairs often are paid for out of such funds.

Perhaps the most conspicuous example of this field of work is in California, where the Commissioner is Prof. A. J. Cook, for many years on the faculty of our own Agricultural College, and known personally or by reputation to many of you.

Prof. Cook had \$27,500.00 a year for his department, and his staff runs at times up to thirty employes.

I suggest to you as horticulturists and business men and citizens of Michigan that you consider whether an appropriation to the State Horticultural Society would not be a wise investment for the State of Michigan. I would not have it so large as that in California, but certainly no smaller than the \$1,000 that was last granted, and preferably nearer the \$1,500 originally given the Society.

This universal distribution over the state tells the story of favorable soil, location and climate, just as the comparisons given just before mention of this point, told the story of high production rate and good prices.

Soil is, of course, an element in this high production rate, and coupled with it must be industry and intelligence in the handling of orchards, vineyards and small fruit beds.

Michigan has been a pioneer and always a leader in stimulating study of the best methods in agriculture and horticulture.

Before such an audience as this I need not recount the history of the

Michigan Agricultural College nor do more than draw passing attention to its service to the state and nation and to its rank among similar institutions.

Nor need I dwell on the work of the experiment stations and the institutes conducted under the guidance of the college, nor of the work of the county farm agents or advisers, thru whom the nation and state join forces to aid the farming interests of the county providing a farm bureau through which the agent can work.

May I direct your attention for a few moments to the work of the State Horticultural Society?

Not alone in the natural advantage of soil and climate, and the acquired ones of intelligent and carefully-guided culture, are we fortunate, but in the natural advantage of nearness to markets and the developed one of adequate means of transportation. (Referring to map.)

Here is Grand Rapids, which I have taken as the center because of our presence in it, as well as its relation to the fruit interests of the State.

Within a radius of eight hundred miles,—the distance that can be covered in about twenty-four hours by fast express shipments, or thirty-six hours with the somewhat less rapid service, we find three-quarters of the people of North America, all, or most of the most populous states of the Union, excepting only Texas and California, and including the most thickly settled portions of the Dominion of Canada.

To transport our products, we have on our shores fifty harbors, besides many piers and landings, over 9,000 miles of steam road, and over 1,200 miles of electric road.

Our boat lines and railroads offer connections with eight or ten of the principal railroad systems of the country which penetrate into every portion of the territory within this eight-hundred-mile radius.

Fruit-growers, as well as buyers and others connected with the industry, now generally recognize that the weakest link in our chain from land to consumer is in the marketing. Now, we fruit growers and business men, should be able to offer some definite assistance in helping to bring about more efficient and more economical methods of marketing.

Our natural advantages and our developed skill which enable us to produce the finest fruit in the world, will avail us little if our growers cannot get the returns commensurate with the superior quality of their products.

We are advancing every season in this respect, and we shall solve the problem as we have had to solve the other problems of fruit growing. This is the branch in which modern business methods can be applied directly. Production is a field in itself, as in production in each distinct manufacturing industry, but the broad principles of distribution worked out in other fields, can be applied to fruit, subject, of course, to the modifications as to speed made necessary by the perishable nature of the commodity.

We have learned lessons from our brethren on the Pacific coast, whose remoteness from markets forced them to develop efficiency and economy in marketing from the first. With our nearness to markets,

we thought we could neglect the things they found essential, but we know better now, and having learned our mistake, are seeking to profit by its lessons.

While you are in this city, I hope you will avail yourselves of the chance to see producers selling to consumers or to single middlemen, at the Grand Rapids market. I invite your attention further to the fruit exchanges or marketing associations that are being formed about the State.

In my own community, we have such an exchange that is now entering its third year of successful operation. We have learned much in the past three years, some of the lessons being a bit expensive, but we believe that no lesson need be repeated. We are satisfied that our exchange offers the best means we have yet had offered us in solving our problems of marketing and in securing to the growers their fair share of what consumers pay for their product.

The most important thing remaining is, by law, public sentiment and the best efforts of the growers to stabilize the package that its contents shall be as definite and fixed as the pound, the quart, peck or bushel; and, that the grading, sorting and packing shall be as careful as those of the manufacturers who have standardized their closed packages so as to win public approval.

As helping to emphasize the importance of horticultural products, especially in home building, I mention a trip to California in January, 1895. The officers of the American Pomological Society starting from Boston and gathering many other Eastern members along the way, came by special car to Chicago where a special train was provided and Prof. Taft and myself and many others joined them before crossing the mountains into California.

The First meeting was held at Sacramento, January 16th, 17th and 18th, 1895. Four other meetings were held at San Francisco, San Jose, Los Angeles, and San Diego, with side trips giving us a comprehensive view of Southern California. I shall not trespass on your time to mention the papers and discussions or to speak of the interest and enthusiasm of the meeting, but as bearing on the importance and value to the home and its surroundings, I quote from the address of welcome. After condoling with us that we should live in a part of the country having such raging storms in the East as were described in the papers the day before our arrival, he gave us cordial greeting and a hearty welcome to the land of sunshine, fruits and flowers, he reminded us of the days of old, the days of gold, and days of '49. The days of gold advertised California over the world more than any other country on earth, but that brought no homes; then came the days of ranching, and there were thousands of cattle and sheep on a thousand hills, attended by a few cowboys with tents and ponies, but that brought no homes.

Then came wheat raising with four or eight-horse or mule team, or a traction engine drawing gang plows, with seeder dropping the grain and a plunker behind to cover it, also one man and team to supply the seed and fuel.

At harvest the engine was hitched to a header and the wheat cut and threshed and dropped off in bags, later to be picked up by the

same engine hauling three wagons, taking it to the depot and cording it up in great piles for railroad shipment, but this brought no homes. Then came the era of fruit raising with other horticultural products and this brought California its homes and we have Riverside, Redlands, Ontario, San Bernardino, Santa Rosa, San Jose, Bakersfield, Santa Barbara, Pasadena, Pomona, and other cities with their beautiful homes.

It was my privilege to visit most of the above places in February and March of the present year. It was a great sight to see the changes in the twenty years in the increase of the above cities, a still greater and more pleasing view to ride over the hundreds of miles of the finest roads in the country, connecting these cities and lined on either side with the cosy, comfortable California bungalows, surrounded by the golden orange and lemon with shrubs and flowers.

In August, 1909, Mrs. Monroe and myself visited many orchards in Colorado, Wyoming, Montana, Idaho, Oregon and Washington, also some of the villages and cities of the above states, and of southwest Canada. We spent ten days at the Seattle Exposition, where we had opportunity to view the products of the states and Canada.

It was very noticeable that the horticultural products predominated, particularly the apple; similar conditions prevailed at the several land shows held in Chicago a few years ago; and of course the citrus fruits have the prominence at San Francisco and San Diego Expositions and the orange, grape-fruit and lemon with the prune, walnut and raisins overshadow all other fruits.

Another example of extensive fruit exploitation is seen in the well-nigh universal advertising from all parts of North America, to attract settlers.

In conclusion, about ten years ago, I had the pleasure of spending three months about the Mediterranean Sea. It was inspiring to see and learn how for ages the people and horticultural products of Europe, Asia and Africa had centered about that great Sea. Whenever I am reminded of that sight-seeing, it is a satisfaction that Michigan is cradled midst the Great Lakes of North America.



Stump grafting. C. B. Cook farm, Owaso.

WHAT FORESTRY MEANS TO THE MICHIGAN FRUIT GROWER.

BY HON. A. C. CARTON, SEC'Y PUBLIC DOMAIN COMMISSION.

It is indeed fitting that the members of the organization which first pointed the way, blazed the trail and sowed the seed of the forestry movement in Michigan should be desirous of knowing something about what is being accomplished along that line by their Public Domain Commission, which has charge of the conservation work in Michigan at the present time.

It is not often that men who have a vision and a hope of a State-wide nature live to see that vision fulfilled or that hope realized, even to a limited degree. We should rejoice that there are those among your number who were instrumental in the starting of the forestry movement in Michigan, whose voices were ever heard and whose strong arms were ever ready in the interest of forestry, are with us today as active members of this Society and have an opportunity to note the progress that has been made in the movement which they started and the work that has been dear to their hearts.

In reviewing the records I find a host of able men who in years gone by were connected either with the Michigan State Agricultural Society, the Pomological Society or the Michigan State Horticultural Society; men who have given honest and conscientious thought, wise counsel and valuable assistance, not only to the Society with which they were affiliated at that time but to the new movement for the establishment of better forestry conditions in Michigan. Among that host of able men were: T. T. Lyon, J. J. Woodman, J. Webster Childs, H. G. Wells, David Carpenter, Sanford Howard, Dr. R. C. Kedzie, William L. Weber, Dr. W. J. Beal and C. J. Monroe.

There is one, however, whose name I have always found among those not only interested in agriculture, horticulture and forestry, but all other things that assist in the uplift movement in the State in which he lives; a gentleman who is a pioneer in the forestry movement in the good State of Michigan; a gentleman who fanned the coals and kept alive the fire while others slept, firm in the belief that later on men would come to that fire to light their torches to show the way to a better forestry condition in Michigan. The gentleman to whom I refer is the Honorable Charles W. Garfield, of Grand Rapids, of whom I think it can be truthfully said that he has done more in the interest of forestry in this State than any other man.

We are told that twenty years is but a day in the history of a Nation, but wonderful things take place in a National day. Forty years is not a long time to look back over, but if we realize the conditions that existed in Michigan nearly forty years ago when the forestry movement was definitely started, we will realize what a *herculean* task these men had in trying to impress upon the people of a forest state that it was

necessary for the well-being of future generations to preserve the forests and plant trees to take the place of some of those which had been removed by the woodsman's axe.

The subject you have given me is "What forestry means to the Michigan Fruit Growers." The subject is a splendid one, but I am afraid it is one so thoroughly understood by every member of this Society that any elaboration I might make upon it or any statement would be both old and uninteresting.

The tendency of climates in latitudes far removed from the controlling influence of the oceanic bodies of water is to tropical heat in summer and arctic cold in winter, and it is absolutely necessary that we have some agent which will control the power of the one and moderate the rigor of the other. It is doubtful if there is a person engaged in any line of fruit growing in the State of Michigan who does not realize the important effect forests have upon the three great elements of climate: heat, moisture and wind. It is also doubtful if there is a person in the State who has given the matter any serious attention who will not admit that if forests have the proper effect upon the equalization of heat, the distribution of moisture and the modification of winds, forests are a good thing, not only for the fruit business in this Peninsula State, but for all other crops produced from the land. I might go on and state the fact that the heat of the sun is moderated chiefly by three causes: radiation, evaporation and aerial currents of the wind. I might discuss what you already know about how the absence of trees transforms the country into a prairie where the winds sweep here and there at will; how the forest growth retards evaporation, prevents erosion and otherwise affects conditions, but as we are all agreed upon the fact that forests have a wholesome effect upon fruit trees and all other things belonging to the vegetable and animal kingdoms, I think it would be entirely proper for us to turn our attention and devote our time to the discussion of what has been done and what is being done in the interest of forestry in Michigan.

In the early days the southern part of Michigan was covered with hardwood, while the northern part was in the great white pine belt, which includes Newfoundland, Nova Scotia and Pennsylvania on the east and stretches across the lake region to Minnesota on the west. This great white pine belt, including a small neck of white pine running south through Virginia, West Virginia, the Carolinas and Tennessee, constitutes the only white pine region in North America.

Long before any white man had touched the coast of what is now the State of Michigan, or had gazed with covetous eyes on its magnificent forests, wandering tribes of Indians loitered along its shores and lived on the white fish with which its crystal waters were teeming and the deer which filled its forests. Beginning in the early part of the seventeenth century when the two French traders, lured by the game which filled the forests of Michigan, landed on its shores and followed by the landing of Father Marquette in 1672, and by Cadillac, in 1701, the foundation of future settlements in Michigan was laid. Owing to the fact that farther west lay the great prairie country ready for the plow, Michigan's population continued to be very small, and the census of

1800 showed there were only 3,757 in the territory which now constitutes this State.

While it is true that the population of the State increased somewhat slowly, it is also true that from the day the white man first landed on the shores of this State, he has kept up a relentless war against the trees as if they were his enemies, until the splendid black walnut, oak, hickory and white ash forests are only remembered by some of the older people of the State. There was some excuse for part of the destruction of the forests of southern Michigan, for they had to give way to the wheat fields which produced food for the settlers of that time. That, however, is not true of the northern part of this commonwealth. The history of Michigan dating back seventy years discloses the fact that when the white pine of Maine, New York and Pennsylvania had practically vanished, the sturdy lumberman followed this desirable timber into the lake region of the north, and before the people were hardly aware of the fact Michigan's lands were in the hands of private individuals and her vast forests were fast being converted into lumber. Not alone was the choicest lumber cut, but fire was allowed to sweep over these great cuttings, destroying the young timber which was left standing and the seed cones which would have produced another crop of trees. On the heels of this great devastation the holders of these large tracts of land refused to pay their taxes when the timber had once been removed from the land.

This was practically the condition that existed in Michigan when your Society sounded the alarm and tried to call to arms thinking men in the defense of the forests of this State. As early as 1866 I find some of the gentlemen whose names I have mentioned sending a communication to the Michigan legislature on the subject of "the injurious destruction of forest trees in this State, the importance of checking this evil and the expediency of planting trees as a means of shelter and protection to crops, fruit trees, etc." I find that memorial submitted to a committee composed of Dr. R. C. Kedzie, J. J. Woodman and O. H. Fellows. I have read the report of that committee with a good deal of interest, and in the light of present day affairs I am surprised at the foresight displayed in the recommendations made by these gentlemen. The report made by the committee bore fruit and two bills were introduced in the Michigan State legislature and enacted into laws: one providing for the planting of trees and shrubs along the highways of the State of Michigan, and the other to prohibit animals that would destroy the trees from running at large on the highways. These two acts were approved on the same day—March 27, 1867.

From time to time matters affecting forestry were discussed by the different societies, but no definite action was taken until the winter of 1878, when the State Pomological Society, at its meeting in Allegan, petitioned Congress to send a commission abroad to inquire into the methods pursued in England and on the Continent to grow forests and preserve those already grown. For some reason best known to the members of that dignified body, Congress did not seem to take kindly to the suggestions made by the petitioners and at the summer meeting of your Society, held in Jackson in June, you again took up the matter

and decided that Michigan contained men who had made a study of forestry conditions in England, Scotland and France, and that the thing to do was to use the knowledge these men had to better forestry conditions in this State.

I do not know the reason for the repealing of the act of the legislature of 1887 making the State Board of Agriculture an independent forestry commission with power to institute inquiries into the extent to which the forests of Michigan were being destroyed by fires or wasteful cutting and the effect such cutting was having on the ponds, rivers and waters, together with authority to investigate the extent and damages by forest fires to the wooded areas of the State. The fact remains, however, that in 1891 the legislature did abolish this independent forestry commission and left matters in practically the same condition they were at the time of your meeting in Jackson, in 1878.

So far as forestry in Michigan is concerned, I think much history along that line was made at your Jackson meeting, when the questions of "Forestry for Michigan," "Shall we begin to grow plantations of trees," and "How shall we make the first efforts," were discussed. Many of the members of your Society took part in this discussion and all seemed to agree that something should be done to encourage and advance the work of forestry in the State. I think it was the embers you left burning after you adjourned your meeting at Jackson, in 1878, which later on sprang into flame and lighted the way for the Michigan Forestry Association and made possible the creation of the first forestry commission by the State legislature.

I am not going to dwell at any length upon the work accomplished by the Michigan Forestry Association, other than to say that the educational work which it has done, is doing and must do in the future is one of the great factors in placing Michigan in the position it occupies in the forestry movement at the present time.

The creation of the Michigan Forestry Commission in 1899 and the good work it accomplished is well known to every student of forestry. It is true that results were not obtained as rapidly as desired by those interested, but it was pioneer work and pioneering is always hard and sometimes discouraging. The acts of the legislature setting aside State lands to be used for forestry purposes, the establishment of the nursery at Higgins Lake, and the starting of the plantations which are now a credit to the Commission, were some of the early activities of the forestry commission, and among the men who did this pioneer work the name of Charles W. Garfield is again found.

In 1909 the legislature created the Public Domain Commission, turning over to that body all the power and authority originally vested in the Michigan Forestry Commission, and giving the Public Domain Commission jurisdiction over the State Land Office, the Auditor General's department and the State Game, Fish and Forestry's department, so far as its duties pertained to fires and public lands. This Commission was to consist of three State officials: The Secretary of State, Auditor General and Commissioner of the State Land Office, and three other members: one to be nominated by the Board of Regents of the University of Michigan from among their number; one to be nominated by

the State Board of Agriculture from among their membership, and one to be nominated by the Board of Control of the College of Mines. The Governor was to appoint the members so nominated and they, with three State officials, comprised the Public Domain Commission.

The appropriation for carrying on this work was increased from time to time and the Commission went ahead with its labors. Lands were withdrawn from market and set aside in forest reserves, the nursery was increased in size, fire lines were constructed, look-out towers erected, and other work necessary for the promotion of forestry was carried on.

In 1912 I was a candidate for Commissioner of the State Land Office on a platform to abolish the office, stop the selling of land and turn all lands over to the Public Domain Commission. I was elected and on the second day of January, 1913—the first day being a legal holiday—I withdrew all lands from market and since that time Michigan has had no State lands for sale.

It has been six years since the Public Domain Commission was organized and I think I can truthfully say that these six years have been as fruitful along conservation lines as any six-year period in any State in the Union. As I stand before your organization today and look back over the path revealed by the Public Domain Commission, I am amazed at the things that have been accomplished.

We have at the present time 600,000 acres of land available for forestry purposes. This would make 104 forest reserves with nine square miles in each reserve. Our nursery at Higgins Lake has been extended until it contains 12 acres and has a capacity of 12,000,000 seedlings. We have 52 forest reserves set aside and ready to be brought under management as fast as financial conditions will permit. We have six reserves, containing 130,000 acres, under management at the present time. On these reserves there are 350 miles of fire lines, graded, plowed and disced ten feet in width; seven steel look-out towers sixty feet high, used in the protection of the forests from fire. From these steel look-out towers radiate 30 miles of telephone lines, which carry the message of danger to the men at work. We have over 3,000 acres of plantations, and this year alone we have been able to plant more than was ever planted in three years previous, namely: 1,077 acres. We have exchanged over 3,000 acres of land with private individuals for the purpose of consolidating our forest reserves, and have at the present time 41,000 acres examined and ready to exchange with the United States government. We expect this exchange to be completed during the winter months. On our big reserve in Roscommon county we have placed a herd of elk from the Yellowstone National Park, and it is the intention of the Commission to make game preserves and bird sanctuaries out of the other reserves as fast as they are brought under management and properly protected from fire.

In the report of the Forest Service of the United States, Michigan is ranked as first in laws to help the woodlot problem; first in number of State forests; third in number of acres of forests; third in acres planted, and fifth in size of appropriation to carry on the work. This is our rating for 1914, but in the year 1916 you will find Michigan not

less than third in any one branch of forestry work carried on in the United States, and only in one or two instances outclassed by the Empire State of New York and the Keystone State of Pennsylvania.

The last legislature transferred the duties of the State Game, Fish and Forestry Warden's department to the Public Domain Commission, thus giving the Commission control of the forest protection in the State of Michigan. This last act of the legislature has placed under the one governing body all things pertaining to conservation.

The work along forestry lines is just getting under way in this State. From now on the work should be comparatively easy. Women's Clubs, Teachers' Associations and commercial bodies are all taking an active interest in the work. There is a different feeling than existed in the days when the members of your Society started the pioneer work in this movement. In the early days you sowed and sowed well, but a great many of the seeds fell upon rocks and those seeds which did not fall upon rocks fell upon soil that was cold and sour. Now is the time for your Society to sow and sow often. The forestry field has been tilled by the Michigan Forestry and the Public Domain Commissions, and the soil has been enriched by public opinion and warmed by the love for the planting of trees. Sow now and sow often and rich will the harvest be.

When the good roads fast being built in Michigan are lined with the maple, the elm and the sturdy oak; when the woodlots of the farmer are increased and protected; when the thousands and thousands of acres available for forestry purposes in Michigan again have a growth of pine and hardwood; when all these forest reserves are teeming with song birds, elk, wild deer and partridge; when the streams that have dried through the absence of forests again spring into life, I have a vision of our children as they stand and look over this splendid State, with her lake-washed shores and her beautiful forests, saying: "Our forefathers made no mistake when they wrote on the seal of this great commonwealth: "If thou seekst a beautiful peninsula look around thee."

DISCUSSION.

Following Mr. Carton's Paper.

A Question: What can be done to encourage the second growth of hardwood plats?

Answer: Our policy is first and foremost to protect it from fire. I think that a proper system of fire protection, so far as the hardwood plats are concerned, is about all that is needed, as they will take care of themselves. We have on our different preserves, since we have established the system whereby we can protect from fire, observed that there is a natural growth coming up in a great many places but we are making some plantings where the fire has simply burned over the ground and destroyed the seed, or where the spot is so far removed from the trees that no seed can reach that particular spot. I might say that here in Michigan, on these great broad tracts, the one thing most essential is fire protection. If you can have this, there will be a great growth



Scene in orchard of Fred Van Nonsdall, Three Rivers.

in these enormous preserves that you have in Michigan. And as the cost of fire protection is so much less than planting, it is easy to see that this is the most practical.

Question: Does the work of the Commission extend or apply to the conservation of the water supply?

Answer: No.

A Member: Now that we have a man here directly interested in the matter, I want to record a vigorous remonstrance in regard to one feature of our game laws. It is that pertaining to rabbits. This is a pest that does thousands of dollars of damage to apple and other fruit trees, and we are not permitted to destroy or hunt them if the snow is deep. Mice and rabbits are the worst winter pests that we have. Can there not be a change in this law?

Answer: I will say to you frankly that the Department of Public Domain is co-operating with the different societies in seeking a solution of this problem. If there is any change in the law, or if this society would recommend any other law than the one you have now, that would help you out in this regard, I am sure that the Public Domain Commission would be glad to co-operate with you in an endeavor to bring about any changes necessary to meet the requirements. We have to operate under the laws as the Legislature fixes them, but I am sure that if you will indicate your desires to the Public Domain Commission you will receive their moral and substantial help to the extent of their ability. The Public Domain Commission is also an immigration commission. I have the honor of being a man with many titles but with only one salary. I am Commissioner of Emigration, so we want to help out in this as in every other line.

"PROBLEMS AND POSSIBILITIES OF CO-OPERATIVE MARKETING."

BY REV. ALFRED BENTALL, OLD MISSION.

In the early part of my ministerial work, when I was a young married man and before I had any children, I was once called upon to preach a sermon on "Parental Responsibility and Filial Fear." The theories that I had were absolutely perfect—they would work out to perfection—there was absolutely no possibility of failure. Some of the dear old mothers of my congregation shook their heads, but they did not say anything. I now have three children of my own, one of whom is in the ninth grade, and I want to say to you, I have never preached that kind of a sermon since that time.

Up to five or six years ago, I had a set of theories about Co-operative Marketing that were absolutely perfect. If you could get diamonds as pure as they were, you would be rich. This is not sarcasm. I have found out, however, since that time, that "It is not All Gold That Glitters," and that "There is many a slip betwixt the cup and lip" in this matter of Co-operative Marketing. I have found out that everything

will not work out on theory—that theory never can transcend experience, and that when you have had some experience, you are not always so sure of your theory.

The first and great problem of Co-operative Marketing is not the problem of handling the fruit. Many think that this is the great thing, but I tell you that it is the smallest part of the program. The real problem is handling the men and women who produce the fruit, and the men and women who buy them.

I have been officially connected with two different co-operative organizations, and I will discuss the problem as evolved from my experience with these organizations. I may say, however, that our experience in the North is different from the experience in the South, along this line. And it is also true that our experiences are different in the West, from those in the East. For some reason or other, the co-operative bug does not seem to thrive very well in this state. Whether it is due to the culture in which the germ is developed, I cannot say, but one thing is true, that it is not so thrifty here as in other sections of the United States, and some not very far distant.

About five years ago I became interested in this matter, while engaged in ministerial work. I felt that the country church had a mission towards the horticulture condition of the country that was not being developed. And as the salary of the minister depends quite largely on the success of the farmers, it was a very easy thing to just step over the line into this field of activity, and it was not long until the Ministerial Association, called me to account for my course of action.

There is nothing out of the way when I say that the average human heart of the farmer is possessed of about the same degree of goodness as the rest of the people,—I thought they were a little better. And when we had a certain number of persons banded together for mutual benefit to themselves and their community; when they agreed to do certain things, I thought there was no question but what they would do it. It never occurred to me, even, that any kind of contract would be necessary. It was wholly a matter of moral suasion; if one hundred farmers all agreed or promised to do a certain thing, I thought that was all there was to it. And it was on this basis, and with this idea in mind, and with this faith in the farmers, that I went into the work. And right here I may say that on a capital of only \$1,600.00 we ran our business for three years, acquired a ware-house, got the railroad to put on ice service, and marketed some 100 car-loads of produce. Just how we did it I do not know, but we did it. As I said, I thought that all that was necessary to the strict carrying out of the co-operative idea was for those interested to promise or agree to do a thing and it would be done; that there was no necessity of a contract to hold good citizens together.

I learned to my sorrow that human nature could not stand the strain; that if we wanted to insure a certain thing being carried out, we had to have a contract.

I happened then to be connected with another exchange, the Grand Traverse Fruit & Exchange, which was doing business under the Public Act 398, 1913, which really makes a co-operative law. But I am sorry to say that our experience has shown that their human nature is no more

to be relied upon than that of those who are guarded in some other way.

It may be that the Millennium is so much nearer in southern Michigan than northern Michigan that you friends keep together without any trouble. After we have had more experience, after we have had time to breathe, we shall I hope, do the same as you, but neither of these institutions that I have been connected with, will have as many members the second and third year as the first. There will be a selection. Some of us will believe in the idea and will go forward, and do business, and only when we show the other fellow that they cannot afford to stay out, will they come in and do as they ought to.

If you have an idea of organizing anything of the kind in your community, the more the idea is disseminated the better it will be—but remember that in the last analysis whether you have a contract or not, whether you depend upon your moral suasion, this thing will be true, that until you can show the producer dollars and cents for being in the organization, he wont come in, and the growth of the organization will necessarily be slow.

I remember once being in a political fight, and I said to one who was with me in it, "I can not understand the attitude of So and So—I can not understand why he takes that side of the question. This friend said to me, "Don't you know that some people can put a dollar so close to their eyes that they can not see the sun? Now the sun is a very much larger object than a dollar, but the dollar is large enough so that you can put it so close to your eye that the sun is obscured. There are many fellows—and good fellows they are—and once you can show them a dollar right in hand, they will co-operate. But as you present the matter to them, they will say, "I would like to see that thing succeed—I hope you fellows will give it a try-out—but as for myself, I will wait around and as soon as I see that you are going to make it succeed, then I will come in. And now, with all due respect to my good friends here in this room, a good many of you are doing the same thing.

There is possibly a reason for the attitude taken in the north. Those who went in there first were pioneers—they had to work hard to keep the wolf from the door—they cut down the trees and built a log cabin, they cleared away the forests for a place to raise their crops—they learned to be self-reliant, for it was a continual fight to maintain an existence—an individual fight, and this was so stamped upon their minds that it has been hard to get them away from this individualistic standpoint.

When you go over into Wisconsin or Minnesota, where you meet with a large proportion of people from across the water, from Scandinavia, Scotland, England and other of those Old Country lands, where the co-operative idea is well understood and practiced, you see things are different. They have brought their co-operative ideas with them, and they immediately incorporate them. Why, co-operation is as natural to me as the air I breathe. Over in England co-operation is in everything, and it is the means of greatly reducing expenses and enables the people to carry on enterprises that they never could do without it.

Another of the problems—it is not easy to get the people to co-operate because it is so easy to market. This may seem contradictory, but it

is not. Over in Holland and Denmark it is practically universal to market by co-operation.

Another problem, is getting the people to have an idea of a standard—you know we all have a most tender regard for our own productions. If you do not think that your fruit is not as good or a little better than your neighbor's, you are not human. We do not like to be interfered with. We had two problems come to us in our Exchange last summer. One set of people said, "You people are running expenses so high; you are actually spending \$40 a week, (and they said it with abated breath,) for a man to inspect your stuff. The fact was, we had to get some one far enough away so that they would not be influenced by cousins or uncles or aunts, and so we sent to another state. We paid him \$20 a week and expenses, and we should have had him even though he had cost us \$40. It is a matter of getting a standardization.

Our shipping point is Traverse City. We should get into little groups where there are not large farmers—our geographic conditions are not all the same—but one thing we must do—we must all come to a central packing house—we can not afford to pack in an orchard any more.

Another of the problems we have is that the men who buy the stuff are not very much interested in having us work this thing out. Some of them would very much rather we would not, but so after we had gone to a good deal of expense in regard to the grading idea of cherries—two grades, when we came to get returns from a car-load of sour cherries, we were met with this—"I'll give you so much for your cherries"; One said "I packed my cherries on the table—others did not—if that car was manipulated that way, and those who did not pack the cherries in the careful way that I did, get the same price, I will not have any more to do with them."

Another problem that we have to meet is the attitude of a professional buyer. I will relate one experience. There was a little block of cherries which looked at the time as though it would be the largest block of cherries in the neighborhood. The representative of a certain house came and waited upon the people of this farm for two days. Every argument was used to induce them to get hold of that fruit. They were told very firmly that they could only get it through the Exchange office. Failing to accomplish their purpose they left with this threat: "You fellows are making the mistake of your lives; we know where there is another block sixty miles from here, and will go there and arrange for our cherries and it will be impossible for you to put a car of cherries into the city where we do business." After a time these fellows came back and ate their humble pie and bought nine cars of our cherries. They went around in the person of their agents and secured a little shipment here and there and when the owners got back to their returns, they were from 50 to 75 cents more than what we were receiving—and this much more than any market would give for the same cherries at that date. These fellows said to them, "of course our firm bought your cherries by the car-load, but see how much more you would have had had you sent these to us on consignment." The good friends and neighbors that stood on the outside of the organization to protect himself, is the man that is downing the organization by allowing fel-

lows of this stamp to do exactly as this fellow did. A member of our organization called me up and said, "I don't know what to do."

"What is the matter?"

"I am very hard up." (He has at least \$100.00 to every one I have) "I have got to pay my pickers and you know a man is here who has offered me \$1.60 for all my cherries."

"What kind of cherries have you?"

"Mostly Windsors."—They would not grade 2X which is our second grade.

I said, "See here, you know what this man is trying to do to us. There is not a market in the United States that will stand up under that kind of price at present."

I told this man to go down and tell that fellow that I said it was all right. If he would buy them at the office of the Exchange. This, of course, he refused to do. Some of our fellows have been loyal, however, but it has cost us something. In this case the offer was at least 50c per case above the market.

Another problem is the cost to the pioneer. There has never been a reform that has not cost a great deal. The greater the reform the greater the cost. Sometimes we think we cannot stand up under it. You will either stand some loss or give up, in establishing the co-operative idea or system. It seems to me it will take from five to ten years to work out the idea successfully. It will have its ups and downs. Everything possible will be done to stop the movement, but when there are a few who will say, "We will stay right by it and make our fruit just what it should be," then we will win out. We have made some mistakes.

We have tried to cover too much territory. We were going to take in ten counties, but the other nine did not enthuse much, so we confined our operations mainly to one county.

The thought comes to me, and I am sure if we can get here and there a comparatively small group of men and women, who will put up their stuff in just the best possible way, say, get a distinctive mark and then will get the representative to sell their stuff for them, they will win out in fine shape.

We made a mistake that I would not advise you to follow. We joined arms with a large marketing institution, who is doing good work in some parts of the country, who could not on account of conditions win out for us, but they treated us honestly. The easiest thing for us to do is to get comparatively small groups of men and so win out and when your neighbors see that you succeed, they will see that they cannot afford to stay out.

It need not cost so much to do this as many think. The first thing a farmer talks to you about is the awful cost. There is near my home one mile of road along which are farmers and fruit growers from whom the commission men receive \$4,000.00 in one year. Now suppose these men had gotten together and said "We will hire a salesman" and suppose they had paid him \$2,000.00 for his services—he could have gone down to Detroit or Pittsburg and sold the stuff to a much better advantage than it was, and that would have been a saving as you can see of a large amount of money.

Another idea we have right within our borders a great many markets that we do not know anything about. It is a very great surprise to many people to know that during the whole peach season just past that we were able in Traverse City to hold up the market of No. 1 peaches to the top price. There were no first class peaches sold in Traverse City locally, or in the little villages around there for less than \$1.00. But when your friends from the South got in their work, we had to work hard. Casinova peaches were sold in our region at 60c against ours at \$1.00. There are many people who want cherries and peaches and there are many places where they can be sold if there were enough people gathered together with one purpose, and send out some man to do that thing for them. A case in mind—a man had a few hundred bushels and took them up on the Northern Peninsula and got more for them than he would have received in Chicago at the time.

I am sure we can win out better with ten people than with one hundred, because if we can handle the stuff so well, the other ninety will be anxious to come in. Another thing—some of you possibly saw in the "Country Gentlemen" recently, the story of an Apply Company. About 8 or 10 years ago twenty or thirty farmers got together in the valley where they were located in Nova Scotia and decided that they would grow apples for shipment to England. When they wanted to make their shipments, there were never any space in the boat. The buyers would say, "I will have fifty thousand barrels space," and they took this space. However, the farmers did manage to ship a few carloads, the next year more, and now they have thirty companies in that organization—they all pull together, the fifteen hundred members, and sixty per cent of the apples now grown in that valley are shipped through this organization. The last year they were able to sell to their members 300 carloads of fertilizers at wholesale prices. You could not drive these fellows out with a club. Another of the problems that we have to solve is the matter of finance. They think you must show ready money at once, and they will come and say "I want to be fair you know I do—I sent ten bushels down to Chicago and the rest went into the exchange. I got fifty cents more a bushel than you got for me."

I said to this fellow "You poor silly fool—those fellows have done this just simply to beat you. They would no more give you this amount for a carload than anything at all.

Now another point. There must be advertising. One company of big apple growers in Idaho said, "We will allow the Association on its note to take 5 cents a box on our apples for three years to use for advertising purposes and the fourth year his note will be redeemed." What happened? They had \$57,000.00 to go on and do their business with. I would like to know what would happen if we would all put 5 cents a box or on a like quantity for three years into an advertising fund. If I should suggest such a thing in Northern Michigan they would run me out of the state.

We must wake up, we cannot hope to accomplish what is possible in co-operative lines, until the people are educated and until those who are sticking so tenaciously to old ideas are willing to sacrifice them, and adopt new and up-to-date methods. When any group of men or women in any community are willing to get together and stand by an

agreement, and put up their stuff in first-class condition, and are willing to be patient, and will stick together, you will find that the fancy grocer will be tumbling over himself to get what you have.

I will be glad to try to answer any questions you may ask.

A Member: It is not that I care particularly to discuss this paper, but I wish to say that our sales have increased five times in three years. We had to close our books on membership and are having all that we can do. We have sold tens of thousands of bushels of apples. At first we started out with certificates of stock at \$100 each. I think there were about 50 that agreed to come in, but when they showed up there were only about 32. We closed our books and now we are selling for \$150.

Question: How many members do you have now?

Answer: We have about 70.

Question: Do you use bushel baskets?

Answer: We have used 200,000 of them for peaches and apples. And we find that they are quite possible and the fruit has sold well and has brought us good returns, and we feel that our Exchange is a very strong institution.

Question: Are these standard bushels?

Answer: Yes, we calculate they are, however, we don't advertise them as such, but we say, "Here is the basket of apples." We do not specify as to whether they weigh 47 or 50 lbs. We have two grades of fruits—this exhibited here is first—the other is similar, all perfect, the same size all through, but a little smaller. It seems to me that when you establish a reputation for putting out fruit true to name and exactly what you say it is, there will be no need of further advertising. We have had to refuse a good many orders, some of them by telegraph, simply because we could not get the apples.

Question: What about the prices?

Answer: I don't know as I could give you the prices in all—but we got a price so that we made money. One thing is sure, you people must get it out of your heads that you can sell apples to advantage in any other way than to export them. And it would be better if you would pay a man \$2,000 or even \$5,000 to manage the business for you and secure an opening for the sale of your fruit. This is the way the very best and most successful organizations carry on their work and it is false economy to try to get along without utilizing the services of some one who knows the business,—who can put out the fruit where it will have a ready market and at a good price. It is not a good stroke of business to try to manage an extensive exchange unless you are perfectly familiar with the best methods of getting the fruit on the market and at points where it will be disposed of at the best price.

A Voice: I would like to ask if the gentleman endorses the Grand Traverse Fruit Growers co-operating with the Association?

Answer: As I happen to be connected with that organization, I would say that I do endorse it.

GOING AFTER THE CONSUMER'S DOLLAR.

BY MR. DON FRANCISCO, CHICAGO. (ASS'T. MGR., CALI. FRUIT GROWERS' EXCHANGE.)

Those who have been seeking to raise the conditions of farming, by showing how more and better crops may be produced, are constantly met with the criticism,—“It is all right to talk about our raising more and better crops, but what we want to know is, how can we get more for what we now raise? How can we get more of the consumer's dollar? Show us that and we will be encouraged to raise more and better.” We have even heard the argument,—“If we can't get more for what we now raise, we might better cut down our production, and so force prices to a profitable basis.”

Nor does the complaint come alone from the producer. The consumer of farm products feels the “high cost of living,” or more correctly, “the cost of high living,” and, knowing how little the average farmer gets for his crops, is up in arms against a marketing system, or the lack of one, which doubles and trebles the price he must pay for the necessities and luxuries that only the farm can produce.

We see, therefore, that the producer and the consumer have a mutual grievance and that the complaints of the one are provoked by the same forces which aggregate the other. Very naturally those who are blamed most severely are those between the two—commonly termed “Middlemen.”

We do not come here today to present any panacea for marketing diseases but rather to make an impartial analysis of some of the forces which influence prices and consumption of perishable.

We will refer frequently to the California Fruit Grower's Exchange. First, because it is the most highly developed co-operative organization in this country, and therefore, in the best position to study marketing problems, and second, because my duties have brought me into intimate contact with this organization and its merchandizing problems.

The problems of the consumer, the retailer and the jobber are the problems of the shipper. The 200 million people of this country comprise the ultimate market. The 300,000 produce retailers, the 25,000 jobbers and their 75,000 traveling salesmen are your agents, who perform a distinct function in distributing your fruit and produce to these 200 millions or a portion of these 200 millions.

We will dispose of the horticultural side of the growers' problem by merely saying that agricultural science and modern cultural methods have made it possible for the grower to economically produce fruit which should yield a fair return on the investment.

Assuming that we have a product of merit—a product which is all that we represent it to be—the marketing system must be one which is fair and satisfactory to the jobber, retailer and consumer or the full value of the fruit will not be realized. If any step in this system is ex-



Scene in packing house of A. L. Ross, Oct. 1915.

travagantly performed the consumer's price becomes unduly high and market indigestion results. High prices discourage buying—consumption decreases—fruit stagnates in the hands of the retailers and jobbers—an oversupply results and finally the grower sells the balance of his crop at reduced prices to a grumbling trade.

In order to more closely study producing and marketing let us examine the results of an investigation of the distribution of the California orange crop. Oranges are not apples, nor peaches, nor grapes, but the citrus industry offers unusual advantages for a study of distribution and the relative values of the various increments entering into the consumer's dollar paid for oranges would probably hold good for other fruits.

This investigation was conducted by the California Fruit Growers' Exchange through the co-operation of jobbers and retailers with the Exchange agents in the principle cities of the United States and Canada.

Beginning in January, 1914, and continuing at intervals of two weeks throughout the year they recorded the delivered prices of oranges to jobbers and determined the price which the leading jobbers in each market charged the retailers on the same grades and sizes and then determined the retail price to the consumer, both on the box and dozen basis.

To illustrate the results of the investigations, thirty representative cities and towns were selected. This gave approximately 5,500 reports and by taking the average price paid by the consumer, it was possible to make a distribution of the consumer's dollar back to the grower and show the different factors which enter into the consumers' price:

These are as follows:

Per cent of Consumer's Dollar's Dollar.

Retail distributing cost (gross)	33.3 per cent
Jobbers' distributing cost (gross)	8.2 per cent
Growers' selling cost	1.5 per cent
Freight and refrigeration	20.5 per cent
Packing house cost	7.4 per cent
Cost of picking and hauling to packing house	2.4 per cent
Proportion returned for fruit on the tree	26.7 per cent
	100.0

Summarized, the data shows that 36.5 per cent of the consumer's dollar is returned to the grower in California, of which 9.8 per cent represents the proportion allotted to picking, hauling and packing; 20.5 per cent represents the allotment to transportation; 1.5 per cent the grower's cost of selling the jobber, and 41.5 per cent the proportion represented by the jobbing and retail gross distributing costs, the latter representing four times as much as the former.

The amount of the consumer's dollar allotted to each factor referred to in the table should not be confused with the cost of handling each of these items. The average cost of picking and hauling a packed box of oranges from the grove to the packing house is 10.5 cents; the aver-

age cost of packing and loading on the cars is 32.4 cents per box, the average cost of freight and refrigeration is 90.7 cents per box; the average grower's cost of the co-operative method of selling, including advertising, is 6.6 cents per box; the average mark-up of the jobber is 14.2 per cent on the purchase price; the average mark-up of the retailer is 49.8 per cent on his purchasing price, both of the latter figures including the loss from decayed fruit.

VARIATIONS IN DISTRIBUTING COSTS.

A considerable variation has been found in the proportion of the consumer's dollar that goes to the jobber and retailer in different parts of the country. West of the Rockies and in Canada, for example, the jobbers' costs are higher than in the east or in the Mississippi Valley, on account of higher labor costs, higher rents, higher interest and larger geographical distances to be covered by the traveling salesmen of the jobbers. These costs are reduced in the older, more densely populated parts of the country, where interest rates are lower and where the various costs of distribution are more economically accomplished. The jobbing costs of the eastern half of the United States are often not more than one-half the corresponding costs in the west.

There is an equally wide variation in the distributing margins in different cities, sometimes due to the efficiency of the men engaged in the jobbing business, sometimes to natural local conditions, and sometimes to understandings between different jobbers through which a minimum margin is established. The record shows that in one city the average mark-up of the jobbers is approximately 10 per cent. There is the most active competition there, turnovers are quick, the margin on each transaction is small and the per capita consumption is high. In another city in one of the richest, most fertile states, where a few friendly jobbers work together, buying cars of fruit jointly and selling at a high margin on each turnover, the average mark-up for the year is 22 per cent. The consumption there is restricted, sales are slow, and the business is transacted on an artificial competitive basis.

There is apparently a considerable variation in the margins, due to the number of times a jobber or a retailer turns over his capital. Quick sales at a small margin of profit is the policy usually followed by those who specialize in the citrus fruit business. They attract the consumer with fruit that is always fresh, attractively displayed and at reasonable prices. They stimulate consumption by advertising and in other ways. Others, especially among the country retailers, or among jobbers who carry citrus fruits as a side line, do not specialize or push sales. Their losses from decay and off condition are large and their margin on each turnover must necessarily be large to protect themselves against fluctuation in prices. These dealers are not important factors, in increasing the per capita consumption. The margins charged by the retailer may run as high as 75 per cent above the cost in some cities, while in others it drops as low as 20 per cent.

FLUCTUATIONS IN THE CAR-LOT JOBBERS' AND RETAILERS' PRICES.

We desire to bring out another phase of the orange distributing business. It relates to the fluctuations in the jobbers', and retailers' and consumers' prices. The impression is wide-spread that the consumers' price does not fluctuate with the retail purchase price, and that the jobbers' price to the retailer does not fluctuate with the price paid the producer. In order to determine the facts, we have taken the car-lot, the jobbers' and the retailers' prices in twelve representative cities for one year and have charted the fluctuations in the respective prices. They are shown in the following diagram.

From this chart it will be seen that the three prices taken as a whole, do follow each other with almost exact regularity and this must necessarily follow where the competition between the different wholesale and retail dealers, exerts itself naturally. There are many exceptions to the general rule, where the retailers or the jobbers maintain a somewhat uniform price throughout the year, and especially where the jobbing and the retail prices are held abnormally high after the producer's delivered price has been reduced. This is especially true where the fruit is carried as a side line to meet the ordinary demands of the customers of a store. It may be more true in the country districts where there is not so active a competition in the sale of fruit and in markets where the forces of competition do not operate naturally. When the producer's price is low, the consumer reaps a benefit only when the price of the jobber and retailer is reduced correspondingly.

The distribution of a food product is a series of complex operations; the railroads, the jobbers, and the retailers, each perform a vital economic and social service in bringing the producer and the consumer together; each should receive in bringing the producer and the consumer together; each should receive a fair return for the service he performs. A more efficient and direct service should be the aim that each should strive for if the basic factor, the industry which furnishes the fruit, is to prosper. We must recognize that many of the conditions under which food supplies are distributed in the cities are created for the jobbers and retailers by large economic forces and by the requirements of the consumer, which are beyond their power in influence or control. But if the producer, as well as the distributing agencies, the railroads, the jobbers or the retailers are not effectively organized, or if they are not following sound merchandizing practices, their overhead costs are excessive and they impose an undue burden on both the producer and the consumer, consumption is restricted, the investment of the producer is jeopardized, and the stability of the industry is threatened.

We may suggest in a general way some of the conditions which seem desirable to be brought about.

CONDITIONS WHICH THE PRODUCERS MUST MEET.

First, on the part of the producer, it is essential that he furnish the jobbers and retailers uniform supplies of dependable grade and pack

and of good keeping quality if a stable merchandizing business is to be developed by either. Variable grade, packs, and keeping quality increase the hazard of fruit merchandizing and the jobber and retailer must necessarily add a margin large enough to cover these risks. Uniformity in grades and supplies stabilize trade and the margins naturally adjust themselves on a lower level. This is a fundamental requirement in fruit merchandizing often overlooked by the producer, difficult to handle on account of the large number of growers involved, but one in which progress is being constantly made. The producer must utilize every known agency under his control to produce a higher grade of fruit, at a lower cost of production. To this end, he is also making progress, with the aid of the State and Federal Governments, though there is no immediate prospect that the costs of production will be reduced. Rather are they growing higher on account of the higher costs of material and labor.

THE POSITION OF THE JOBBER.

The position of the jobber in the distributing system is widely misunderstood. To the so-called middleman the high cost of distribution is popularly ascribed and there is a wide spread agitation that he be eliminated. This investigation shows that 8.2 per cent of the consumer's dollar, or a mark-up of 14.2 per cent, represents his margin and that he is not the leading factor in the cost of distribution. The jobber performs a distinct function that must be performed by some one in assembling the fruit in the towns and cities, in developing trade with the countless retail dealers in the rural districts and cities, and in blanketing the credit and other distributing risks for the producer. His function is somewhat similar to the banker, who furnishes the money through which trade can be conducted, except that his business is not so highly organized, it is not under state and federal direction and control, the abuses are not so easily corrected, and they are therefore featured in the popular mind out of proportion to their true relation to the business of the middleman as a whole.

THE RETAIL COST OF DISTRIBUTION.

This investigation brings out clearly that the most important factor in the cost of distribution, next to the cost of transportation, is the retail distribution, which represents one-third of the consumer's dollar. The amount of the consumer's dollar represented by the gross retail cost is four times the amount represented by the jobber's cost. It is more than the proportion absorbed by the cost of transportation and the jobber's cost combined. It is nearly equal to the amount returned for the fruit on the trees which includes the cost of production and the grower's profit, and the cost of picking, hauling and packing.

There are several classes of retailers engaged in the fruit business; the fancy fruit store, the high class grocery store, the the average grocery store, the chain store, the fruit stand and the fruit vender. The present retail system is largely the result of the demands of the consumers which each class serves. A retailer's overhead charge includes

store rents, salaries and wages of employes, interest on capital, cost of purchasing, re-sorting, displaying, storage, and delivering goods, taking of orders, telephone, light, heat and other store expenses, losses from decay and deterioration, taxes, insurance and other necessary expenses. Most of the expenses are also included in the jobber's overhead costs. Where the fruit is sold from push carts and street stands, some of the expenses are eliminated or are reduced. In the fancy fruit stores and in the large grocery stores which cater to the well-to-do these overhead charges are naturally larger. They make up the cost of the service which the consumer demands, and the cost of the fruit is only one of the factors in the consumer's price. The simpler the service, the less the overhead cost, and, in those cases, the consumer pays primarily for the fruit with only a comparatively small overhead charge added for service and profit.

The retail distributing business is a vital line in the chain between the producer and the consumer. The desire for fruit is awakened by suggestion, by seeing attractive displays of fresh, luscious fruit in the windows of the store, on the counters, or in other forms of display. It is stimulated by the attractive fruit stands and by the push carts laden with golden oranges, by advertising in the magazines, the newspapers, street cars and other advertising mediums. It is promoted by prices which bring the fruit within the reach of the average consumer. The retail dealer, more than any other factor, creates this appetite appeal, because he comes in direct contact with the consumer, and he stimulates or retards it by charging reasonable or exorbitant prices.

The retail dealer must therefore know how to make artistic fruit displays if he is to catch and sustain the interest of the consumer. The fruit must always be fresh in appearance, free from decay and appetizing in every way, and the price must be reasonable. If the appeal to the consumer's appetite is not strong and continuous, the retailer does not increase the consumption. If the price is not reasonable, it cannot be purchased by the average consumer. If the sales are not rapid, the fruit wilts, loses color, decays and is a drag on the hands of the retailer. Under these conditions the retailer, unless he is a fruit specialist, does nothing to encourage sales. The unattractive fruit is destroying the desire on the part of the consumer, the losses from bad condition are excessive and the retailer must add a margin large enough to cover these losses and risks. Attractive displays and quick sales, at a reasonable margin of profit on each transaction, increase the per capita consumption and makes a satisfactory profit for the dealer at the end of the year. Any other system jeopardizes the interest of the producer, reduces the volume of business of the jobber, and keeps the net profit of the retailer below what it otherwise might have been.

The average retail fruit dealer needs the co-operation of the producer and the jobber. The consumer demands a service that imposes a heavy overhead charge on the retailer's operations—a condition which the producer does not usually appreciate. In all of these operations the consumer is king. By gaining his confidence and serving his best interest, the interest of the producer, the jobber and the retailer are assured. Without the interest of the consumer, all merchandizing efforts must fail. The aim of every factor in the fruit business should be to

stimulate the desire of the consumer for fruit, and then to give him an attractive, fresh, wholesome supply at a price which pays a reasonable profit to every factor involved, and yet be within the consumer's reach.

As nearly as we can calculate the grocer's gross profit averages 20 per cent. His expenses are about as follows:

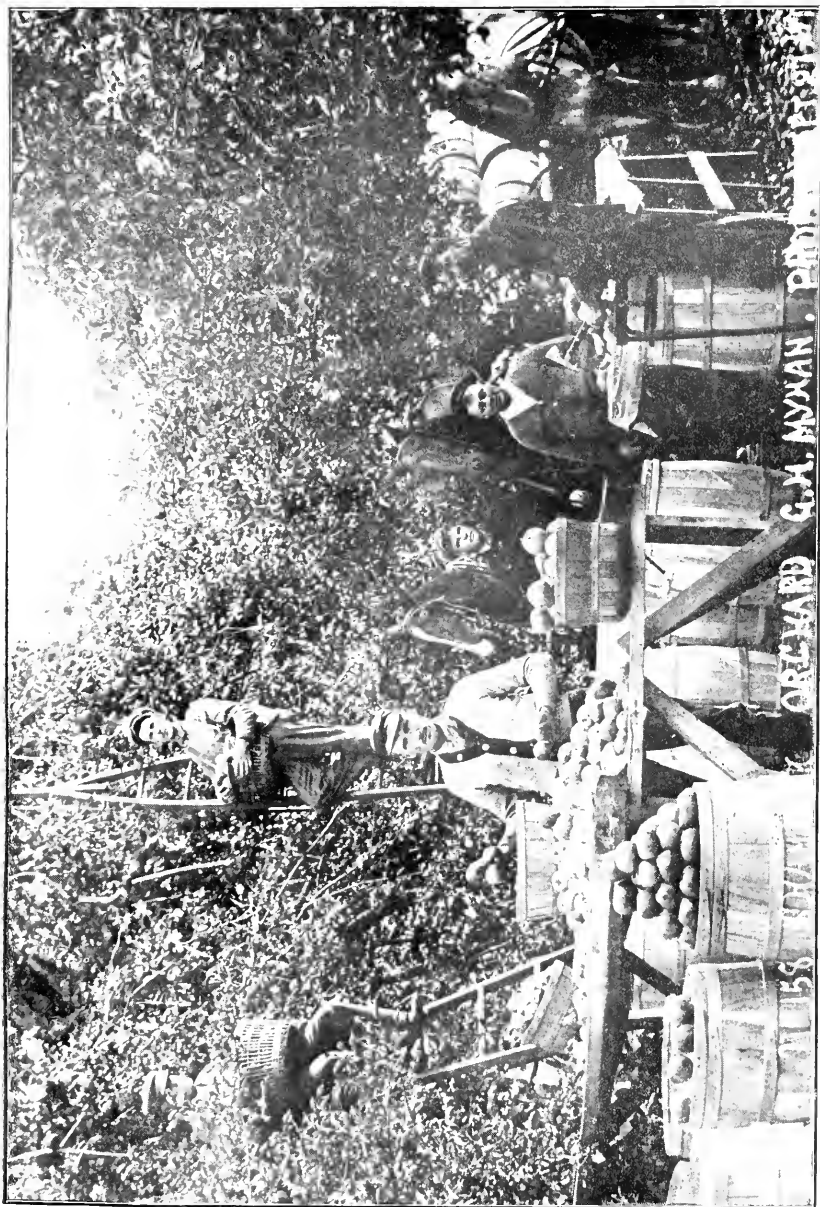
Sales (Adv. Salaries)	6.07%
Delivery	3.07%
Managerial	1.57%
Rent	1.57%
Interest	1.07%
Credit and credit losses	1.07%
Waste and stealing	1.07%
Miscellaneous (light, heat, tax, telephone, etc.).	2.00%
<hr/>	
Total to do business	17.0 %

He therefore makes approximately 3% net profit. How many grocers in your community have made a fortune on groceries?

Methods of Purchase. In dry goods there are two distinct lines of goods carried by the average store, namely, convenience lines and shopping lines. Convenience lines are bought both by men and women for one of three reasons. They are attracted by the display, they go to an accustomed place, or they look up a certain brand. Men are almost entirely purchasers of convenience lines and seldom compare values. Shopping lines are purchased mostly by women. The women in making a purchase usually compare three values. Why it is three we do not know, but there seems to be the most common number, and undoubtedly gives a fair comparison of values. We therefore see that a monopoly by one store of shopping lines is impossible.

There are two kinds of cities from a merchandise viewpoint; namely, shopping centers and suburban cities. A shopping center attracts more trade than it loses, which gives a tendency for purchasing to concentrate. Suburban cities lose more trade than they gain from outside sources and do not concentrate. All over this country there is a continuous wave motion from the small cities to the large ones. White Pigeon to Kalamazoo, to Detroit, to New York. There is always that tendency to concentrate from all cities in that metropolis—New York.

We may class groceries as a convenience line. There are three kinds of groceries—staple, fancies and specialties. Staples are such commodities as sugar, which are common purchases by ordinary people. Fancies are exceptional purchases made on special occasions by ordinary people or by a high class of trade. They include such commodities as high class preserves, and so forth. Specialties are bought usually by all classes at various times. Postum Cereal and other breakfast foods are good illustrations of this class. They may at any time become staples. As groceries are a convenience line, values are not compared in the bulk of the purchases. The housewife has comparatively few grocers with whom she does business at any one time. She prefers the nearest good store for these convenience lines. Like the dry goods, groceries



Scene in Shannock Orchard owned by G. H. Myhan, South Haven, before he joined the South Haven Fruit Exch.

do not tend to concentrate, but to scatter. This gives us an expensive multiplicity of small stores. Convenience goods can get only a portion of the possible business unless they are handled through all possible channels. The problem in selling perishables, as with most staples, is to reach a particular class through a certain type of store as might be possible with fancies or specialties but to reach the *hoi polloi* through every possible lane.

In merchandising Sunkist oranges we not only desire to have them handled by all of the three hundred thousand retailers of this country, but we want them to be pushed by restaurants, hotels, and the dining car service. We want them to be served as orange juice in drug stores and soda fountains. In merchandising our lemons, we even go so far as to supply barbers with cards, saying "Try Sunkist Shampoo." The greater the number of channels through which perishables are handled, the greater the number of points of contact with the ultimate buying public. If there are twice as many opportunities or temptations for the consumer to purchase them, and twice as many chances that the fruit will be disposed of.

Tendency of the Retail Grocer Field. Hard times have overcome the grocer. He occupies a lower place in his community than ever before. The grocery business does not hold such attraction for those who were formerly engaged as clerks. A boy just out of high school would rather drive a laundry automobile than he would to weigh out Michigan beans and apples. The result is that the type of clerk is lowered, which goes along with other factors to increase the waste and stealing. The less efficient clerks there are, the less business secured and more extravagance. There is a higher cost of doing business today than ever before. Probably the most important factor is the exacting demands of the present day consuming public. We want things put up in individual packages; we want our credit carried for several weeks; we want the grocer to throw away everything which is not absolutely in first class condition; we want him to take our order by telephone and be responsible for anything he delivers. We want him to deliver our products to our doorstep in any quantity and at any time of the day, but we do not want to pay for this service. This is the cause of high living. It is probably worth all that it costs, but very few are willing to meet their share. If we are in New York, we would rather go into Charles & Company on Fifth Avenue and order a yeast cake than to buy it of our corner grocer, because we like to have our friends see us frequenting such places, and we are delighted to have our neighbors see Charles & Company's auto delivery wagon stop in front of our door while the liveried attendant delivers the yeast cake.

There are three things which the grocer must do if he succeeds. He must sell what the people want in the way people want it sold and in the kind of store in which people like to buy. In order to decrease his overhead cost and make it possible for him to secure a large business, he must aim to work on a small margin and work up a volume of trade. It is a continuous cycle—more business—lower overhead—better quality or lower selling price—increased business, and lower costs. When he gets a volume of business, he is then ready to branch out and is then ready to form a chain of stores.

Our problem is, first, to maintain the quality of the product; second, to encourage consumers to be satisfied with a more economical service; third, to create the consumer demand; fourth, to teach the trade better business methods. Consumer demand is probably the most important. It means absolute satisfaction on every purchase. If the consumer is satisfied with the price and quality of Michigan apples so that there is a real consumer demand, believe me, the trade will handle them.

DISCUSSION.

Question: Do the grocers advance any money?

Answer: Yes.

Question: What security does the Exchange give for this money?

Answer: The banks have realized that the prosperity of the country in which they did business, hinges very directly on the fruit industry and for that reason they have been willing to advance money when necessary. In some instances, the banks have now gone their limit.

Question: Do you think that the opening of the Panama Canal will cheapen the fruit?

Answer: It may, though that is a question. However, it is better to consign a car by rail and then as you fill the orders through your telegraph service, the fruit can be routed as seems best to reach any particular point. We ship six cars every week to London or Liverpool.

A Voice: We have heard a good deal about the elimination of the middle-man—more than any other one thing. We would be happy if the middle-man could be cut out. It has occurred to me for a good while, however, that it would be impossible to go on and do business and eliminate the middle-man, for reasons that can easily be understood by those who are brought in contact with this question.

Answer: That was their cry out there in California, but it has been demonstrated that through the agency of the direct selling proposition as carried out by the plan adopted by the California people, the fruit of that state has found its way into every nook and corner of the United States; and this is necessary in order to dispose of the immense crop that is raised there. When the demand is greater than the supply, there is no question about the trade handling your stuff. Advertising and putting up just the very highest grade of fruit is what is creating this demand and enabling the western fruit growers to realize so much more than you do here for your fruit.

COMMERCIAL ORCHARDING IN THE MIDDLE WEST.

SENATOR H. M. DUNLAP, SAVOY, ILL.

Apple growing in the middle west has been brought into unusual prominence during this year of 1915. With light crops in the east and northwest the attention of apple buyers has been called to this section as never before. Greenings, Spies, Baldwins, Kings, have retired to back seats and Jonathan, Grimes, Rome Beauty, Gano and Ben Davis have been conspicuous in the bald-headed row down in front. The unusual thing about it is that so many buyers have been brought to acknowledge the fact that there are apple growing sections outside of the Baldwin and Greening groups of states. The high prices asked by grocers in the latter sections and rumor of the big Jonathan crop in the states of Indiana, Illinois and Missouri, lured them from their easy chairs in the lobby of the Whitecomb, at Rochester, and they took an early train into this to them untried section.

This illustrates the value of advertising. The middle west has done but little of this and the eastern section of the country has held the stage largely by priority of age. The west has been populated by people from the east and they brought with them their likes and dislikes. The early orchards of Illinois were largely planted to Spitzenbergs, Spies, Greenings, Baldwins, etc. Most, if not all, were unadapted to this newer section and these early orchards have passed away to be supplanted by a new set of varieties largely unknown but better adapted to the climate and soil. Varieties that had to be tried out in the home and in the market. Everyone in other lines of business knows that it takes considerable amount of advertising of a new product to supplant an older, well-known article.

The other day a man came to my office and said I want two barrels of apples for home use. Have you got the Spy. No. Have you got the Greening? No. Have you got the Baldwin? No. You certainly must be from New York. But we have the Jonathans and Grimes for early winter use, and the Minkler and Rome Beauty of later and the varieties you mention are not so good quality. He ordered a barrel of Grimes and Minkler and forever after there will be no Greenings or Baldwins in his cellar. This illustrates what I have said about supplanting the old.

It will pay to advertise and this you are doing with your annual Apple Show. It is the right thing to do. It is what has made the northwest apple famous. Grow good fruit and advertise it. It is expensive for the individual to advertise singly. The community must do it as you are doing. Observance of apple day will help.

Buyers generally think it costs the grower but little beside the expense of harvesting the crop and the package. They do not consider the original cost of growing the trees, the pruning, and winter and summer spraying from three to seven or eight times, and the cultivation

enter into the expense of growing the crop. Their idea is to buy the apples for as little as possible and because the grower has not reckoned the cost himself he finds it impossible to do so. The grower is therefore at fault that has invested in his crop of apples and how much he should have to secure a profit that he sell his crop so cheap. The better his methods the more it cost, but as a rule the better are his returns.

In the pictures which are to follow you can see with your eyes that to pay for power sprayer outfits, to buy tractor engines and operate them, that double acting disc harrows, that grading machines and trucks to haul to market cost good money and must be reckoned with. But as much as all this in cost is the carloads of chemicals that are sprayed onto the trees. Over and above the machinery and the material used is the money paid out for labor during the season.

It is useless for the fruit grower to attempt to grow apples by leaving it all to nature on the theory that the Lord careth for His own. It is far better to depend upon the well demonstrated fact that the Lord helps them who help themselves. Like most things worth while it will not do to go about growing apples in a half-hearted way. It will not pay. You may just as well expect to make money by investing in a race horse who is just fast enough to keep from being shut out by the distance flag, but who never wins a race. I have seen men spurred into enthusiasm at a horticultural meeting sufficiently to buy spray material and spraying outfit whose enthusiasm waned to that extent by spraying time that the spraying was done in a cursory manner or was delayed until some other farm crop was cared for and it was too late to do much good.

One man complained to me that there was nothing in the spraying business because he had tried it. When asked about it he said he sprayed the orchard once after the corn was laid by. This was several years ago and now not even an amateur would do so badly as this.

Thorough methods with improved machinery makes it possible for the grower to meet the conditions of time required for this work and at a minimum of expense accomplish the work which nature in its multiplication of fungus and insect pests forces upon him.

It is no fool's job to grow perfect fruit. When the buyer has concluded a purchase and by the time of its delivery the market has taken a slump it is an easy matter to claim that fruit is not up to grade. It therefore behooves the grower to grow fruit that is silver-lined, gold plated and hand-painted to meet these requirements. It is therefore imperative that the grower leave no stone unturned to accomplish the best results. The best you can do will be some imperfect fruit and some too small as sure as "God made little apples."

Therefore not only grow the best but pack them well. To do this is not easy, any more than it is easy to grow perfect fruit. Get the best labor you can and it will be none too reliable. There is a falling from grace constantly among the workers and they must be constantly looked after. It is hard for some people to gauge the size of an apple as $2\frac{1}{4}$ or $2\frac{1}{2}$ inches and here the grading machine comes into use and solves that part of the problem. It is the same yesterday, today and tomorrow. You will see one of these machines operated by a gasoline

spray engine taken from the spray wagon in operation in the pictures thrown upon the screen. The apples keep coming and the sorters have to keep busy and unconsciously they speed up in their work with the result that at the close of the day you have twice as many apples in the barrel as under the old system with the same amount of labor. With two of these machines in the same packing shed parallel and twelve feet apart with the side delivery aprons coupled together and carrying the number two's from both machines to one place, the two are barreled with one set of hands thus saving valuable space and labor. The one's are barreled on the concrete floor and from there are stacked in the delivery room. From 700 to 900 barrels were packed daily in this packing shed. Teams with flat top wagons and low wheels such as you will see upon the picture screen are constantly hauling apples from the packing gang in the orchard to the packing shed and unloading into the grading machines.

The modern apple picker is equipped with a pointed ladder made for the purpose. A picking sack which empties from the bottom into a bushel crate, with a foreman in charge who sees to it that rough work in handling the ladders and in picking the apples and emptying them into the crates is eliminated, we have the necessary equipment for starting the apple along its way to the consumer. Rough handling of the ladders in placing them knocks off the fruit or bruises the apples. Careless handling of the sack in shifting the sack about or in coming down the ladder and dropping the contents a foot or so into the crates all contribute to bruises and the foreman must be always on the job to eliminate as much as possible. Setting one box upon another without first taking off from the top those apples likely to be bruised in stacking them in the packing shed is another milepost which needs watching. Emptying from the crate into the moving canvass of the grader is another. The grader should not be run faster than directions call for. A canvass must be used in letting apples down into the barrel for they must not be allowed to drop from the grading machine to the bottom of the barrel as I have witnessed in the packing warehouses of New York.

Barrels should be faced with the uniform size of fruit of good color and the apples settled into the barrel as it is filled by gently shaking the barrel. The barrels should when filled be tailed or faced off with the same sized fruit as in the barrels throughout, but the color side of the apples should be faced up. A good looking girl looks best when smiling and so should the apples put their best foot foremost to create a favorable impression. I have seen a buyer turn from a car of apples because of one defective or green apple on the face of the barrel. I have had horse buyers tell me they could tell a good horse when they see it whether poor or fat, but believe me the horse that is in good condition sells for the most money. The face of the barrel of apples is supposed and expected to look 20% better than the run of the barrel and if it does not the buyer who usually buys to sell again is disappointed.

Marketing apples in the middle west has not reached perfection as yet any more than has growing. There is much less co-operation in the selling than in the growing and for this reason many a grower has

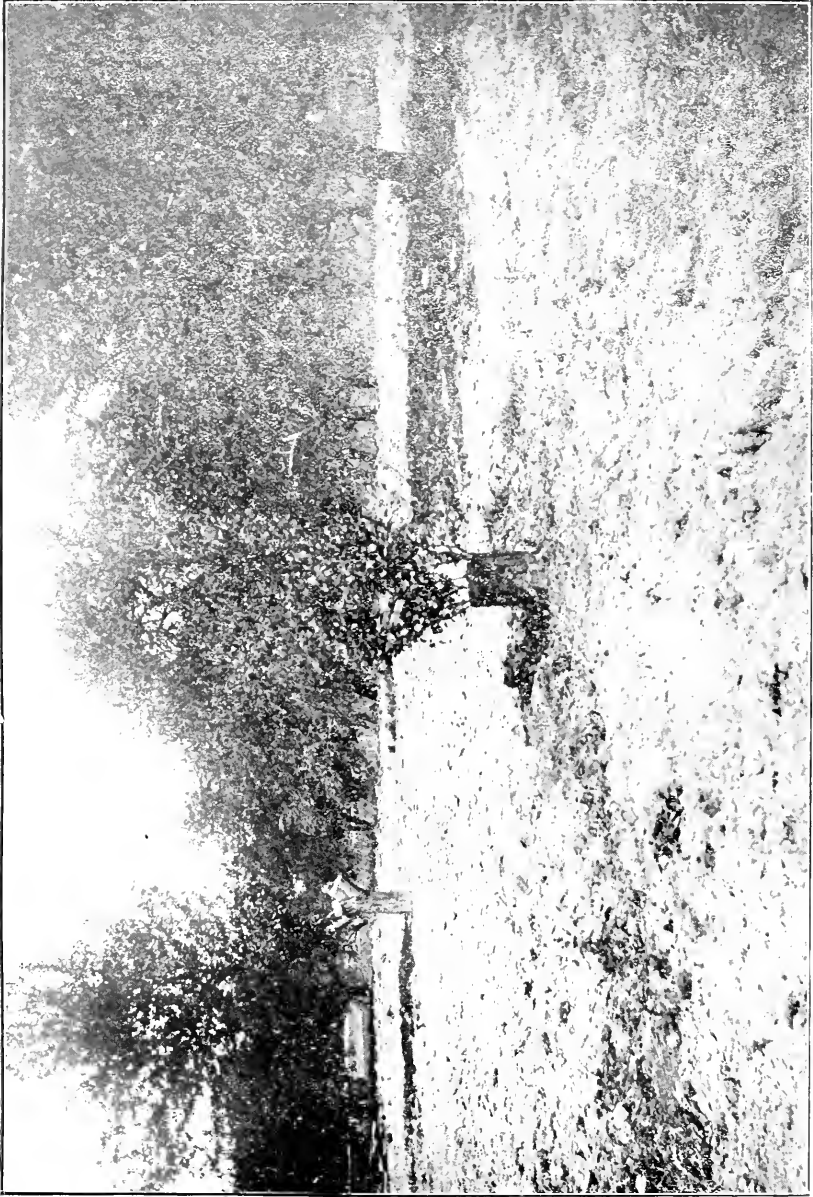
lost money from lack of market due to the ignorance of other growers who offered their product below what the market would justify. Naturally the buyer wants the fruit as low as he can get it. I have been a buyer and know. In New York and more pronounced in the northwest the growers are better organized. Some seasons the buyer or his representative camps down in a Rochester hotel for six weeks without making a purchase because he cannot break through the guard of the apple grower who is constantly in close touch with his neighbor on the apple situation. When one well posted grower sells the other follows suit and sometimes within a week the better part of the crop changes hands. This is due to the organization and interchange of ideas among the growers. In the northwest sales are usually made through a central organization who handles that part of the business. In this way the growers are not competing against each other but through one common agent they transact their business. In the middle west we lack that organization. We should have some system of getting together and this it is proposed shall be done by the growers of the middle west meeting in St. Louis before the crop is harvested and talking over the crops and the markets. A committee has already been named to issue a call for such a meeting and it should pay every apple grower to attend. This call will be issued in time.

Apple growing in the middle west can be at its prime if right methods are followed in a very short time. This season has been a good advertisement and followed by increased efforts to grow and pack a high quality of fruit will increase the popularity of the middle west apples in markets of the world so auspiciously begun.

DISCUSSION.

Question: Have you tried any dust spray?

Answer: Yes, when spraying came first I tried dust spraying, but after giving it a thorough trial, I was satisfied that it was not as practical as had been represented to me, and I came to the conclusion that it was a waste of time to spend very much time with it. We had the experiment station and conducted some experiments along side of the liquid spray and the result was in favor of the liquid spray, so that after that we did not waste our time with dust sprays. In Missouri they contend that dust spraying is the thing, especially those who are interested in the machine for putting it on. I have had some of them say to me, "Why, you don't give us a chance—you don't allow us to convince you." I reply that "The test of the pudding is the eating thereof," and we have tried out both the liquid and the dust spray to the point where we are satisfied that the liquid spray is much the better; and inasmuch as the test is in the results you get, and as the results that we got were very much more satisfactory from the liquid than from the dust spray, we just let the matter drop, and have not used the dust spray at all. However, I am frank to say that I do not feel that I am in a position to speak authoritatively on the subject, any farther than my own experience goes, but to that extent, I would simply say that the dust spray is not to be compared with the liquid spray, if you want to get results in combating with this disease.



Stump grafting. C. B. Cook farm, Owyosso.

WHAT BIRD LIFE MEANS TO MICHIGAN—AND WHY BIRDS SHOULD BE CONSERVED.

BY HERBERT E. SARGENT, DIRECTOR OF THE KENT SCIENTIFIC MUSEUM,
GRAND RAPIDS, MICHIGAN.

Speaking under the auspices of the Grand Rapids Public Library, Mr. Sargent delivered a most interesting lecture on the above topic, illustrated by a wealth of colored slides, which added interest and a clearer insight into this subject by all who heard him.

Ladies and Gentlemen, Members of the State Horticultural Society: The matter of bird protection has gone beyond the sentimental stage. Its advocates no longer plead for the birds because of the beauty of song and plumage and their delight of their presence, although these are worthy reasons for their protection.

A more practical phase of the subject has been arrived at through the admirable work accomplished by the bureau of biological survey at Washington, by investigation in institutions of learning and by scores of private individuals who have demonstrated beyond question the economic importance of the birds as insect and weed destroyers.

This information is largely based upon the study of bird stomachs which has brought to light many interesting facts. For example, the food found in the stomachs of 238 meadow larks leads to the following conservative estimate: Twenty birds to the square mile consume, in grasshopper season, 1,000 grasshoppers in a day, or 30,000 in a month. The grasshoppers would have consumed sixty-six pounds of forage which would be equal to \$24 value to each township. By such compilations government authorities estimate that various kinds of insects destroy a billion dollars' worth of crops in the United States every year, or \$10 apiece for every man, woman and child.

DESTRUCTIVE INSECT'S FAVORITE FOOD.

Bird study develops the fact that most of the destructive insects are favorite food of many species of birds, and it is estimated that the birds which are with us now annually save to the county hundreds of millions of dollars' worth of crops. The government says that every insect-eating bird is worth almost its weight in gold.

Notwithstanding these facts, or because we are not conversant with them, we allow hunters to kill our most valuable birds. For example, 50% of the food of the bobwhite or "Quail" is weed seed, 25% waste grain, 10% wild fruits and 15% insects, including the Colorado potato beetle, cinchbug, cucumber beetle, wireworm, armyworm, cloverleaf weevil and grasshoppers. As a food proposition he is worth but a few cents. Why not let him work?

We are at the present time glorying in the largest harvest ever pro-

duced, which means greater necessity for bird help in keeping in check the insect pests, and yet owing to the agencies destroying bird life, we have only one bird today where there were ten, twenty years ago. It is apparent that the time is fully ripe to conduct a most strenuously active campaign toward the curbing of the destruction of birds and the conserving of those which we now have.

The Audubon societies, national, state and local, are attempting to accomplish this by educating the people through the public press and the lecture platform. To this end was maintained the museum exhibit at the West Michigan State Fair this year and later at the museum calling attention to the value of birds and some of their enemies. Apple growers were shown that twenty-five species of birds destroy three-quarters of the winter brood of the codling moth, and by so doing save twenty-five million dollar's worth of apples each year. More birds would save more apples.

FACTORS THAT DESTROY BIRDS.

The most important preventable factors in bird destruction are the gun, the cat and the destroying of nesting places and natural food.

A long step in advance has been taken in eliminating the first of these by the enactment of the gun-license law. It has long been recognized by bird conservationists that the foreign element, which ruthlessly hunts song birds for food, and minors who hunt them for sport, have been among the destructive agents. Under the gun-license law it is unlawful for these classes to carry guns, and in some sections the law is being faithfully enforced.

Short sighted, indeed, is the man who objects to the payment of one dollar a year for the privilege of using a gun, when by so doing he is providing a fund for the protection of his best friends, the bird in their capacity of insect and weed destroyers.

The next great advance must be the destruction of useless cats. It is conservatively estimated that cats average the killing of fifty birds apiece each year. Students estimate that one and one-half millions are annually destroyed in New England and three and one-half millions in New York state. The destruction is greatest among young birds just out of the nest.

This work is popularly attributed to stray and underfed cats, but abundant evidence is available to condemn most of the cherished household pets. The hunting instinct of a cat is too strong to be overcome, and the well fed, high-spirited home cat is frequently the worst offender, not because of hunger, but for the pure love of killing.

In the case of the dog, the nuisance of useless numbers has been comfortably overcome by a license, whereby for a small sum the valuable animal is protected and the worthless one destroyed. Why should not this same justice be meted to the cat, which is economically a much greater offender than the dog ever was?

. FAVORS LICENSING OF CATS.

We recognize that the subject of the licensing of cats has been one of pleasant jest and that it is looked upon with no degree of favor by many cat lovers, but we have been surprised to find that the majority of those to whom the subject has been broached would heartily favor such an act.

As in the case of the dog, so with the cat, the most feasible way of raising funds for getting rid of the useless is to license the valuable.

When the objectors realize that cats are dangerous contagious disease distributors, not only to their own kind, but to mankind as well, they will insist upon a license as a protection to themselves and their pets. There is no logical reason why the choice between valueless cats and valuable birds should not be decided in favor of the birds.

Among the most effective solutions of the problem of how to secure more birds is the conserving and encouraging of those we have—a work which is easily within the reach of all.

The progress of civilization and land settlement, entailing the raising of enormous quantities of succulent plants, susceptible to the ravages of injurious insects such as the cabbage worm, the potato beetle, the Hessian fly and the cinchbug, and the occasional accidental introduction of foreign species of insects such as the gypsy and brown-tail moths, the San Jose scale and others, have increased the necessity for more birds to destroy these increased hordes of insects. At the same time in clearing for agriculture, man has largely destroyed the nesting cover and natural food of the birds.

HOW TO REMEDY CONDITIONS.

This incongruous condition of things may be largely remedied in several ways:

The replacing of the rail fence with its tangle of blackberry, sumach, black-haw, choke-cherry and other plants, by the cleaner and more sightly wire fence has improved crop conditions in many ways, but it has deprived birds of their natural food and nesting places, both of which might have been spared without material detriment.

This defect can still be remedied by the planting of wild fruit-bearing shrubs and trees along the fences.

The antiquated highway law which requires road commissioners to remove all foliage from the right-of-way should be repealed, or at least modified, so that groups or lines of fruit and seed-bearing trees might be spared on the public domain for this purpose as well as to beautify the landscape.

Many careful fruit growers are supplying nesting boxes in their orchards for the bluebird and similar species, to replace the cavities common in neglected orchards, with beneficial results.

An artificial food supply and shelter should be furnished for the winter residents which are among the most beneficial birds in their capacity as scavengers of insects in their winter stages.

Carelessness in these respects has permanently driven some species from

our State, and prevents others from lingering with us to nest while on their northern migration, both of which conditions are calamitous.

STOP WEARING FEATHERS ON HATS.

Referring to the use of feathers of tropical birds as hat decoration, Mr. Sargent cited the case of the almost complete destruction of the egret in past years and the parallel case of the greatly diminishing numbers of the bird-of-paradise and stated that in reply to inquiries by Grand Rapids women as to whether the securing of the "goura" feathers meant the destroying of the bird, quoted a communication from T. Gilbert Pearson, secretary of the National Association of Audubon societies, who said:

"The goura feathers used in the millinery trade are taken from the crowned pigeon, which is a wild bird and which is shot for the purpose of getting the feathers for millinery purposes. For this reason the bird is already threatened with extinction over portions of its range."

Mr. Sargent spoke with satisfaction of the growing tendency toward the strict observance of the national law which forbids the sale and use of the feathers of non-game birds, but expressed the regret of all bird lovers that the custom is not entirely tabooed.

He closed his address with the following summary:

If every landowner would supply a few bird-houses and shelters, and protect his birds from cats, sparrows and guns; coddling moths, potato bugs, squash bugs, cinch bugs, Hessian flies, weevils and borers of all sorts, cutworms, cabbage worms, gypsy, browntail and Tussock moths, webworms, tent caterpillars, grasshoppers and all other insect pests, all of which are destroyed by the birds, would soon be so reduced in number as to be practically harmless.

Why not let the State protect your land from hunters by making it a State game preserve?

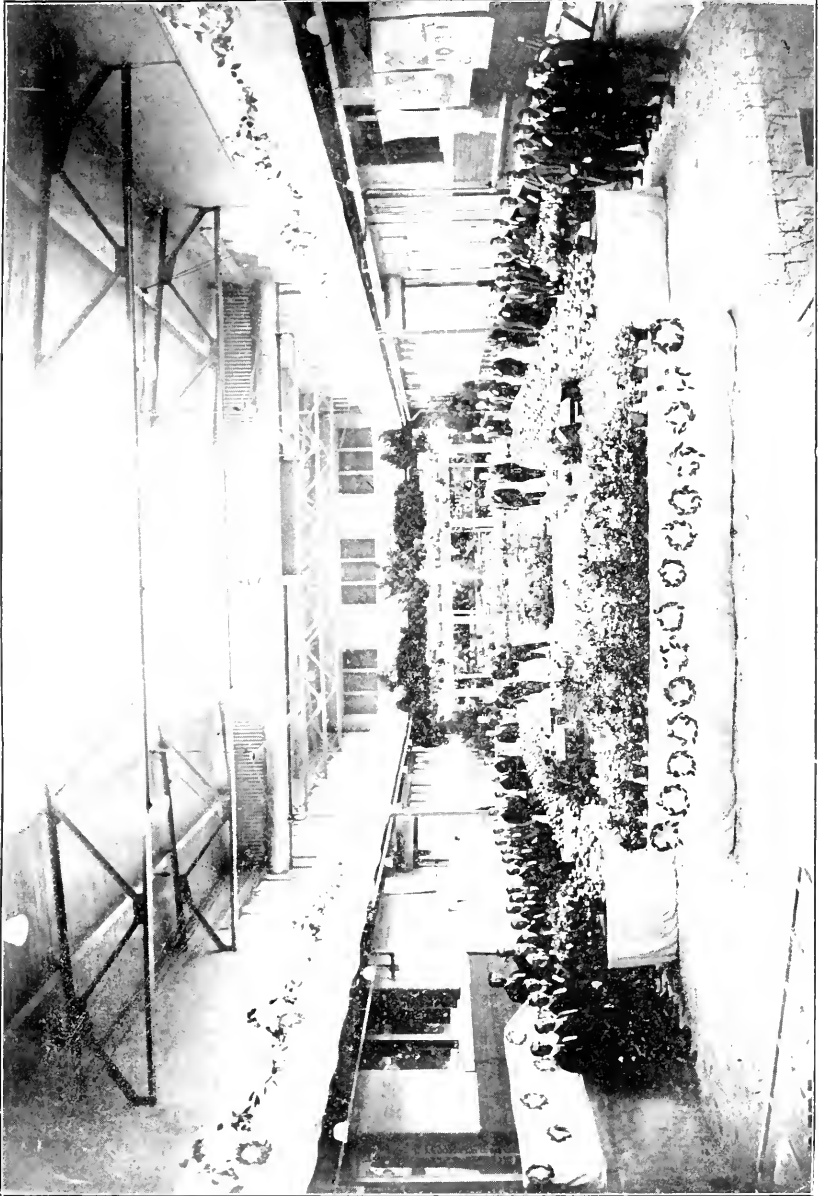
Why not destroy all stray cats about your premises? They kill on an average of fifty birds apiece each year!

Why not put up a few boxes with holes in them for birdhouses and shelters?

Why not leave or plant a few fruit-bearing shrubs upon which the birds may feed when insects are scarce?

In short, why not learn the value of your most faithful servants, the birds, and care for them as you would a human servant or a valuable animal? A little attention along these lines will pay better than any other investment of time or money which you can make.

He expressed the willingness of the museum to furnish any desired information calculated to help further the work of bird conservation.



Eighth Annual Horticultural Show given by students Horticultural Society, M. A. C.

THE MICHIGAN FRUIT LAWS.

LOREN WILLIAMS, OWOSSO, MICH.

The Michigan fruit laws is a subject of which we know very little, yet they are of great importance to every grower or prospective grower of fruit. These laws which we have were designed and carefully planned when placed on our statute books to protect and aid every grower of fruit in Michigan.

Our legislators were not fooling their time away but gave careful consideration to each phase of the industry when they conceived laws as a method of protection. They have considered the popular call of the producer; they have carefully considered the standpoint of the buyer; they have interpreted the conditions as well as good legislators can and as a result, we have the Michigan Fruit Laws which are to prevent the importation from other states and the spread within the state, of dangerous insects, dangerously contagious diseases which affect our trees, shrubs, vines, plants and fruit.

Let us not consider these Laws as mere pastime of our former thoughtful law makers to remain as unknown monuments to the cause. On the contrary, a law is a law and yet it is really not a law unless the people as a whole consider it as such.

Act Number 91, Section 1, reads that it is unlawful for persons to sell or knowingly keep upon their premises, any trees or fruit infected with the disease known as peach *yellow*s, peach *littles*, rosette, or any part of a tree infected with diseases known as *black knot*, *pear blight*, *San Jose scale* or any dangerously noxious insect pest.

Friends, I take it for granted that most of my hearers are horticulturists who are producers or shippers of fruit. If so, here is a law which our duly elected legislators have brought about for your protection. How much value has such a law until we as individuals clamor for its enforcement? We have a State Inspector of Orchards and are supposed to have local inspectors as well, in the separate districts. They are doing the best that they can to enforce the laws, but remember that co-operation is the element leading to success in such an enterprise. We must not shield our neighbors or friends but make known to the inspector the presence of all dangerous insects and dangerous diseases.

It is our duty to develop better standards of horticulture and since monopoly is impossible in fruit production, why not put the producers on an equal basis? If your neighbor refuses to spray, report him at once to the local or State inspector so that you may achieve your ideal, that of *perfect fruit* production.

It is your duty to yourself, to your neighbor, and to your State, to see that the laws regarding the importation of diseased stock from foreign or local nurseries is carefully carried out. Every shipment of nursery stock should bear a certificate of inspection when you receive it from a State nursery and both a certificate of inspection and fumi-

gation when coming from another State. This is a common inlet by which some of the worst of our diseases are introduced into our orchards and we should guard against it with an eagle eye.

Do you realize, friends, that the annual loss of fruit throughout the country, due to insects and diseases, is about 20% of the total production? That in California in the years around 1908, that five million dollars worth of Bartlett Pear orchards were lost, due to *Pear Blight*? This is only one State but it gives an idea of the great loss by such diseases. In some of the minor fruit districts of our own State, apple orchards are being swept out by scale which is one of our easiest enemies to conquer, yet no hand is raised and the farmer loses his orchard.

In closing, I would like to appeal to every fruit grower in the State, whether he is a large or small producer, to aid in the attempt to raise Michigan several points higher in her standing as a horticultural State, to such a position that we will be proud to say, we are from Michigan, the State which produces perfect fruit.

“SHOULD THE HORTICULTURIST KEEP BEES?”

RALPH W. PETERSON, BARD, CALL.

Large orchards and vineyards are the work of man and therefore, demand a correspondingly artificial condition in insect life to secure pollination. We should not overlook the fact that the real mission of the honey bee after all is not honey production but rather the proper pollination of our fruit blossoms. For countless ages, these flowers requiring insect pollination have painted their petals various hues and shed on the atmosphere their perfume, to advertise to the bee world that they had pollen and nectar to pay the bee for the service of pollination. Horticulture and bee culture must always go hand in hand for no bees means no fruit.

Three years ago, Professor Sears, of Massachusetts, noticed a couple of acres of peach trees that blossomed very full but failed to set any fruit. The following spring bees were placed in the center of the orchard and the crop was increased 4,800 baskets. Our dependence upon bees, is further shown by experiments carried on at Geneva, New York. Two thousand four hundred eighty apple blossoms were protected from bees during the blooming period. The resulting crop consisted of one lone apple. Likewise, many of our grapes, most of our plums and all of our commercial varieties of the sweet cherry will bear fruit only when bees are present. An Oregon fruit grower reports an increase of 50,000 pounds annually in his cherry crop after bees were placed in the orchard.

The efficiency of the honey bee is indicated by a simple experiment in which I found that an average hive of honey bees on a sunny day in spring would visit more than five million flowers. The significance of the statement is realized when we remember that most of the native

bees are often killed by our severe winters and really play only a minor part in the fertilization of our spring bloom. But those localities having an abundance of honey bees in addition to their native bees are insured a large crop nevertheless.

Since bees are, therefore, so fundamentally necessary for maximum fruit returns, why are they not more generally kept by Michigan horticulturists? Possibly it may be due to erroneous impressions concerning the industry, one being that it does not pay, another that the bee is an animal rather to be admired from the distance and third, that the bee is largely instrumental in distributing blight and injuring fruit.

The strength of the first object, that bee-keeping is not profitable, will depend entirely upon the man himself. Mr. E. L. Hoffman, on his 200 acre grain farm at Janesville, Minnesota, last year extracted 35 tons of honey, thus giving him returns of over \$7,000.00.

The second objection, namely, that the bee is vicious and hard to handle, is entirely disproven, for with considerate treatment, bees allow the keeper to handle them with impunity. The subject of stings may be dismissed with two comforting considerations, first bees seldom sting during swarming time when they are mostly handled and second, one soon becomes immune to stings.

The last objection raised is that bees are destructive in the orchard by spreading blight and injuring fruit. Bees can not be held responsible for spread of blight for other insects do the same work and even though the honey bee were absent, it would be spread quite the same. Great injury has also been done the bee through the accusation that it punctured the ripe fruit. Investigators, particularly of the United States Department of Agriculture, have proven conclusively that bees will starve to death before puncturing the skin of ripe fruits although they often sip the oozing juices after the skin has been broken by some other agency.

A few years ago, California fruit growers raised such a protest that the bee-keepers were forced to move their bees from the neighborhood. The following year the crop fell off to such an alarming extent that they implored the bee-keepers to return, whereupon the crop returned to its original yield.

If we horticulturists would therefore, keep abreast of the times, we should also become bee-keepers not only to insure our fruit crop but also to utilize another of the by-products of the orchard and garden and to save for human use a recourse now so generally wasted.

APPLE SCAB.

L. R. STANLEY, TRAVERSE CITY.

Apple scab is the worst disease with which the fruit grower has to contend, in the same way the codling moth is the worst insect that he has to fight.

During seasons that are wet and cold, such as we had this summer, the scab will often cause a loss to the apple growers of the State of 25% of the market value.

Scabby apples are packed and put on the market, because the scab does not entirely destroy the usefulness of the fruit, but a scabby apple in a good barrel of fruit is like a scrub cow in a pure blooded herd of Holsteins. It detracts from the appearance of the rest of the barrel, and lowers the price which the producer gets on the market.

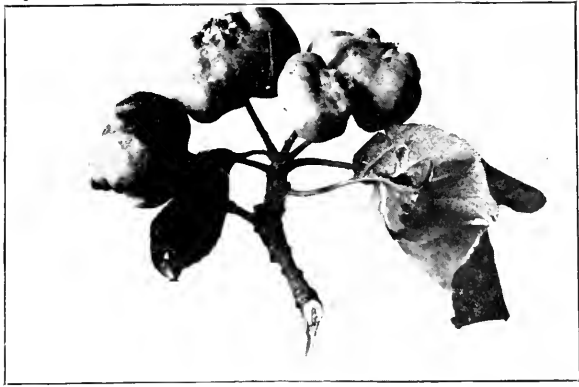
The apple scab disease is the enemy of the fruit grower for at least five reasons:

1. It interferes with the normal functioning of the foliage.
2. It retards the twig and wood growth of the tree.
3. It makes abnormal apples.
4. It makes unsightly apples.
5. It keeps the Michigan apple growers from putting up a first grade pack, and thus getting a first grade price for the pack.

The cause of this disease is a fungus or a very small plant that lives at the expense of the apple and the apple tree. Its spores or seed get on the young fruit or leaves in the spring, and they begin to grow and send out little roots or mycelium. These burrow down through the skin of the apple or the leaf, and produce more mycelium. These fine roots send up branches to the surface, and on these branches are produced more spores. This causes the skin to rupture and we have the typical scab spot. The rupturing of the skin allows the entrance of other diseases such as pink rot, brown rot, and a number of others. These spots may form at any time throughout the early part of the summer, but usually just after a rain.

Another stage of the disease is found on the dead leaves in October. This stage matures between early fall and the following April. It is a round sac-like body on the under surface of the leaf, and inside of it are a number of long slender cases, in each one of which are eight spores. At the proper time in the spring, these spores come out and infect the leaves and young fruit.

The secret of the control of apple scab is in getting the spray on the trees before the spores get there. Concentrated lime-sulphur should be applied before the leaf buds open, and dilute lime-sulphur just before and after the blossoms fall. When properly applied, the spray covers the tree from top to bottom with a thin coating. Now when the spores come along, they settle down on an apple, send out their little roots and try to get a living. But before reaching the apple they must first go



The effect of Aphids on apples.



Aphids on apple bud.

through this thin coating of spray, and in doing so, they take up some of the spray, and before they reach the surface of the apple, the task is given up as a bad job.

An intelligent understanding of the nature of this disease which we call apple scab, and a proper knowledge of the action of the spray on the disease, will enable the grower to successfully control it.

In the control observe two things:

1. Prune the tree so as to let plenty of sunlight on to the growing fruit. Sunlight is an enemy of scab.
2. Spray in time.

They say that a step in time saves nine, but it is equally true that a spray in time saves the apple crop.

“PLANT APHIDS.”

CHARLES N. RICHARDS, BENTON HARBOR, MICH.

Aphids are plant lice. I am sure you will be able to realize the delicate position in which I am placed. I was told when a little boy that it was not proper to speak in public about such things as lice, but if you will pardon me I will side-step the laws of conventionality and deal with one of the serious pests that is confronting the fruit grower today.

Every farmer is beginning to learn that he must successfully combat a score or more insects and diseases if he is to make a profit from his labors and remain in the fruit growing business. There is a bug or a disease for everything we grow, and the fruit grower who is most successful in overcoming these obstacles is the one who will be the best repaid for his energies expended.

The plant lice need no introduction to this audience. Through their numerous species they are found during the summer upon almost every plant that grows upon the average farm. For years this insect has reigned supremely in the fruit orchards of the country. It is a sneak, a blood-sucker, and because of the obscure way in which it does its greatest damage, it has been tolerated and allowed to exist in increasing numbers. The farmer has not known the proper way to control it. Let us undertake a closer study of this insect. The aphid does its greatest damage upon the apple, cherry, plum and pear. Early in the spring, the young lice hatch out from little black eggs which were laid in cracks in the bark the previous fall. These lice appear just at the time that the fruit buds are beginning to swell. They crawl along the twigs to these opening buds and begin feeding upon the tender tips.

This is the time and the one time to control the plant louse. At this stage he is tender and can be easily reached with a spray.

As the buds open up, the lice dig deeper into the heart of the petals and as the young leaves are formed, the aphids attach themselves to the

under sides and proceed to suck the sap and vitality from the green tissues of the leaf. As the summer advances, the leaves shrivel up, turn yellow and roll up. The aphids remain inside the rolled leaf and it impossible to kill them under such conditions. These withered leaves weaken the young shoots and leave them susceptible to disease and winter killing. The lice work also upon the fruit. Everyone has seen them upon the cherry. Each plant louse secretes a honey dew which smears up the fruit and attracts whole armies of ants. The fruit is generally left deformed and worthless.

Many generations of lice are produced in one season, the number varying from ten to twenty. Under ideal conditions a single female at the beginning of the season might be responsible for more than a million of progeny through the season. It is a very interesting fact that until fall no males are produced. The female lice have the faculty of giving birth to living young without the intervention of the male. When the leaf becomes crowded, a winged generation is formed and this flies away to new leaves. In the fall a male generation is produced and the females deposit their eggs on the bark of the tree for the next year.

The control of this pest is very simple when properly done. Plant lice must be killed with a contact spray. The two best are the tobacco and kerosene emulsion. The nicotine sulfate solution has proven itself to be the safest remedy. Use one pint of the forty per cent solution to one hundred gallons of water. As I said before, spray just before the buds open. A stitch in time saves nine. If you can get the majority of lice at this tender period, then there will be little to fear for that season. This tobacco spray costs about \$1.15 per 100 gallons and can be combined with the regular lime-sulphur spray for scale which should be applied at just the same time. If this first spray is not given, then it will be possible to obtain fair to good results by using this same spray whenever the pests become too abnoxious.

UNFAMILIAR PHASES OF BROWN ROT.

PAUL J. ROOD, SOUTH HAVEN.

Brown rot is a fungus disease caused by *Sclerotinia fructigena*. Except for peach yellows, it has been recognized as the most destructive disease of stone fruits. This disease also affects the apple, the pear, and the quince, though not so seriously. The average annual loss in the U. S., due to this disease alone, easily reaches five millions of dollars.

After weather conditions such as have prevailed throughout this section during the past season, the fruit contains a much greater percentage of water than under normal conditions and it is upon this fruit of high water content, that the disease grows and spreads the most rapidly.

Every fruit grower is perfectly familiar with brown rot as it appears

on the fruit; first, as a small, circular, brown spot, which, under normal conditions, rapidly enlarges, until within two or three days the entire fruit goes down in decay. The object of this discussion is to point out other phases of the disease with which the grower is less familiar.

Brown rot also attacks the blossoms, turns them brown, and prevents the fruit from setting. This is commonly known as blossom blight. Whether it is the blossom or the fruit that is attacked, the fungus often passes into the fruit spur, and from the spur, into the twig. Affected twigs usually are girdled, and the leaves beyond the point of entrance wilt and turn brown. The disease may follow down the affected twigs into the larger limbs where it spreads in all directions. Soon a sinking of the tissue is noticed, and this is followed by the foundation of a gum pocket. A little later the bark splits, forming a typical brown rot canker from which the gum oozes in a sticky, gelatinous mass. If we examine the gum with the microscope, spores of the brown rot fungus will be found. The fungus lives in these peach cankers for many years and not only kills the tree, but also serves as a source of infection to every succeeding crop of fruit.

These, then, are unnoticed phases of one of the most important factors tending to undermine the peach industry of Michigan, and they can be found in every Michigan orchard. How will we meet this problem?

It is obviously much better to prevent the formation of peach cankers than to treat them after they appear.

Remove all cankered branches in pruning. In case of serious cankers on the trunk or main limbs it may be advisable in some cases, to remove all diseased tissue and apply some disinfectant dressing.

The control of blossom blight is an important factor in the prevention of canker formation. This may be accomplished by destroying the mummies which are the source of Spring infection; either by plowing the orchard before the blossoming time in the Spring, or, by destroying all rotted fruits in the orchard at the harvest time.

Likewise, the control of fruit rot is involved in canker prevention. This may be accomplished by the use of self-boiled lime-sulphur one month after the petals fall and again, one month before the fruit ripens. Since brown rot may enter through the injury of the curenlio, these sprays should follow the poison spray. Self-boiled lime-sulphur, properly prepared and applied, will injure neither the foliage nor the fruit, will entirely control peach scab, and will reduce brown rot infection to a minimum.

These measures are sufficient to control rot and I make an earnest appeal to Michigan fruit growers that they employ every possible resource to stamp out brown rot in Michigan.

FRUIT JUICES FOR THE HOME AND MARKET.

R. W. LAUTNER, TRAVERSE CITY.

Today, in all industry it is becoming more and more essential that materials once wasted be made into useful and paying by-products. If fruit growing, then, is to become a great industry and if the prices of fruit products are to be as stable as possible, it necessarily follows that we must make use of all waste and surplus fruits. Every fruit grower here knows that today under the best of marketing and distributing conditions that there is an immense amount of waste. If then some of these surplus and waste fruits could be made into fruit juices it would prove a great benefit to the industry. Now let me repeat and emphasize that it is the surplus, fruits that we wish to make into fruits.

The Bureau of chemistry of the U. S. Dept. of Agriculture made a series of investigations on the preserving of fruit juices and developed two new methods. Here I wish to give these new methods and show how they will help to take care of surplus fruits.

The first method and the most important one is the concentration method by freezing. For the sake of illustration let us make some pineapple juice in this way, for this fruit gives the best results. After the juice is extracted, it is frozen, the freezing process freezes the water in the juice and thus concentrates it. We thus have a cake of ice which is mixed throughout with a thick sirupy liquid. This cake of ice is crushed and the thick pine-apple juice is extracted from the ice by centrifugal force. The raw juice is then ready for the market but it must be kept under cold storage conditions. Here let me show what this method means. For instance pine-apples have a low price. Then these surplus fruits can be made into fruit juices which can be preserved for a longer time than the fruit and a stable product is put on the market to be used at all times of the year rather than a fruit which is perishable. And again, by shipping the fruit in the concentrated or the juice form the rates are lowered and profits are made on a product which otherwise would have been wasted. Grape-fruit juice and cider can be made in the same way. Because of the concentrated form thus lowering the rates and because of the longer keeping quality, these stable products can be shipped long distances and kept for a long time. Now would it not be a nice thing, if at all times of the year one could go into an ice cream parlor and pour thick pine-apple juice over the cream, or if any morning at breakfast one could pour a sirupy grape-fruit juice over one's flakes, or one could drink sweet cider at all times of the year. These are some of the things which would be possible with this method.

The second new way of preserving juices is by the carbon dioxide method. Briefly this consists in heating the juice and then adding car-



Vineyard at "Oak Crest." Farm Secretary Smythe at Benton Harbor, Mich

bon dioxide. The carbon dioxide is particularly good in retaining the color in citrus juices and at the same time it makes them more palatable. It was the hope of the chemist at Washington that lemon juice could be put up in this way but this was only partially successful. Think what it would mean if all lemons could be shipped in the juice form. Then there would be no loss by the rotting of the fruit and the rates for shipping would be less.

In conclusion then, the making of fruit juices in the future will be one of the many ways of using surplus and waste fruits. It will turn a perishable fruit of a short season into a stable fruit product to be used at all times of the year. This will in a large measure insure stability in production and price and when this is true the fruit growing industry will be the greatest in the land.

“PROSPECTS FOR APPLE GROWING IN MICHIGAN.”

MERRILL S. FULLER, PAW PAW.

Mr. Chairman, Members of the State Horticultural Society, and friends:

In substituting for one of the best speakers in our class, who has been unable to attend this meeting because of illness for the past few days, I am going to take the time that should have been given to a mighty good speech.

I have chosen for my subject: “Prospects for Apple Growing in Michigan.”

Much has been said of the future of the apple growing industry in Michigan. Many are afraid to set out an apple orchard; they think that it is being overdone. Many think that western fruit is going to crowd out the less highly colored fruit of Michigan, and it has been said that the large acreages set out all over this country will make apples a drug on the market in the near future; that other fruits are taking the place of the apple to a large extent.

All the evidence that I can get together concerning this subject does not justify such an attitude. Of course this is a very broad subject, and only a few of its many phases can be discussed in the few minutes that we are given. But I am going to try and give you some of the reasons why I think that the apple growing industry in Michigan has a great future before it.

In the first place western apples can never invade the central and eastern markets to any great extent. We can put apples on the market cheaper than can our western brother. This is true because western dealers have more capital invested in every package of fruit that they send east than we need to spend. Their land suitable for apple growing is high; then they must irrigate, fight all of our common pests, and then pay freight for thousands of miles in order to place it on our markets. And I believe that the city consumer is going to learn before long not to pay dearly for an apple just because it is big and red.

Then in regard to the over-production in the whole country at large, many think that from all the orchards that are now just coming into bearing, certainly apples will soon be a drug on the market. Figures fail to show this. In 1896 the largest crop this country has ever seen, was grown; since then the production has decreased very rapidly; at the same time the acreage has increased still more rapidly, but we must remember that at least 75% of all the young trees that are set out never become good productive orchards.

The San Jose scale and increase of other pests have probably caused this decline, yet they are comparatively easy to control. This loss in productiveness has been due largely to neglect by the farmer with a small orchard. This is a common sight: In riding through the country one's attention is called to the bare orchards that have been rendered useless by the ravages of the San Jose scale.

Good apples will always be in demand and as soon as the production reaches the demand, the man who can produce the best fruit the cheapest, will still have a market; and so by organization, a little more co-operation, and a lot more enthusiasm by Michigan growers, with all the natural advantages in the world, the Michigan apple can be made the big red apple of this country.

THE CURCULIO.

H. A. CLARK, LANSING.

The curculio is often known as the snout beetle or weevil. This insect attacks apples, peaches, plums, cherries and a number of other fruits. It is by far the most destructive insect with which the fruit-grower has to contend, not because of the direct damage it does itself, by gnawing and deforming the fruit, but the damage done indirectly by allowing the brown-rot fungus and other fungus diseases to enter these punctures it makes in feeding and laying eggs. From this it can be seen the great amount of damage this insect is capable of doing.

There are four stages that the curculio passes through. The mature beetle comes out from its hibernating quarters from under brush, rubbish heaps, etc., in the orchard in early spring, and immediately attacks the young buds; later the flowers and finally the young fruit. It punctures the skin and just under the surface lays minute eggs, which is the first stage. In about 5 to 7 days these eggs hatch into minute larvae which immediately bore to the center of the fruit; here it stays for a period of 15 days, during which time the young fruit drops to the ground. The larvae (second stage) then bores out of the fruit and enters the ground to a depth of about 2 to 3 inches; it then enters what is known as the pupal stage (third stage), or the changing stage between the larvae into the adult curculio. It remains in the ground for a period of about 28 days, at the end of this time it emerges from the ground as an adult beetle. It immediately attacks the maturing

fruit on which it feeds until it goes into hibernating quarters, in rubbish, etc., for the winter, ready to come out again the following spring and resume its ravages.

The curculio feeds by puncturing the skin of the fruit with its beak and eating the pulp beneath. This is the best time to spray, as the curculio will take in some of the poison when puncturing the skin. If it fails to kill him or her, eggs will be laid and it cannot be killed by spray in the larval and pupal stages, when it does much damage.

There are several methods of prevention in the control of the curculio. First, remove all rubbish piles, stone piles, etc., in and around the orchard as these afford favorable hibernating quarters for the beetle over winter. Practice clean culture in the orchard.

At the time the curculio is in the ground, that is, the pupal stage, the soil should be disced to a depth of about 3 to 4 inches. This throws the tender pupa to the surface where they are easily killed by their natural enemies and climatic conditions. It is important that this harrowing or discing shall be thorough; going as closely to the trees as possible; shallow and at rather frequent intervals.

The old method of jarring the adult beetles from the tree by means of poles padded on the ends, has proven both expensive and inefficient in large commercial orchards and is rapidly going out of use. The best and favorite method of control at the present time is spraying. Two pounds of arsenate of lead added to 50 gallons of lime-sulphur is the spray most frequently used. A first application should be made very early in the spring to cover the young buds, on which the beetle first feeds on coming out from its winter quarters. During the feeding process, the beetle usually takes in enough of the poison to cause its immediate death. A spray at the time the petals fall is extremely important to protect the setting fruit from the beetle. About ten days later another spraying should be made to cover the young developing fruit. Spraying at intervals of about two to three weeks should be made until about 1 month before the fruit ripens.

This spray of arsenate of lead and lime-sulphur controls not only the curculio, but the fungicide kills all fungi, especially brown-rot which might enter the punctures produced by the beetle.

It should be remembered that spraying, cultivation, etc., should be thorough and above all at the proper times if complete control of the curculio is to be obtained.

LANDSCAPE IDEALS.

M. E. BOTTOMLEY, CHARLOTTE.

Landscape Gardening, the youngest of our arts, holds for the future the greatest of possibilities. This is true, because the necessities of life, sought first in every new country have been gained and the smaller comforts following directly in line with them have been gained also. The interest which extended only to the bricks and shingles is now carried as far as the street. The time has therefore come for the extension of the comforts of the house to the natural surroundings.

The pilgrim fathers began at once to surround their modest homes with vegetable and flower gardens. The flower gardens were simple and served mainly as reminders of the life left behind in England. In isolated cases such as Washington's home at Mount Vernon, Colonial architecture was given a fitting setting by the surrounding treatment. But it has been left to the present day to reach a stage of development wherein the attention of the people at large is turned in the direction of horticulture and the framework for its development, landscape gardening.

The real garden in this country is a rare thing because our ideals have not been right. So much care has been taken in the making of a display that the real purpose has been lost. We should keep the same degree of privacy in our gardens as we desire in our living rooms. For many years our houses were over-furnished, over-decorated, arranged for effect instead of comfort. So in our gardens have been made the same mistakes. We had forgotten that furnishings do not make homes; that plants and fittings do not make gardens. A room should have the true home spirit; a garden should have an atmosphere, a feeling of friendliness and the expression of the personality of the maker.

Speaking generally the question of use is first to be considered. Whatever is to be designed must perform its duties practically; but that alone is not enough. It must also perform them gracefully, for the day has passed when useful objects are not also required to be attractive. America is richly endowed. No other country gives such a scope to the landscape gardener, offering him such opportunities for variety by the diversity of her surfaces and climatic conditions.

Trees, shrubs, and flowers should be planted only after a plan of the property has been made. The aim in making a plan is to design it in such a manner as to block from view all objectional buildings and objects; to give a desirable amount of shade and shelter; and to build such structures as may add to the joy of out-of-door living. There are no such things as rules of design. One cannot learn a few formulæ and then turn out satisfactory work by going through a certain number of processes. Neither is landscape designing done by novices who babble of an inspiration, and who speak of their work as an art pronounce-



Home of Secretary Smythe, "Oak Crest," Benton Harbor, Mich.

ing it with a capital A. There may have been instances of genuises whose work has been the result of swift and sure intuition, but none of them is practicing in landscape or any other branch of design today. Thomas Edison says: "Genuis is nothing but drudgery." So the good landscape gardener by hard work must gain an attitude toward his work which will direct him. This attitude is acquired by deep study and a knowledge of the several allied branches.

In every other art there are certain established rules or general principles to which one may appeal to support ones' views, but in landscape gardening every one delivers his sentiments or displays his taste without having studied the subject or even thought that it was capable of being governed by rules. In a way every landscape proposition that arises is a problem in itself, and yet all successful landscape schemes have obeyed the general laws of design.

Whatever the problem in hand, and whatever the medium to be employed, the primary requisite of good landscape' designing is fitness for the function which it is to perform.

When these ideals of landscape gardening are properly considered in the improvement of our home grounds, each property owner will accomplish his share in making a more beautiful Michigan.

BUD SELECTION.

BY F. M. BIRD.

Mr. President, Ladies and Gentlemen: Scientific breeding operations have long been used in dairy production, in which the "robber" or "boarder" cow has been eliminated; it has also been used to great profit in the selection of the best strains of grain, sugar beets, tobacco, etc., and it is an astonishing fact in face of the progress made in other lines of agriculture that the idea of growing better fruit through the selection of buds had not been thought of before.

A few years ago an orange-grower of California in setting some stocks that he had received from a nurseryman of that state, found that when his trees came into bearing, some of them were much more productive than others, and that the fruit was large and had the hitherto unheard of advantage of being seedless. As he was realizing nearly as much from these few trees in dollars and cents as from the rest of his orchard he wanted a whole grove like them. So he selected buds from them which were grafted on stocks, and as a result he obtained a large orchard of this productive type of seedless oranges.

Naturally the matter came to the notice of the Bureau of Plant Industry, and they sent Mr. A. D. Shammel, assisted by W. G. Powell to investigate this and to find out if there were these differences existing in other orchards. They found that there were great differences in trees growing side by side, on the same soil and having the same care. All fruit growers in the State co-operated with them and in fact agreed

that not over 60% of their trees were profitable trees paying for care and space, and that only 10% were of the most productive type. Now Mr. Shammel and Mr. Powell discovered more than this. They found that some particular trees were good bearers year after year; others were uniformly poor bearers year after year, the good and the poor growing side by side subject to the same conditions. Furthermore, they discovered that a profitable tree could be grown from one generation to the next by Bud Selection, that is, by selecting buds from the good tree and budding them on to the stocks to be used for the new trees.

For the last two years the Bureau of Plant Industry in connection with our experiment station, has been carrying on an exactly similar investigation in this State to prove that these things are true of other fruits as well as of oranges. Mr. L. B. Scott has had charge of this work, and the apples he has grown show that these differences do exist, for the same apparent conditions were present and the trees from which the fruit was taken were side by side and were given the same care. This experiment has so far determined that these differences in production of kinds and amounts of fruit do exist, and by tracing back they have found that they persist year after year by the life histories of some trees we know that these good points or characteristics may be passed on to the next generation just as in the case of the citrus fruits of California. The Bureau of Plant Industry feel sure that the outcome of this test will be the same as with oranges.

Now fruit-growers of California are cutting out thousands of their unprofitable trees and top-working them to the profitable type. They have adopted the result of these investigations absolutely, have found that the productive type produces 90% first grade fruit against 10% for the unproductive type, and feel sure that when they have put this new idea into general practice they will more than double their profits. If the fruit-growers' organizations of this State would adopt Bud Selection right now and insist that their nurserymen provide them with stock of this desirable type, there would be an increased income to the grower produced more easily than in any other way. They are bound to recognize this point in the end. With all this evidence before them why should they hesitate. They should adopt this principle at once, get the jump on other states, and make this State the greatest fruit producing center in the world.

Chairman: We have a little time now and question number six has been called for: "Would the Fruit Industry be Advanced by Federal Legislation, Making it Unlawful for any Package of Fruit to be Faced with Better Fruit than is Contained in the Balance of the Package?"

As this is a live question, and one that is more or less vital to our success as shippers, and as it is one of the grievances that we have to meet, I suggest that we thresh it out.

Mr. Thomas: We have here with us a gentleman from Berrien county who is familiar with this phase of the question. I suggest that time be taken to hear from him, Mr. Holloway, from Sawyer.

Mr. Holloway: It seems to be a peculiar coincidence that we should have listened to one of the students from the College in an interesting

and forcible presentation of the importance of the laws relating to fruit growing, while it happens that in the last week the Circuit Court of Berrien county, has spent the week taking all the time of the court and two different juries, twenty-four men altogether in trying two cases brought to prosecute parties that are claimed to have violated the law of the State of Michigan intended to prohibit and prevent fraud in the sale of Michigan grown fresh fruits. The particular section of the act under which these prosecutions were begun, was the fifth section in which it is stated that no package shall be sold or offered for sale, or kept for sale, in which a false representation of the contents of the package is made. The Act provides that it shall be deemed false representation when more than 20 per cent of the contents of the package are substantially inferior in size and quality, etc., to the faced or shown surface of the package. It happened that the speaker was drawn on the jury in the first case, and watched it through with very much interest. The case was very strongly contested on both sides from start to finish and numerous witnesses were brought from Battle Creek and Lansing. The evidence was very clear that the package in question when examined by the State Inspector was so packed that 40 per cent or more was inferior, particularly in size, to the face or shown surface. There was a question and controversy at the trial as to whether the particular package which was found at some distance from the point of preparation at the orchard,—(it had been shipped from Benton Harbor to Battle Creek—and the inspection was made some hours after its arrival there); I say, there was some question—and some difference in opinion as to whether the package was in exactly the same condition as when it was packed and shipped. There was an agreement reached by the jury after about six hours of very earnest debate, under the instructions of the court, which threw aside all right to consider the intent of the shipper, and which forced the jury to simply consider the question: "Was that package up to the standard and condition required by the law?" There was no verdict that could be brought in except that of "guilty," but with it came a recommendation that the minimum penalty be enforced.

The second prosecution was against a different man. There was about the same period of time given to the discussion of the case by the jury, and the jury reported that they were unable to agree. The court in that case had modified his instructions and the word "knowingly" was allowed to be considered by the jury in considering whether the defendant had violated the law. The result was that after this sincere and vigorous desire on the part of the court to enforce the Michigan law, and perhaps \$450.00 had been spent by the county in maintaining the court in the prosecution, only one verdict was returned finding the party guilty. In the opinion of some lawyers the law should be set aside on account of its doubtful constitutionality, in its present form. The object of the law would certainly seem to be good, judging from the title. One of the requirements of the Constitution of this State is that the scope of an Act of the Legislature must be no broader than the title of the Act, in all fairness to the people, who are interested in what laws the Legislature is passing, in order that they may inform

themselves as to what the proposed laws of this State are. If it is found that there is a discrepancy of this character, it should be righted.

However, I must say that in fairness to the judge and the jury, if you want to have laws enforced, they must be so clearly and definitely stated that it is beyond any dispute as to just what is intended by the law and that public sentiment can recognize when anybody has transgressed the law, in fact, whether intentionally or ignorantly; so that there could be no doubt about it. If you try to get your law through as such and get a working machine less perfect than that, you will find that it will fail to do its work properly. You cannot put a man in jail, neither can you fine him in the Circuit Court, except you can get a jury to say that he is guilty. They have tried to enforce, for instance, in the State of Illinois, a law that no saloons shall be open on Sunday. In Chicago, the sentiment of the majority has not been in favor of that. Juries have been called repeatedly to convict men for violating that law, and the prosecution could get no verdict from the juries. So the law has been a dead letter. We want laws that are alive; that will force the guilty into line, if it is possible to get them enacted. The judge of our Circuit Court, Hon. G. W. Bridgman, believes that the law ought to provide that costs of court and perhaps a heavier fine may be taxed against a defendant found guilty who had appealed to a Circuit Court from a judgment of a justice of the peace, and that, so long as the word "knowingly" remains in the law, it will cause difficulty in its enforcement.

I am inclined to think that this law would be helped if the words "If the package is marked with the words '*not faced*' should be added at the close of section five.

If that provision were in the law and a jury should find that a man had marked a package "*not faced*" when the contents were not of the prescribed grade, there could then be no doubt in their minds that he was guilty of fraud and deception, and all packages of Michigan grown fruit with that mark upon them would by that very mark call the attention of the purchasing public to the fact that the laws of Michigan practically guaranteed that they were honestly packed.

The constitutionality of this law probably will not and cannot be determined merely by an examination of the law books, and not until the courts can know from testimony, how the law works out in the orchard and the packing sheds, and can judge whether the scope is broader than the title, and whether it improperly meddles with honest business. As an illustration of a case that might arise, I happen to be interested in the growing of peaches, which I ship to a special market packing them generally by preference of the consumers in what is known as six basket crates. With these small baskets made in the shape that they are, we do not know down in our locality how it is possible in a practical way to pack these baskets, so that there will not of necessity be peaches in the bottom that are smaller than those that are placed above them. Nobody complains about them, but you are certainly getting them larger on top, than they are below. The form of the package is such that no one could expect to have the peaches the same size all the way through. Technically it might be charged that we are violating

that law against fraud, but there is no intention or representation on our part that would warrant any such conclusion. I simply mention this as an instance of where this law would seem to operate adversely to a perfectly sincere and legitimate desire to do the right thing. The views of this Society will probably have a large influence with the Legislature and upon the sentiment of the localities where this fruit is packed and where the prosecutions are brought. I wish to let you know first-hand what we have been doing down in our locality, in regard to the enforcement of this law, and whatever it may be worth to you, you are welcome to it.

Chairman: Are there any other remarks on this question?

Mr. Smythe: Mr. Holloway came here partly at my suggestion because I was called to the courthouse to talk with Judge Bridgman about this law and its not working out as we hoped, and I wanted Mr. Holloway to tell you about the two cases that have been tried down in Berrien county, and how the trials came out. There are other laws not working out as we had hoped and as I am on the Legislative Committee I want suggestions from the members as to what we shall do. I am perhaps as much responsible for the writing of this law as anyone, and while it seems to have some defects, at the same time, I think it has done a world of good to Berrien county. What it has done elsewhere, I do not know; I do not want to have it repealed, but if it is necessary to make changes in it, in order that Michigan shall have better fruit, I want those changes made, and I will be very glad to get any suggestions you may give.

Mr. Thomas: I might bring up something to illustrate how the pack of Michigan is being thrown upon the market—I have in mind an orchard that is right near me, that was not half taken care of. The original owner of the orchard sold it for a small sum, and it changed hands three or four times and finally after the apples had fallen off the trees on the ground in piles, and sold, and the fellows scooped them up in baskets, faced them over, the inner layers of apples being worse than our cider apples, and after facing them over, sold them. But these apples changed hands so many times, that it would be difficult to tell just where the trouble was. Yet, that is called Michigan pack, and I say that it is up to this organization to do something to prevent that sort of thing happening. I think it is happening all over Michigan, as well as in my community, and it is this that we growers who want to put in good stuff have to contend with. It is certainly unfair to us and is doing a lot to neutralize the good that can and does come to those who pack honestly and see to it that there is in the package exactly what is indicated on the outside.

A Member: It seems to me that this law is a kind of a dead letter. The fact is we are altogether too indifferent to just such things as has been mentioned. The western states will not tolerate any such a thing, not for a minute. Every bit of fruit there is inspected before it is sent out. Why not have such an inspection for the State of Michigan? When fruit has passed the State inspection or the inspection of this association say, or any inspections that the law requires, the man had to receive it at the other end, and there was no kick coming. Then

you positively knew that the fruit was just as it was put up because it had been inspected, but after it goes from Benton Harbor to Battle Creek, there is a question about somebody meddling with that package but there is nothing of the kind if it is inspected at the car.

A Member: I have learned that there are some dealers in fruits that have complained that fruit from certain states come to them so packed under the laws of those states that are in such good working shape that they can implicitly rely upon the contents of the package. That might be one good way to find a good working law, by going to these dealers and find out which states stand high; study their laws—it may be they will be just what we want.

A Voice: Idaho stands high.

Chairman: The reason why we have these laws is to make the most of us behave ourselves. We like to shift it over on to the other fellow, but sometimes we ourselves, need watching.

Mr. Morrell: For twenty years we have fought dishonest methods of packing. It did not improve so very much until we got a law. The law in some respects is a very good one. We have reached the first year of the application of the law and it has developed a fault which is really a serious one. Take for example: The hardest of all fruit is the peach to ship in a package with an easily removable cover. The State authorities have taken the point of destination as their place of inspection and they have convicted some men, and among them men that I do not believe ever packed a fraudulent package of fruit in their lives. I want to say to you, that I believe, and I think you will agree with me, that a package with the covers so easily removable, could be changed back and forth and the fruit taken from one basket to another and when it came to be inspected, perhaps it had passed through three or four hands and then fixed up and then, the penalties for a violation of the law was fastened onto the man who originally packed the fruit and did it all right. In one instance I know of a dealer that changed the fruit and used a basket with a certain grower's cover on it, and it passed as this grower's fruit when the fact is, that this man never used the brand of baskets in which the fruit was found. Such kind of work as this brings embarrassment and loss to the fruit grower and a stigma upon the State of Michigan, as well as the particular locality from which the fruit was supposed to come.

Now a remedy for this, in my mind, would be that the inspection take place at the point of origin, and before there has been any opportunity for manipulation.

It is a good law, but if it could be amended so as to change the place of inspection I believe it would hush up a lot of dissatisfaction. I think we ought to go on record and do all we can to insist upon inspection at point of origin only.

Mr. Smythe: Will you go on the Legislative Committee down at Lansing this winter?

A. I have been there once and I will be willing to go again if so desired.

A Member: In that law there is a clause, that no common carrier shall receive any man's fruit that they do not inspect. I do not think

that can go through but let us put the burden or responsibility where it belongs. Let us instruct every one of our legislators to stand by us as fruit men, and see that they inspect the fruit, and then we will get what we want.

Mr. Lepler: I am a peach grower and have put in ten years at it, and this is a practical question that is being considered. I do not think, however, that the suggestion made that a conviction will stand where the package has not been inspected at a point of shipment.

Chairman: We will now listen to a few words from Mr. Lillie, Secretary of the Western State Fair Association.

Mr. Lillie: I wish to thank the President for this privilege of saying a few words to you. First and foremost, I wish to thank all of you who were instrumental in putting up the splendid exhibit of fruit that we had at the fair here at Grand Rapids this fall. One good thing calls for another, and now I will ask you to come back next fall and do a little better than you did this year. It is unwise to sit still—it is wise to be on the alert to move to the front. I feel that the Fair which we had is only the beginning of what this section of the State can put on in the way of exhibits of all kinds. I know of course that many of you are very busy at Fair time, but I also know that every man among you does what he wants to do, if it is possible, and if he thinks about it quick enough. He will make calculations and preparations for it. Some say, "I would be glad to make a show but I do not have the time." That is all right for you to talk that way to me, but I believe that if he wanted to make a show he could do it, and he would do it. It is the matter of wanting to do it, then planning for it, and when the times comes, do it.

You have heard a great deal here about the raising and caring for fruit, how to get it to the consumer. The man who spoke yesterday concerning the California Fruit Exchange, told you how many thousands of dollars were spent for advertising. Now I think the same thing is necessary with you—you must create a fruit demand—you must show the people what you have—that you have the goods—quality and quantity, and soon there will be a demand. This was forcibly brought to my attention a few years ago at the Land Show, at Chicago. Michigan was there—thousands of Michigan people passed through that building and looked over that fruit, and if we heard it once, we heard it a thousand times, "I did not know that Michigan raised such fruit. Where can we find it, and how can we get it? That is the kind of fruit we want. It has the look, the quality, everything that is desirable."

So, my friends, it is up to you to get this matter before the people, and I do not know of any better way than for you to see to it that our Fairs shall be well represented with your fruit. By so doing the State is advertised, your section particularly is advertised, and you as a grower receive publicity. So I hope that all of you will make it a point to see to it that your section of the State is represented at the next Fair which will be held at about the same relative time as this year. If you are not already on our mailing list, let us know and we will send you the Premium List of the next Fair. I am sure that you

people will be well satisfied with the results of your outlay and trouble necessary to make an exhibit, when you come to look over the exhibits from Michigan. Grand Rapids is so located that it should have the very best exhibits of all classes.

First, you must have the exhibits and then you must have the people—it takes the two things to make a successful Fair. Bring yourself and your friends, your neighbors, even if you can not bring your apples. We will do our best to have a better Fair next year than we had this year, and the people seemed to be pretty well satisfied with this one. I hope you will not forget what I say. This winter will be a good time to plan for next summer's work, and this should be so with every man, and in the spring when the trees are in blossom, you will have a few trees that you will thin out, and by proper care, spraying, etc., it will yield the best possible specimens for show purposes. We want to make the Grand Rapids Fair a quality Fair, so that whenever the people come they will say, "I can go to Grand Rapids and see what is produced in Michigan, grain, vegetables, fruits, etc.," and people from other states will say that they can not get along without them, and thus a demand will be created for your products that will make the demand beyond the supply. And it is possible to do for Michigan by judicious advertising just what has been done for the Pacific Coast states in the way of a demand for their fruits.

"PEACH PROBLEMS."

BY SETH J. T. BUSH, OF MORTON, N. Y.

Mr. President and Members of the Michigan State Horticultural Society:

I am particularly happy to be able to be with you and participate in this splendid meeting, and I bring to you the most hearty felicitations from our two great Horticultural organizations in New York—the old Western New York Horticultural Society and the New York State Fruit Grower's Association.

It has been our very good fortune to have with us for our edification and instruction on several occasions, some of the "live wires" in the fruit business of your great State, and it is always a great pleasure to compare notes with our fellow fruit-growers from other States and you are ALL, here and now, extended an invitation to and assured of a warm welcome at our meetings this year and every year.

I wish it distinctly understood at the outset that I make no pretensions of being an "Expert" at peach growing or anything else.

I have been engaged in raising peaches commercially for thirty years and during that time have gathered some information on the subject of more or less value, but the older I grow the more convinced I become of the fact that a man can learn something every day, and one of the best places to pick up valuable information is right in a meeting of earnest practical men such as this.

I am frank to admit that whatever success I may have attained in fruit growing has been due very largely to the fact that my orchards are located in one of the most favored sections of the United States, along the southern shore of Lake Ontario, where soil and climatic conditions are well-nigh perfect, and where the good old Lake tempers the wind to the shorn trees in winter and stays the icy fingers of Jack Frost.

For thirty years we have been favored and protected and during all that time we have had but two failures of a crop and only three or four years when the prices received were not pretty satisfactory and even in those years the crop paid as well as any other on the farm, but the past season brought to many a very rude awakening and removed large quantities of conceit from some who had become convinced from continued prosperity that their success was wholly due to their individual wisdom.

There are various "Peach Problems," but we have reached the point in our experience now, where the one great problem is *how to raise peaches at a profit*. Heretofore it has been a question of *how much* profit, but the good old days are past and gone, and we are now face to face with the question of making any profit at all.

The majority of peach growers in the United States made no money the past season and thousands of them actually would have been ahead of the game had they not harvested a peach. Millions of bushels of peaches rotted on the trees in this country the past season and the situation will be the same next year providing there is a full crop in all sections.

Our only hope as peach growers now lies in the activities of Jack Frost and disease.

Three years ago I told the growers of New York state just what would happen the first year we had a full crop in all sections of the country—last year we had a failure almost complete, but this year we had a fine crop and the most disastrous experience imaginable.

There is no question whatever but that the Peach business has been overdone. For the past ten or fifteen years the nurseries have been unable to fill their orders for trees.

It having been discovered that the Elberta peach would live and thrive to a greater or less degree on almost any kind of soil, it has been planted by the million in almost every state, with the result that with a full crop over the country, the markets are glutted continuously from July to November.

It is more than a question of DISTRIBUTION now; it is equally a question of high grade, standardized sorting and packing—of the most efficient co-operation among the growers—central packing houses economically operated—pre-cooling and first class refrigeration and transportation—in other words, the application of the very best business methods to our business from start to finish.

I should certainly hesitate to take upon myself the responsibility of advising or encouraging anyone to plant peach trees. The day of big profits is past and gone—occasionally, if from 50% to 75% of the crop happens to be destroyed throughout the sections of greatest produc-

tion, we may get good prices, but it is a gamble pure and simple from now on, and to many of us it is but a part of life's great lesson; we prospered year after year until we got the idea that we were pretty smart—taking to ourselves all the credit, when as a matter of fact our good fortune was being handed to us on a platter, so to speak, by a kind Providence. From now on it looks like the "survival of the fittest."

The situation is going to be helped more or less by the expected decided diminution in fresh plantings, which I hope will really amount to a complete stoppage, and by the fact that many orchards are going out from age, while many others will be either badly neglected or cut down. Thousands of peach trees are being cut down in New York this fall and I understand the same is true of every other state, and the old expression: "the more the merrier" certainly applies very nicely here.

It is a strange paradox that while hundreds of cars of fine peaches the past season failed to return freight charges to the shipper, and hundreds of thousands of half bushel baskets of fine fruit were sold to the consumers in the large markets for from 15c to 25c per basket, and in some cases the fruit actually got into the Five and Ten Cent Stores, some of my friends in Boston, New York and other cities tell me that they were unable to secure any nice peaches for less than \$1.00 to \$1.25 per basket. When such a thing is possible in a season such as the last, there is an Ethiopian in the wood pile and no mistake.

I expect to see these same conditions confront the apple and sour cherry growers, as these fruits have been planted everywhere and far more extensively than the peach.

You will probably see an apple crop in the United States within the next ten years, so large that it will be difficult to give the fruit away to say nothing of selling it at prices that will permit the grower to break even on his expense. I am hoping that this will be "within the next *ten* years," but it is mighty likely to occur within *five*.

You may think that I am a pessimist pure and simple, but I do not wish to be so regarded. I can not conscientiously refrain from speaking the plain truth and warning innocent people who are being misled and victimized by hundreds by attractive pictures in the newspapers and magazines portraying the easy life and overflowing purse of the average fruit-grower.

The only inference to be drawn from these glowing accounts of Farm Life in general and Fruit-growing in particular, is that the whole business is very simple—in fact a "cinch"—that all that is needed is a few acres of land somewhere, sufficient money to purchase and plant the trees and patience to wait two or three years before they can begin drawing checks. The "check drawing" time always comes sure enough, but to the majority it will be a very long road to "big profits."

One mistake very often made by persons who think they have "heard a call" to go into fruit raising comes through their undertaking a twenty-five or fifty acre orchard proposition with a five or ten acre capital. You can't sweep back the tide with a broom, and it is much

better to operate on a small scale and do it thoroughly than to undertake something beyond your ability or means.

All land is not peach land, and it is useless to try to grow peaches successfully unless you have the right kind of soil and other favorable conditions, and with these it is also useless unless you are prepared to spray, cultivate, prune and thin properly—all this costs money and a great deal of it, and requires much labor and that is not all the story. When you have done all the needed things to produce a fine crop of fruit, you will still fail of success if you do not properly grade and pack your fruit.

There never has been a time in the history of fruit growing in this country when the absolute necessity for honest, uniform grading and packing was so apparent. We have got to leave the "Culls" out of the package.

Every package of poor fruit that is allowed to go on the market reduces the price you are able to obtain for your good fruit, and it is a mistaken idea for any man to think that when he succeeds in selling his inferior fruit, other than at the cider mill, evaporator or canning factory, that he is "just so much ahead."

We can and do raise enough high grade fruit in this country every year to supply all the demands, and each year the necessity of more markets and better distribution is more apparent.

All inferior fruit should go into by-products and none of it be packed in baskets and barrels and thus go into consumption to the disgust of many and satisfaction of a few.

We are told that the peach contains a far greater per cent of sugar than the beet and our scientific friends should tell us how to extract this sugar. The very finest material for setting prints in fabrics manufactured abroad is obtained from dried fruits.

These matters call for careful investigation.

The grower must know when his fruit is ready to pick, and it must be picked when it is ready, not before or two or three days after, but just at the right time, or the returns will not be satisfactory as the fruit will not carry properly, and there are so many peaches grown nowadays that people do not have to buy imperfect fruit, and in any case will not pay fancy prices for it.

The growing of peaches when properly conducted is a business which requires all the brains, all the patience, all the care and sometimes all the money a man has, to carry it on successfully.

The old idea that it took a "smart" man to be a lawyer, a doctor, or a merchant, but that any fool could be a farmer has at last been exploded, and in its place has come the realization that in the successful farmer and fruit-grower must be combined the shrewdness of the lawyer, the sympathetic insight of the physician, and the practical wisdom and foresight of the merchant and manufacturer.

To be a successful fruit-grower a man must know how to prune his trees; how and when to spray them and how to thin whenever that is necessary and advisable. He should know his soil and what it needs to properly nourish and sustain the trees and mature the fruit.

He should know the relative value of different varieties; their bear-

ing, carrying and keeping qualities. I would not recommend the raising of a great many varieties, and it is always important to plant only the varieties suited to your soil and climatic conditions.

The man who raises any kind of fruit on a car-lot basis, in our opinion, has a distinct advantage over the man who, perhaps raises more fruit but who can not load solid cars of one variety.

The question of fertilizer for our orchards is a most vital one. The man who depends wholly on commercial fertilizers for his orchards, or any other part of his farm for that matter, is making a very serious mistake.

If I could get all the good barnyard manure and all the good cover crops I need, I would not buy a pound of commercial fertilizer, with the exception of nitrate of soda as a top-dressing for pastures, meadows, and wheat in the spring.

With the right kind of cover crop to plow under and proper cultivation afterwards you will need mighty little else and you may have to eliminate the cover crop occasionally.

I am not advocating barnyard manure for peaches.

A fruit-grower should walk through his orchards at least once every week through the summer, and be on the lookout constantly for the various diseases and ills that the tree is heir to.

In the case of peaches the "grubbing" of the trees is one of the most essential things, and should be done thoroughly at least once each year—in May or June. The "grubs" must be removed or they will ruin the trees in short order. Every diseased peach tree should be pulled up and burned the moment it is discovered; don't try to save part of the tree which does not seem to be affected, as disease, after it once appears, will spread very rapidly, and the entire tree will usually be affected before the fruit can be harvested.

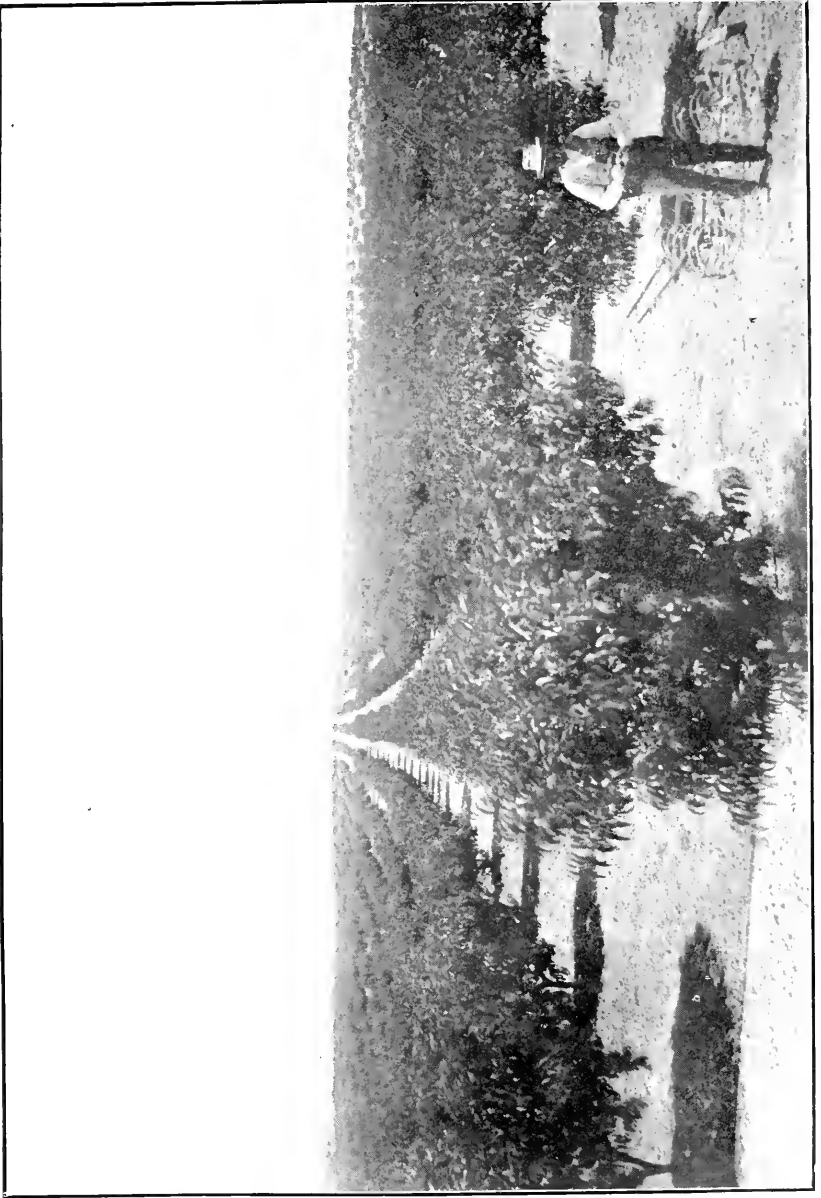
There ought to be a strict law and a rigid enforcement of it, to protect the fruit-grower from his careless neighbor. The man who will not properly look after these things is a menace to his entire neighborhood and should be forced to do so or be severely punished by the State.

If this wretched European war ever ends and the people over there have any money left with which to buy fruit, I believe that the Elberta peach can be exported with success, if picked at the proper time, pre-cooled and quickly delivered to the ship under proper refrigeration.

The experiment has been tried by western growers, with not very satisfactory results, it is true, but the eastern orchards have several days advantage, particularly those within five hundred miles of the seaboard.

The experiment has also been tried by Canadian growers under the supervision of the Canadian Department of Agriculture, with very much better results.

The principal obstacle in the way of doing this thing successfully, is the absence of railroad tracks on the New York docks, which would permit cars to be switched direct to the side of the steamer and a quick transfer of fruit to the steamer's refrigerators.



Peach Orchard, W. R. Roach, Hart. 4 years old.—Note flat-top system of pruning.

There is no question whatever of the advisability of pre-cooling peaches for shipment to any market.

The greatest losses sustained by growers have been due to improper refrigeration and absolutely inexcusable transportation service furnished by the railroad companies.

If cars are properly iced and cold, and the fruit is cold when loaded, it will carry three times as far, thereby widening the distribution and arrive in first class condition, usually with but one re-icing. We have our own ice plant at Morton, and ice our own cars, and try to have the cars iced from 24 to 48 hours before they are loaded, so that they will be absolutely cold—around 40 degrees—usually about 36, so that the peaches, coming from the cold rooms where they have been held at 34 to 36 for two to four days, will not undergo any decided change in temperature and will not “eat up” all the ice in the bunkers before the car can reach the first icing station.

The past season we shipped cars of peaches as far as Tampa, Florida, under these conditions successfully.

Most fruit-growers are supposed to be in the business for profit, but a lot of them, like Rip Van Winkle, have been asleep for twenty years, and many I fear, never will wake up.

The whole world has heard of the Hood River Valley of Oregon, and the Wenatchee Valley of Washington. These people have been able to overcome a freight handicap of \$1.50 per barrel (figured as three boxes) and a haul of three thousand miles, and sell their apples right here in our midst where the finest flavored apples in the world are grown, for three and four times what we receive for ours.

Co-operation is the thing that has done it. Elimination of every needless expense, and a package that could be absolutely guaranteed.

It is much cheaper to operate one large, efficient, convenient packing plant in a community than thirty or fifty individual plants, and it is absolutely the only way by which a standard, uniform pack can be obtained. There is no experiment about it; it has been thoroughly tried out and proven an unqualified success.

It is not a question any longer of how to grow good fruit, or how to increase the yield; it is a question of HOW TO SELL IT.

The cost of production is increasing all the time and unless we adopt a better system, which guarantees an honest, uniform pack and keep the “cull” out of the package altogether, at the same time securing each year better and wider distribution, prices will go down until we reach a point where any chance for a reasonable return on our investment will vanish.

The selling of fruit is a specialized industry and should be handled by experts.

We are really manufacturers—manufacturers of the world's food supply—but unlike all other manufacturers, we have been blundering along on the principle of every man for himself and the Devil take the hindmost.

Imagine any other manufacturer going ahead an entire year in total blindness and ignorance of what his expenses were or what his product would bring; he does not do business that way—not much.

Before he will turn a wheel he must know exactly what the cost of production will be, and the exact price his product will sell for.

The tariff must be properly adjusted; there must be "gentlemen's agreements," and secret trade combinations; every contract must contain a "strike clause" and a "war clause," and in all cases ONE SET OF MEN *produce* the article and ANOTHER SET OF MEN *sell it*, while the farmer and fruit-grower generally insists on playing the game from every angle without any regard whatever to his qualifications.

The average man has some difficulty in being an expert in more than one line of endeavor.

The man who plans his crops; plants, tills, fertilizes, sprays, prunes, thins, harvests and prepares them for market, at the same time running the gauntlet of germs, parasites and adverse climatic conditions has done at least ONE MAN'S WORK, and he ought to have sense enough to see that the sale and distribution of his product is ANOTHER MAN'S WORK, and should be handled only by men who are experts in that particular business.

The production and the sale and distribution of the products of the farm and orchard are two separate and distinct propositions and call for entirely different qualifications in the men who do the work. A man may be the most successful grower of high grade fruit, but have no ability at all as a salesman, and this is usually the case. It takes no ability to accept the first offer that happens along; any fool can give his property away.

The man who puts his whole time, thought and energy into the production of a crop, has no time to study market conditions and transportation and distribution problems.

When Benjamin Franklin told his fellow-signers of the Declaration of Independence that they must hang together or they would surely hang singly, he uttered a warning which seems pretty well suited to present-day conditions confronting the farmers and fruit-growers of this country.

The old adage "In Union there is Strength," was never more self-evident than it is today; every other business in the country has adopted the plan of combining interests, but the farmer and fruit-grower continues to permit himself to be used as a foot-ball, to be kicked about by every conscienceless speculator that comes along; continues to go through life asking two questions: "how much is it?" and "how much will you give me?"—letting someone else set the price on everything that he sells and everything that he buys.

The individual grower is helpless in the battle of today.

Methods that were good enough for our grandfathers will no longer answer,—this is a progressive age and times have changed.

There are many things which the grower needs—things which are vital to his success, but individually he can do little or nothing toward their attainment.

We need and must have better transportation facilities—a wider distribution of our products to every nook and corner where they will be appreciated and consumed, and better and saner legislation on all matters affecting our business.

The freight rates charged by the transportation companies on peaches in particular should be reduced.

Co-operation is a call to reason; it represents a deliberate effort on the part of growers to secure for themselves a larger part of the consumer's dollar, through the elimination of much needless expense in the sale and distribution of their products.

It means better packing; the elimination of glutted markets, protection of the grower's interests, prompt collection of just damage claims, and better prices for what you buy and what you sell.

It means a discontinuance of the custom of allowing the "dealer" and speculator to place a mortgage of from 10 to 25 per cent on the crops you produce.

It means that the grower will do his own gambling and have a chance at the results.

"High-cost-of-living" prices don't help the farmer because he don't get them—his part of the consumer's dollar is only THIRTY-FIVE CENTS.

It is a fundamental principle of economics that higher prices stimulate production, but it will not work unless the increased price goes to the producer where it belongs.

As the population of our cities has increased a great deal faster than the population of the country at large, the difference in the price paid by the consumer and that received by the producer has increased in like proportion until a condition of commercial piracy exists which has no justification whatever and must be fought by every man available.

The producer must receive his legitimate proportion of the value of his product. Co-operation, direct selling, and the elimination of all needless expense and commissions are all means to this end.

Agriculture and horticulture are the rocks upon which all true prosperity must rest. When the farmer and fruit-grower is prosperous and happy this condition is reflected in every line of trade, and the whole country prospers.

When conditions are reversed business stagnation and poverty follow.

The farmers and fruit-growers of this country hold their prosperity as well as their destiny in their own hands—they have hesitated and followed slipshod methods long enough. They have got to get together and stick together, if they hope to reap the reward to which their labor and investment entitles them.

While the grower has been trying to hide his inferior fruit in the middle of the barrel, he has been at the same time "hiding his light under a bushel" in spite of the Divine command not to do so.

The consumer is obliged to pay for his fruit with a standard dollar and he is entitled to a standard package.

The grower who is unwilling to join with his neighbors in an honest effort to improve conditions which affect his business, deserves nothing better than the "thirty-five cent dollar," and stands a fair chance of always carrying with him a "patch on the seat of his breeches" as an indication of his enterprise and resourcefulness.

There is never but one reason why a dealer or speculator will not

buy as readily from an Exchange manager as from the grower direct, and that reason is because he can buy cheaper from the grower direct.

If he can't buy from the grower he **MUST** buy from the Exchange manager.

A good many simpletons are constantly laying the flattering unction to their souls that they are a good deal smarter than their neighbors, and can "put one over" the other fellow very easily, but they are living in a fool's paradise and deceiving no one but themselves.

I would urge every grower who is proud of his business and hopes for the reward to which his investment and labor entitle him to do everything in his power to help to elevate the standard of his products and increase his own prosperity.

Don't be content to be "dumb driven cattle," but rise above the petty neighborhood suspicions and jealousies and show the world that there may be "Captains of Industry" on the farms as well as in the industrial centers of your great State.

Cease to permit yourselves to be exploited and used by speculators, to be played one against the other to force prices down, but standing together, reverse the order and play speculator against speculator to force prices to a point that will insure your honor and prosperity among your fellowmen.

A Member: Do they have a grower's association there where you are located at Morton?

Mr. Bush: Three years ago they organized the Eastern Fruit Exchange with headquarters at Rochester. I am president and general manager of that company.

Question: Is the auction way of selling in use and has it been successful?

Answer: As applied to apples and peaches I cannot say that it has been a success, neither would I say that it has been a failure. To begin with I desire to say that everything possible was done on the part of the food markets of New York against the effort, and it was fought from start to finish by every commission man in the land. Every lie that they could think out they told. And they can think of as many as any class of people under the sun. Every effort was made to frighten the growers, to prevent them from trying the thing out. I am inclined to think that something will come out of it yet. It has been a success as applied to citrous fruit, and there is no reason why apples cannot be sold at auction, but like the citrous fruits, when the apples are sold the seller must be in a position to guarantee the contents of the packages. It is a nuisance to put several qualities of fruit in a package and it must be stopped if it is expected that a demand will be created based on confidence that what the people buy will be exactly as represented.

Mr. Brown: I take genuine pleasure in acknowledging my appreciation of the address that has just been given by Mr. Bush. I think it is the best address on the subject that I have ever heard on the floor of the Michigan State Horticultural Society.

Mr. Bush: Do not be afraid to ask me any question. I do not know very much about this business, but I am here to get all I can out of



Two-year-old peach trees. A. L. Ross, Rochester.

this meeting, and to contribute what I am able to the meeting, so if there is anything that I can say or do, or any questions that I can answer, I am very glad to be at your service.

A Member: Is not the most vital question the packing question?

Answer: There is no question about it. Unless the methods of poor packing are absolutely stopped, the fruit growers will be lost in the shuffle. There are other sections of the country, such as Virginia and Colorado, who are adopting these methods, of the northwestern people, and one reason why a box of Oregon apples will sell in the city of Rochester for \$3 to \$4, when Kings or 20-ounce and other Apples grown in western New York, with a flavor that is far superior to anything will sell for only \$1.50 to \$2.00 a box. The only reason is, that when a person goes to look at the end of the box and sees the variety of fruit, and the stamp on it, he knows that every apple in that box is just the same size, same variety, same color; that there is no wormy or rotten apples in the box, and that there is in the box a certain number of sound apples, just as represented, although they do not taste very well, for his money.

Now, the eastern people can absolutely put these western people out of business, if they will adopt their methods. Look at the money that they voted to spend here—just recently they voted to spend \$100,000 in anticipation of an increased crop. Just think what a fat chance you have of raising \$100,00 in money for advertising purposes among the growers of New York or Michigan! Gentlemen, you are asleep, fast asleep, and one of these days you will be awakened in a manner that will not be very pleasing. I have planted these trees with the idea of making something on the investment, and I hope it will not be in vain. I am trying to get some of the growers to realize the situation and go in with me and try to meet the proposition.

Question: What is the co-operation of the commission with your Exchange?

Answer: There is no particular co-operation between the commissioner of markets and our exchange except that he endorses our Exchange unqualifiedly. The commissioner of markets is Mr. John Dillon, publisher of the Rural New Yorker and he and I have been working together on this proposition for the past five years trying to do something to elevate the standard of the produce products of New York. The Eastern Exchange acts as a distributing medium, for the fruits going outside of New York City.

Question: In regard to the distribution of the fruits—you spoke of apples selling at \$1.50 and \$2.00 per box.

Answer: I will say that I think there is something wrong with the distribution of the fruit when in some places, for instance in Wisconsin, where peaches were never sold for less than \$1.65 per bushel, while in other places it was almost impossible to get rid of them at any price. You must adopt the methods of the California Fruit Exchange, and put men on the road no matter what the expense may be, for if you sit still and wait for the people to come to you, they won't come and you will have to get rid of your fruit the best way you can, and at uncertain prices.

Chairman: You don't have to go out of Michigan, to find this inequality, for near Lansing, \$2 a bushel was paid for peaches while others bought peaches for a good deal less than half that amount, because those outside of the State didn't know that Michigan had any fruit.

Question: I would like to ask Mr. Bush if it is not true that the peach growers of Michigan pay higher rates than do those who raise southern fruits?

Answer: I know that you get poorer service than the southern people do, and pay higher rates of transportation. The cause is because every peach grower in the State of Michigan has a chip on his shoulder and is looking for a fight. If the farmer and fruit growers of the United States would stand together solidly, and fight together, they can get anything they want. There is no question about it. But there is a whole lot of people in Michigan who are just like the people of New York—you want to forget whether your grandfather and your father was Republicans or Democrats. But remember that you are a farmer and fruit-grower—that you have your money invested there, and pay a little attention to the people who go to your Legislatures. Stick together, when you want something from your public service commission or from your Legislature. The minute that these boys know that all the farmers and fruit-growers want a particular thing, you can bet your last bottom dollar that you'll get it. For, every one of these fellows has his ear to the ground listening and they are not slow to hear calls that come from their constituency.

Question: I would like to have Mr. Bush give us a few words regarding the peach selling proposition. This year peaches were shipped here into Grand Rapids from Oklahoma and other southern points, and through ads in the papers and otherwise, house canners got those peaches instead of our own, regardless of the fact that Michigan had a good crop. I think there should have been an organized effort to advertise to canners and house-wives and others, that the Michigan crop was large and would be as reasonable and a much better flavor than the foreign crop and that they should wait and purchase their peaches from the home crop instead of taking a foreign product. But this was not done and as the result there were many car-loads of southern peaches shipped in and sold here—something that should not have been done,—as I said, I think there should be some organized effort to see to it that the condition of the Michigan peach crop should be made known to the public.

Mr. Bush: If you don't spend your money along these lines you won't have any money to spend by and by.

A Member: We come together and talk about the adverse condition of things and what ought to be done to relieve the situation, and all that, but I believe that if we get any good out of the discussion of this matter, we ought to lay plans now for our next year's advertising and have some concentrated effort. I would therefore like to ask Mr. Bush if this advertising in New York is done through an organization or how?

Answer: It is not done through an organization anywhere except in

southern California and the northwest, and that is what I am talking about. Think what the California people are giving to get their lemons properly advertised—even prepare card notices to be hung in barber shops advertising “lemon shampoos.” They have 25,000 acres of lemons that will come into bearing within the next four years. They are waiting for these trees to come into bearing, but at the same time are appropriating thousands of dollars to start an advertising campaign, so as to be in shape to sell this product when it comes to them.

Mr. Nicol: What is the use of advertising when you haven't anything to advertise. This advertising has been done by Michigan peach growers and without a cent of expense to them. One firm, the South Haven Fruit Exchange, has done business and advertised at their own expense, and this year they asked the people to wait for that particular brand of peaches, and they did, and they were disposed of at a good price and the advertising didn't cost us a cent.

Mr. Friday: How many of those growers would have been willing to stand behind the advertising of cheap peaches before the canning season came on. You would have said that it was a direct effort to drive down prices, and you would have nothing to do with it.

Mr. Hartman (Representative of the G. R. & I. R. R.): Aside from being a member of your association I have been interested in what has been said about rates. I know that we are always ont ready to serve the people in our territory, and if there is any dissatisfaction from services that we are rendering to your people, we are more than glad to do anything in our power to correct any wrong that may be done. What we want is to give you service, real service. I think that the people from the Grand Traverse district will testify that we have been prompt in getting their stuff to its destination. If there is any criticism of this service, I would be glad if you would write to me and I promise you that I will give any complaint my personal attention and will do my best to give you the proper service.

Chairman: That is what the executive board had in mind when they passed that resolution this morning—if we cannot co-operate individually to handle our fruits on the marketing hand—everything has to start at the bottom. If we can get enough from you fellows to back us up in this State-wide financial campaign, we will try to advertise the fruit of Michigan. You will have to do the advertising and packing and marketing unless you start some other organization. We will try to hitch our kite to a star, but we may fall down.

Mr. Smythe: We have realized the situation we are in for years, but “it takes money to make the mare go.” And since the appropriation from the State has been cut off, our hands are tied. When we get more money, and can see our way clear to do it, there will be no question about an effort being made to advertise Michigan fruit.

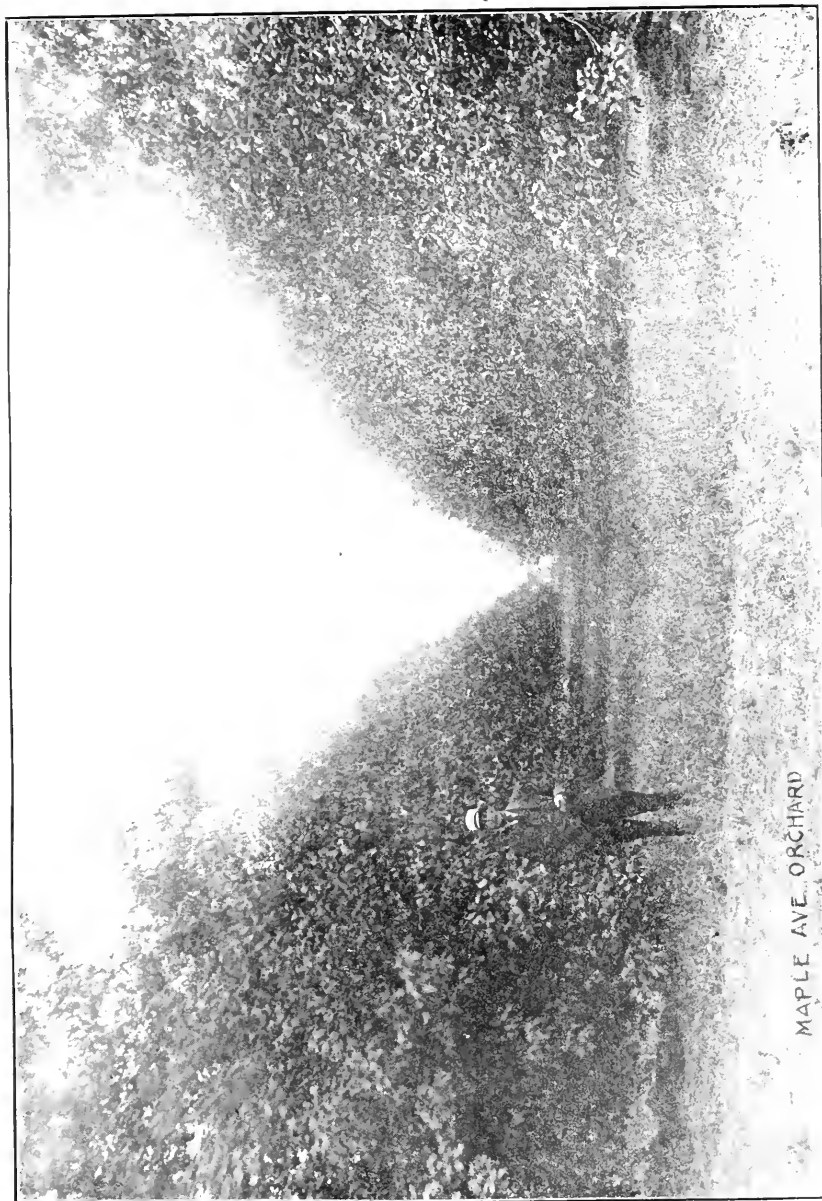
Chairman: One more suggestion—there is one fruit section in Michigan—around Fennville—which is larger than any single fruit section in the west. They produce more apples in and around Fennville, than in any valley in the west. It foots up to \$100,000.00. Now gentlemen, go down in your jeans, and we will advertise Michigan fruit.

MISCELLANEOUS DISCUSSION—R. R. MATTERS.

Mr. Hartman: After listening to what Mr. Bush had to say yesterday in regard to freight rates, mentioning that there was a discrimination in rates, this morning I got after our Freight Department, and asked them why? I find that we can ship a car-load of peaches from Grand Rapids to the New York market for one-half a cent less than they can ship from Macon, Ga., and just as good service. We can give you fast service with a passenger train schedule. I do not want to have it appear that I am unduly boosting the G. R. & I. R. R., but in pointing out some of the good things that have been done for Michigan, I do not want you to forget that we have tried to meet the demands of the public in providing efficient and prompt delivery of all freight. I want to say, as a matter of fact that if you compare the rate and service from Macon, Ga., to Michigan, you will find it but little different from that of Michigan to Georgia. But you must recognize that the Southern railroads in Georgia are giving us a special service. They are handling certain of our cars at a loss, but they are trying to develop the country. I am not in the freight department, but I just wanted to give you a little insight into this matter, and I hope you will carry away with you the impression that we are honestly and fairly endeavoring to give the best service in our power, and that while we can control the rate base originating on our line, we can not control the rate originating on the Georgia line.

Mr. Morrill: It is a fact that from Texas to Chicago they will bill a car through in 72 hours, and there is no side-tracking anywhere except to allow the fast mail to pass, and they did it for 55c per bushel, and then they take a car back in a week for 80c. I fail to see the logic of this.

G. R. & I. Agent: We all know the sins of the railroad companies in the past—like our ancestors—but we are trying to correct them as rapidly as possible. One illustration right here in Grand Rapids. Three days before a big crop came on, Mr. Skinner came to me and said, "I am up against it—if these growers bring in the stuff as I hope they will, we haven't any warehouse in which to store them. Then we got busy, and to make a long story short, when the peaches came in, as they did, we were all ready for them, both as to warehouse facilities and clerk hire to handle and properly bill them out, but unfortunately, the growers did not stick together as they should—didn't think it would be profitable—but I give this as an illustration of what we are endeavoring to do in the way of handling to the best possible advantage the fruit that comes in at such a time as this. It is easy to say what we should do, but the next thing is to get right after it and do it, and that is what we are trying to do, and we hope to have your co-operation in our efforts.



MAPLE AVE. ORCHARD

The celebrated "Northern Spy" apple orchard of Mr. Luther E. Hall, at Ionia

Mr. Bush: I did not make a positive statement in regard to the freight rates—the positive statement was that the southern roads gave a much better service. They will deliver a car of peaches regularly in one-half the time that the northern roads will do it.

But I must go. I would like once more to express to you people the satisfaction that I have felt in being here and meeting you. I shall take away with me the memory of a very pleasant time—the memory of meeting some earnest, whole-souled men and some charming women, but I want to suggest to you that you turn your faces toward the morning light, hitch your wagons to a star, and work together trying to accomplish something for the business that we are all interested in. I shall be glad to welcome you, each and every one, at my home at Morton, and I hope you will all come sometime, but please do not all come at once. Good bye. (Applause.)

PACKING AND MARKETING APPLES.

H. M. DUNLAP, SAVOY, ILL.

The growing of apples is one problem. The marketing is another. The two are intimately related but entirely different. It is essential in obtaining the best results to first grow good apples for the market. This like the darkey's receipt for rabbit soup, comes first. The darkey says first "kotch your rabbit."

Many a grower who understands fairly well how to produce good fruit is lost when it comes to selling it to his own advantage. It is often done to the advantage of the buyer. Like inventors the apple grower usually needs assistance in selling what he has produced. The grower who connects up with the best methods in this particular gets best results.

No one can long be successful whose methods are not careful and honest in the packing of apples.

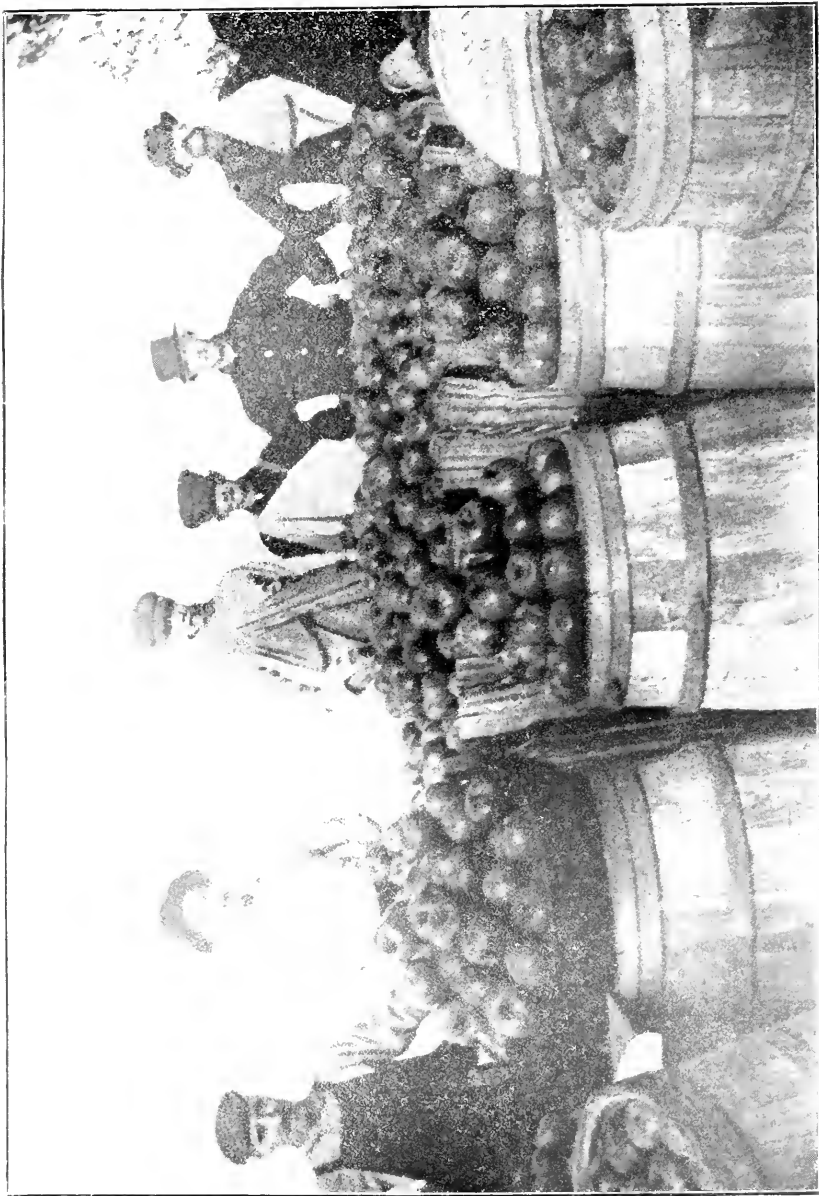
EQUIPMENT FOR HARVESTING THE APPLE CROP.

There are some who insist that the only way to pick apples is to use a basket lined with cloth. These insist that the use of the basket in picking is the most careful method and that the bruising of the apples is reduced to a minimum. I have, however, seen apples handled very roughly into baskets. The picker hangs the basket on the tree, on the ladder rung, or sets it on the ground and then proceeds to shoot the apples into the basket from distances of one foot to six or eight feet away.

The bottomless picking sack with broad straps across the shoulders has come into use within the past few years in many commercial orchards. My experience is that either the basket or sack is good if rightly handled and either may be objectionable if care is not exercised.

My own preference after using both is in favor of the sack. If care is used no more bruising will be done than with the basket and it is far more expeditious. Both hands are at liberty for use in the picking. The sack should not be shifted about and the picker should not be allowed to lean against the rungs of the ladder with the filled sack between. The sack should be lowered into the picking crate so that the apples have no drop in emptying the sack. Pointed ladders are the best for tall trees and less liable to injure the tree or turn turtle and upset the picker.

A packing house is essential if best results are to be obtained, but many growers use the canvas covered table in the orchard, picking and packing the product from 16 to 36 trees at a sitting and then moving the table to the next center and in this way over the entire orchard. In good weather this is not so bad as might seem but at times the sun is very hot, or sudden showers saturate everything and in the late fall the weather is too cold and frosty for comfort. On the whole, therefore, a good sized packing house or shed built at a convenient place in or near the orchard is the more desirable method of handling the crop. This building must be large enough to give room for a sorting table 3 feet wide by 16 or more feet in length, or better still room for an apple grading machine of best pattern, which will occupy about 3 by 20 feet. There should be a space on one side or end of the building for unloading the bushel crates with which all well-regulated orchards should be equipped, when they come from the orchard. These crates can be stacked up four or five deep and there should be adequate room for these based on necessities. There should be room for at least a day's supply of apple barrels and a place to cooper them up by driving the hoops and nailing same. There should be enough room to face and fill barrels and head them up and to stack up enough for half a day's hauling ahead. The size of this building will depend upon whether you are barreling 100 barrels per day or 1,000 barrels. For the former a building 28 x 40 feet will answer very well. For the latter amount 60 x 100 feet would be none too large. The roof of this building should have skylights in the roof. I build these of ordinary greenhouse sash about 3 x 6 feet, usually putting in two of these in each building on the north or east side of the roof according to the slope and directly over the sorting end of the table. This will give you light an average of 30 minutes each day and prolong the day's work that much or at least make it possible to do better work on cloudy days and in the evenings. The building should be approachable on all four sides with the wagon and doors either sliding or hinged should open at least ten feet wide for taking apples in and out. For example I have my sheds arranged to take the fruit as it comes from the orchard in to the house on one side of the building. The number one apples go out another door and in case I use a grader the number two goes out another side. The cider apples take their own route. The fourth side is used for supplying empty barrels as needed. Thus you see the necessity for getting to all four sides. On the side where the filled barrels are loaded onto the wagon there should be a raised platform so that



The Picking and Packing Crew, Season 1912. Fred Van Nordsall Orchard, Three Rivers.

the loading can be carefully and easily done. A bin for the cider or vinegar apples should be built with a roof on same.

Low wheeled, platform wagons are needed to haul fruit from the orchard to the packing house.

The standard barrel of three bushels capacity is used generally by the commercial orchardist in preference to the box. Good hoops are growing scarcer every year and some including myself are using two or four of the six hoops required of the twisted splice-steel wire variety as being both safer and more economical. In transit or in storage they hold better and do not break and scatter the contents of the barrel over the car floor or storage warehouse.

The best floor for the apple house is concrete. The next best is to cover the ground with coal cinders and lay 2x4 flat on the cinders filling between them with cinders to a level and nailing the floor boards to these 2x4's. This gives a good solid floor at little expense.

The walls are of 4x4 uprights about eight feet apart resting on 8x8x12 concrete blocks with a half-inch iron rod imbedded in the concrete and countersunk in lower end of upright 4x4 to keep the latter in place. Nail ties of 2x4 are used and to these are nailed common lumber surfaced. The roof consists of 2x4 or 2x6 rafters usually three feet apart with 1x6 boards spaced about three feet apart as sheeting. The covering in this case is of galvanized corrugated iron suitable length of No. 26 guage. The doors of this building should be on rollers and with two or more double doors on each of the four sides to give plenty of light and easy access to and from the building. The roof and dry floor are the important parts of such a building and you only need the walls as a support and occasionally to break off the wind when weather becomes chilly. What you should avoid in a packing house is narrow doors, dark interior and access from only one or two sides.

PICKING.

I have found it most satisfactory to pick by the bushel keeping a foreman in the orchard to see that crates are filled full, ladders and apples carefully handled. Each picker is provided with tickets of a certain number which corresponds to the one opposite his name on the sheet tacked to a small board or clip carried by the foreman. Each picker is assigned a tree and his empty boxes are distributed to him from the wagon. When filled the number is tabulated by the foreman and loaded onto the wagon and hauled to the packing shed. Here they are stacked up and afterwards emptied onto the sorting tables or machine grader and from thence into the barrels.

PACKING APPLES.

The packing season is a busy one. Ofter the grower finds himself short of help and when this is hard to get he is sure up against it if he wants to do a good job of packing.

First make your estimate of the crop you have to harvest. If inexperienced get an experienced man to help you. You need this estimate for two reasons. You must determine the number of packages you

need which must be contracted for in advance and you need to know how much labor you need to get the crop in within the time limit. You should not begin harvesting too early for immatured fruit poorly colored brings a lower price and you do not want to be so late that the fruit mellowes up or drops from the trees before it is gathered or is caught by a freeze. I will relate a little experience of mine in the latter connection. In the autumn of 1911 I had a heavy crop on a hundred and twenty-acre orchard. The season was rainy and we lost six days during October which put across the line into November with our picking. The last days of October or first of November brought a severe freeze when the mercury went to 20 or 12 below freezing. This lasted two nights and one day. The apples were frozen absolutely solid through and through on the trees. As I had over 12,000 bushels all Willow Twigs unharvested it was an anxious time for me. The second day was cloudy with the temperature at 34 degrees just above freezing and the following night it remained at the same point for we were enough interested to note the temperature. This continued up until noon of the third day when the frost was out of the apples and we proceeded with our picking. These apples kept perfectly and were sold the next May at \$4.50 per barrel. There was no perceptible difference between the apples picked before or after the freeze. Two years later my experience was different. We were caught with 1,000 bushels on the trees by an equally severe freeze. The sun came out bright the following morning and by noon the temperature was up to 50 degrees. The apples turned brown and looked like they had been baked. They were good only for vinegar. The variety in both cases were Willow Twigs.

In packing apples it is a good plan to use a corrugated paper cap on both ends of the barrel. In addition a waxed paper next to the apples on the face end, stenciled with the name of the grower and his post office address. Use uniform sized apples for the face as much as possible and of good color. The face is permitted to be 20% better than the contents. Drop facing I consider best for the second layer rather than double facing as it holds the face apple in position better and presents a more solid face to the buyer when opened. The barrels should be filled uniformly from bottom to top with an even grade of fruit. No reputable packer will attempt any fraud upon the purchaser in this respect. In tailing off the barrel preparatory to putting in the head the better way is to face the apples on their side in concentric rings with the color side of the apple up. I would not select these apples as to size or color but let them correctly represent both as they run through the barrel. There can be no objection, however, to your putting the colored side of the apple up. We should always look as well as we can and first impressions if good, while not always lasting are desirable in the apple business of inspecting packages. In filling the barrel care must be taken to gently settle the apples into place by shaking the barrel from time to time as it is filled. After the bottom is faced if the corrugated cap is placed on the apples with the smooth side next to the apples and the head pressed into place, it is well to use headliners to secure the heads and not trust to the use of nails alone. Have some



Ninety-six apples on 5 year old Wealthy apple tree. Farm A. L. Ross, Rochester

regard for the man who has to open these heads in storage or the sales-room. Try a few yourself if you never have and you will use headlines for him who comes after if for no other reason.

HAULING TO MARKET.

The barrels when filled are not allowed to lie around but are hauled immediately to the car or storage. Failure of winter apples to keep in storage may often be traced to the packing shed where the apples stand in the crates or lie in the barrels for a number of days, perhaps a week or two in warm weather before they are forwarded to storage. Sometimes delays occur at the storage owing to rush and apples remain sometimes for a week or ten days in cars before they are unloaded. It behooves the grower not only to watch his own packing house for delays but the Storage Co. also. In one instance I lost \$1,000 on five cars of apples that were without refrigeration five weeks owing to the storage warehouse not being completed. I knew nothing about this until two years afterwards.

Hauling to the station is done on wagons or motor trucks equipped with a rack that permits the barrels being carried laying down but supported at each end of the barrel so that the weight of the barrel does not come upon the bilge. They can be so rickied up that one wagon will carry 55 barrels. A three-ton truck will carry forty barrels of apples and haul forty more on trailer. Such an outfit on one of my orchards makes five trips in one day, a distance of four miles. Traversing 40 miles and carrying 400 barrels of apples. One and one-half miles of this was over a well-graded dirt road and two and one-half over brick and concrete pavement. A picture of this outfit you will see upon the screen although not loaded to this capacity. In our Clay county, Illinois, orchards we have two 12-25 gasoline tractors that are used in cultivation during the summer and for hauling apples in the fall. These machines easily haul 110 barrels of apples on two wagons and make two trips a distance of five miles from orchard to town.

LOADING CARS.

I am surprised at the lack of knowledge of how to properly load barreled apples into cars. Over half the cars going to market are improperly loaded. The best way is to place all the barrels crosswise of the cars with lower tier to the right side of the car. The second tier to the left of the car with the bilge lying in the hollows of the lower tier. The third tier should be at the right side again directly over the lower tier. If a fourth tier is added they should be at the left and directly over the second tier. In this way your apples are loaded to carry with the least injury to the apples. Being uniformly loaded they are easily counted from the top after they are in the car and your loader can verify his wagon load count after the apples are all in and thus prevent mistakes.

MARKETING.

There are many methods of disposing of the apple crop in this middle west of ours and not many get the best results in this respect. There

are many fashions and fancies. The average grower seeks the line of least resistance and that is the line in which he has the least labor ahead of him. As a rule the man who sells his apples "in a lump" on the trees gets the least money out of his crop. No buyer will assume in a strange community the burden of harvesting a crop of apples unless he can see a big profit in so doing. Oftentimes the grower imagines he is getting a big price when in reality he is not. For example, in 1902 I was part owner and manager of a crop of apples on 350 acres of orchard. At that time \$1.00 per barrel for the fruit picked down was considered a good price for the fruit where buyer furnished the barrels and packed his own apples, the grower picked and delivered to sorting table. That year I estimated my apples to bring me \$1.25, per barrel handled in this way and sold the whole crop in the lump on that basis. That is, I figured in my mind that the sale would net me at the rate of \$1.25 per barrel. A neighbor grower also sold to this same buyer the apples on his own orchard saying to a mutual friend that I had sold too cheap. When the apples in both orchards were packed this neighbor's apples netted 65c per barrel and my crop brought \$1.22 per barrel. In other words, this neighbor was offered \$1.00 per barrel for the fruit and chose to sell in the lump at 35c per barrel loss of \$4,500.00 on his crop.

There is the system of selling on the trees "in the lump" where buyer takes full charge of harvesting the crop at his own expense.

Then others sell "in the lump" and the grower does the picking, the hauling of empty barrels to the orchard and the full barrels to the cars. Here the buyer packs and furnishes the barrel. This is better than the first method for in this the owner of the orchard can protect his trees from the carelessness of the man with the ladder.

Then again there are those who sell at so much per barrel flat price for ones and twos, the grower picking and the buyer packing. Another method is so much per barrel for ones and a different price for twos. This is a hard matter to get the buyer to accord the grower fair treatment in grading as it is for the grower to do the fair thing to the buyer. If the price goes up the buyer wants all he bought and the grower tries to force upon him a lower grade of stock. On the other hand if price goes down the buyer tries to get out of his contract and the grower then tries to make him take more than he bought.

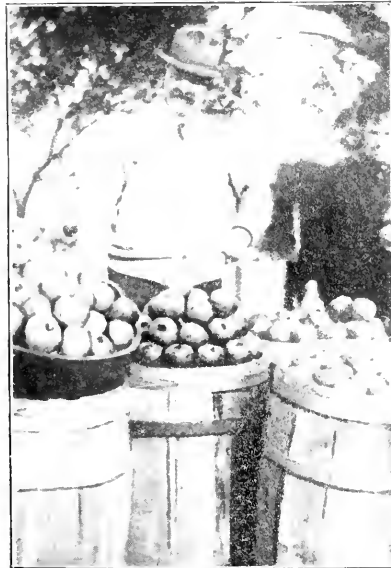
It is always best whatever way he sells for the grower to be prepared to harvest, barrel and store his stock. In other words contract for your barrels and your storage. Have the latter optional to as late a date as possible and then you will be in position if you make a sale to have the buyer take your barrel contract off of your hands and possibly also your storage contract, especially if the latter is near the orchards or in a favorable locality.

Should you store your own stock, have in mind where you are likely to sell and store there. If your storage is near the orchard you have the advantage of not having to pay freight.

Co-operation in packing is usually economy and secures you in your grades. Buyers are then more easily satisfied as to the grade of your fruit. Community selling will be desirable one of these days and is



Orchard Fred Van Norsdall, 1912. Three Rivers.



Orchard Fred Van Norsdall, 1912. Three Rivers.

now a practical success in several localities. This may be on a brokerage basis or otherwise.

Commission sales of winter fruit usually brings the grower the poorest results. The commission merchant if honest is human and it seems responsibility to the grower does not make him round shouldered. His idea is to keep things moving and his prices slide down hill more easily if he is handling fruit on commission than when he has his own good money tied up at so much per barrel cost. The trouble with commission business is that it never seems to enter the commission merchants head that every barrel of apples costs the grower a certain amount of money to produce and place on the market. Farmers themselves often regard the apple crop as so much money found. We are getting farther from this idea every day for if we harvest a crop of good apples any more, we have to put good money and labor into it from start to finish. What we need is a more intelligent selling of the apple crop.

Mr. Lyon: If the buyer complains about the grade, how do you settle when the price has gone down?

Answer: There are two classes of buyers—maybe more. One that does not think of such things as taking advantage of the market conditions, and the other fellow, who wants to buy at all times, cheaper than he bought originally. If the market conditions are all right, you can telegraph him, "I think you will find on re-inspection, that they are all right; if not, I will revert them to another point." When the market conditions are against you, it is another proposition. Then it is up to you whether you had better go to another market, or settle with him and meet your loss. I have known men to refuse apples on a declining market when they had not broken the seal of the car. Nothing but a lawsuit would settle, and life is too short for that. I never sued a man in my life and I never want to.

Question: Don't you think an organization would settle such questions to a better advantage than the individual grower can?

Answer: I certainly do. A person connected with an organization, stands that much stronger in opposition to the man who is turning his apples down; in other words, coming up against an organization like that, he will be discredited and will not be able to buy in that market. I believe in organization.

Mr. Bush: I do not advise the throwing away of any fruit. I do advise getting every nickel you can, but I want you to get it by packing the right kind of fruit in the right way and then marketing it right. I am the author of the New York Grading Law and that law requires every packer of apples to give his name and address on every bushel sent out, and to give the name and minimum size on the barrel or basket. The law provides very strong penalties, and that law has done more for the apple interest in New York than anything else in fifty years. It compels the marking No. 2 if that is a B grade. It can put even rotten apples in a barrel, but what is in the barrel must be indicated on the outside.

Chairman: Mr. Dunlap would like to make a little statement before we close this discussion.

Mr. Dunlap: I want to thank you for the very pleasant time I have had here. I have spoken quite a lot about apples, but I would prefer if it were possible that all of you could visit my orchards and investigate for yourselves. Before I leave I want to say that we in the middle west, and those in the east too, in order to work more unitedly, should bring ourselves into closer union together in this apple business; have some central place or organization where we can meet every year, with delegates from the different states, and individuals that get together,—thresh over these national and general questions, some of which have been brought up here this afternoon in a concentrated form. In other words, have a Commercial Apple Growers' Association that would be national in character, and take in the apple interests so that we could get together, and get some idea of the crop prospects, and open this transportation question, of service of cars, and all these numerous commercial questions that come up in a practical working out of this question. It does seem to me that such an organization would be desirable and you will receive an invitation to send a delegate to meet somewhere, sometime this coming spring, to get up the frame-work of an organization and get up a program so that sometime in the middle of the summer we could have a general meeting and discuss these questions to our mutual advantage. I hope you will be able to appoint such a committee, who have enough interest to attend this meeting.

Again I thank you for my very cordial entertainment here.

At this point Mr. Halligan announced that Mr. Stanley won first prize, Mr. Peterson second prize, and Mr. Rude, third prize in the fruit identification contest.

Adjourned.

THE BANQUET.

One of the most interesting of all the features of the Annual Meeting of the Michigan State Horticultural Society is the Banquet. On these occasions there is such a "Feast of Reason and Flow of Soul" that it lasts through all the year to come. And as the years go by they become more interesting just as any country with a history is a source of pleasure and satisfaction to those who are interested in it.

The banquet this year was held in the banquet hall of the Pantlind, one of the finest hotels in the State, if not of the whole country. Two hundred of the members sat down to the spacious five-course repast, and every one voted it to be the best that had ever been held.

After the meal, the order of the occasion was changed, and for an hour the company listened with the deepest interest to an even dozen speakers, who gave interesting talks on timely topics.

Honorable Chas. W. Garfield acted as toast-master, and this is all that need be said for he has the reputation of being one of the most entertaining and felicitous speakers of any connected with this organization.

Before introducing the speakers he said:

Mr. Garfield: Mr. President, Ladies and Gentlemen, Members of the Horticultural Society and Friends: A newspaper reporter came to me yesterday and in speaking of this evening's meeting asked what was to be the keynote. I knew there were to be a dozen speeches, but it had not occurred to me that there should be a keynote. The more I thought of it, the more it seemed to me that the newspaper men had the right sense of any meeting that might occur at any time. If he should come to me and ask me the same question this minute, regarding this meeting, I think I would be right in saying that the keynote is the ideal in agriculture and how best to raise the standard of growing fruits and vegetables and flowers and to receive and disseminate the best of education, so that the horticulturists of Michigan shall be better horticulturalists because this organization exists. So you who may say a word tonight, have this as a keynote, and there should be injected into our effort something more than mere intellect. There should be something started like the work of religious revivalists. We need to get a little sentiment into our work, and into our thought.

A few days ago I sat next to the president of a society that was talking to a gathering something like this, and they were having speeches, and there came in a man for a talk that didn't have terminal facilities. He tried to stop but could not. I pulled the coat-tail of the president, and said, "Is not this man's time up?" The reply was, "Oh yes his *time* is up, but now he is starting on eternity."

We are going to have ten short talks tonight, and they will be brief. They cannot be more than four or five minutes each. The first sentiment that I have on my little slip of paper is, "Today's requirements of our Society," and I am going to call on Billy Sunday—No, not Billy Sunday, but George Friday to respond.

Mr. Friday: In taking up this subject, after all the discussion that has been had, reminds me of a story that I heard some time ago about a negro—but let the story go.

The needs of our Society are quite imperative in some lines. There has been one continuous talk for a number of years about the State appropriation that we once had but has now been cut off, carrying the impression that it was a calamity, but I want to tell you that it is the very best thing that ever happened to the Society. For forty-three years we have been leaning on this appropriation and it is a good deal like a young man who has leaned on his father for support and help all these years. It is like leaning on a crutch, and when the crutch is taken from us, it makes it doubly hard for us to hold our own.

Now, the thing we have got to do, is to get out and boost for this Society. They say we have only about four hundred active members—one out of every one hundred horticulturists in the State. If we had all these years been obliged to shift for ourselves, there would have been some push and energy injected into the operation of the Society, and we would have had a membership five times as large as this. And I want to tell you that we will have it that large pretty soon; and we don't need so much Lyon as we have had, to carry it forward, and to bring the Society to a point where it should be. We should have a membership of at least five thousand, and I believe it can be had if

every interested horticulturalist of the State will get out and work for the interest of the Society as they should. Every man should be a look-out man. We are not paying our Secretary enough so that he can put in all his time. We should have someone hired by our executive board, who will be responsible to the Society for bringing in these outside people, who are eligible to membership, and get them interested in all that interests the horticulturalist, and in this way an interest will be created and funds raised to carry forward the work to a degree of perfection that we desire to see it carried. Now let every one boost for the Michigan State Horticultural Society, and have for our keynote 5,000 members in two years.

Toastmaster: Mr. Monroe sounded a keynote when we made some comparisons with regard to Michigan's standing with other States. He spoke of California and other parts of the country, and linked these by way of comparison with the possibilities of Michigan and it was shown conclusively that we were equal at least to the possibilities of any other State in the Union. I am a believer in Michigan, and when all of its resources and possibilities are lined up, it will be found that she is a little ahead of any country of its size anywhere, and I believe that Mr. James Nichol is of the same opinion. But I will let him tell you just what he thinks.

Mr. Nichol: In the early days of the far west when a traveling show was passing through a cowboy region, a sign was placed so that it could be read: "Please do not shoot the performer,—he is doing the best he can."

What do we stand for? For the best horticultural State in the United States. We are told by experts in California that there are in Michigan the best sections to be found anywhere in the United States for the production of Bartlett pears. We have soils that are good for everything. We stand for farming as a dignified business. In the cities it is quite popular to hark back to the farm. We stand for everything that is best in citizenship. We stand back of our schools and our colleges. We are animated with pride when we see intelligent students here among us. These students may not be a relative of anybody by ties of love, still they are the children of our neighbors, they are the children of our State—they are your children and my children. God bless them!

Toastmaster: "As free as the air we breathe and the water we drink" is an oft repeated expression. This glass of water comes to us perfectly clear. We can secure a cold glass of water for the asking; but take that amount of water and put it into strawberries. They are 95% water. Put it into a beautiful Baldwin or a Northern Spy apple and 92% water; grapes have 90% of water. What an extraordinary price do we pay for the water in this fruit—extraordinary as compared with the water in the tumbler. The next subject is upon the subject of Commercial Water, by Mr. Louis Breggor, of Bangor, who will now respond.

Mr. Breggor: When this topic was first suggested to me, I didn't catch on until I did a little reading. There are water systems in our houses; there are mineral waters and spring waters guaranteed to cure

the ills of life and the dealing in these is without doubt a strictly legitimate business. Then there is what the Indians call "Fire Water," and which by every legitimate means we are fighting to remove its sale from our fair State. Then, there is "Watered" stocks and bonds, also like "Fire Water," illegitimate as a medium of traffic, although if not too great amounts are used, everybody will think it is all right. It will be like the old farmer who was told that if he would only give a pail of sawdust to his hogs he could make a lot of money. The farmer remonstrated and said that he didn't think that hogs would eat it, but the answer was that they would if it was mixed with corn, and the more corn the better. So with us horticulturists and fruit growers and vegetable growers, the more water in a way we put on, the better it will be. If it is a bit of a nubbin of corn, nobody wants it, but give that same nubbin water, lots of it, and it will sell. So with the apple—you must give it water. If it does not have enough water it is leathery. But you cannot treat all trees alike,—your treatment of trees must depend upon their character. Pumpkins have lots of water, but you wouldn't think of people eating pumpkins and relishing them. If you did, you would have a perverted taste. Pumpkins have their place, but they are not apples. Every grower engaged in the legitimate work of raising fruit is justified in putting a lot of water in his apples. It will help to give flavor to your fruit, and if your fruit does not have flavor of some kind, it is not worth much. The Wolf River apple has a beautiful color, and is enormous in size, but it lacks quality and flavor. We give color by exposure to the sun which is perfectly legitimate, because if it has not the color different from the Greening, nobody would want it. When I put a supply of apples in my cellar for winter use I pick out the nicest colored fruit I can find. And not only do we want to put color into our apples, but we want to put into them human life, human fellowship—the home of the farm into it. If sentiment could be published, many a backache, a good deal of planning, would be brought clearly to light. There is no place on earth where the husband and wife are really comrades more than on the farm. They work together; where you are at harvest, side by side stand your wife and daughter working with you. That goes into the apple, strawberry, the tomato, and the vegetables, so if we could measure all the water that goes into the products of the fruit grower, also all the sentiment that finds its way into the products of the farmer and the fruit grower, the farmer would be justified in charging a high price for his products—but not in money.

Toastmaster: I am about to call upon a gentleman of whom I am very fond. The first speech that he ever made in Grand Rapids was in 1885, before the American Pomological Society. One sentence that I remember was to the effect that ten thousand packages of fruit went out from the St. Joseph port per night. Since that time that has been greatly multiplied. Our friend has had a lot of experience since then. He loves to come to our meetings, and we love to have him come because he honors us by his presence. I told him to talk upon any subject he desired to. You will now hear from Mr. Roland Morrow.

Mr. Morrow: I said "let me talk about somebody." Charlie said,

"nearly all of them are dead." I got to thinking and looking over those present and only two are here that were present in the early days of this Society. Charlie Garfield is one of them, and he is a man that I almost deify.

It is thirty-five years ago, when I was working in a field one day, when a man climbed over the fence and said: "Young fellow, is your name Morrow?" I said "Yes,"—wondering what he wanted—

"Do you own this farm?"

"Not yet, but I am trying to own it."

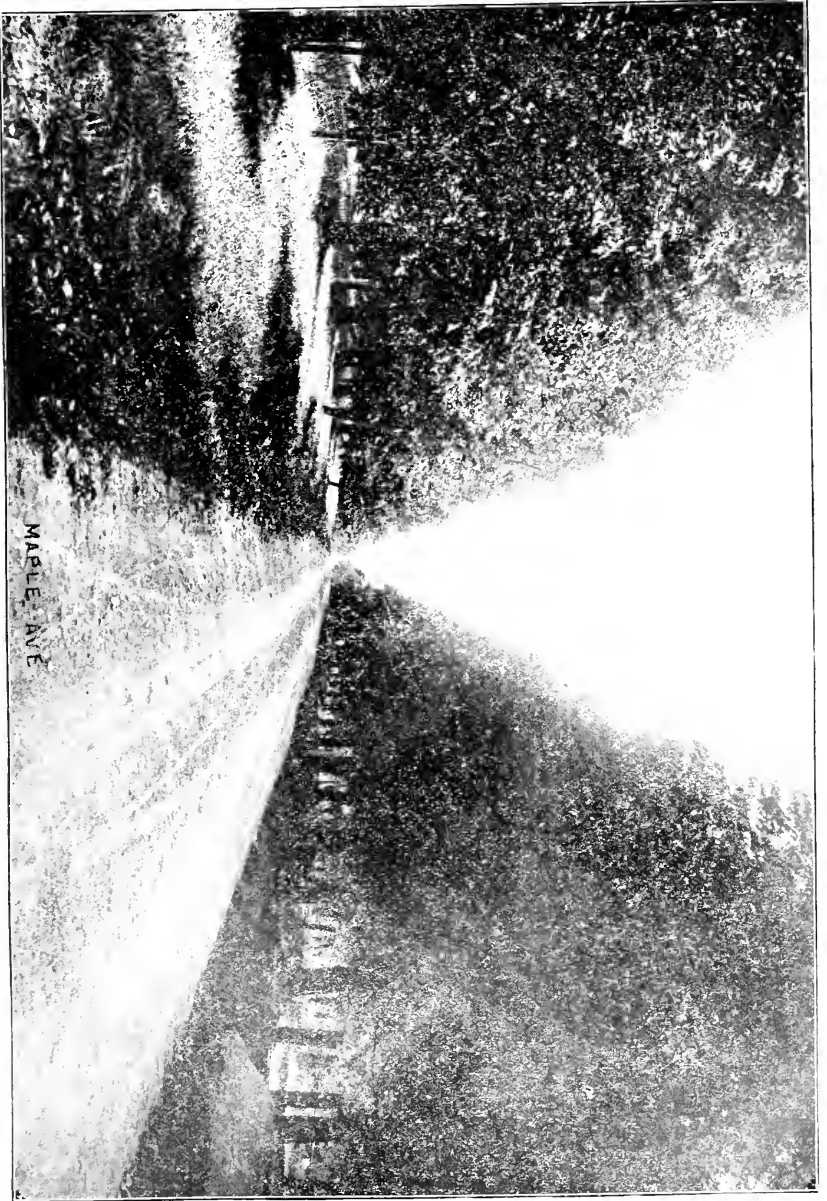
After he talked for a few moments he said, "My name is Reed. I am from Albion; I came down here to get you to join the Michigan State Horticultural Society."

I didn't know where it was, how much it cost, what they did, or anything about it. Well, I had a desire to learn, so I told him I would join. I went. I stayed with them for a good many years. Then I was lost for a number of years. I went into another state—into Texas; I "blew" myself, as they say. For fourteen winters I have been away, and when I came back there was a new crop of members, and I felt like old Rip Van Winkle, less the whiskers.

It is not so very much that I care to say to you tonight, my friends, but I do want to tell you that you are living in the best, all-around State I have ever seen, and I hope you will stay here and continue to do this kind of work, and boost the State along for every link you put into a society like this, is a boost for yourself and for your State. Stick to it. This old ship is all right—the safest one I have found. I would like to break over time and go into eternity with you. I hope you can realize my feelings. Whatever success has come to me, I want to say that I have gained by instruction from this Society. My ambition is just as good as ever. I have been among other people in societies like this, but I never saw one that elicited the feelings that come to me when I visit your association.

Toastmaster: You all saw those beautiful roses and wonderful chrysanthemums that were on the speaker's stand in our regular meeting hall, but perhaps you did not know that these and the beautiful roses here on the table were furnished by one of the lifelong friends of this Society, Mr. Henry Smith. In these days of automobiles, we can reach a much larger territory in the same length of time, then when we walked or prodded an ox team, or even drove horses. So it is we are getting better acquainted with country conditions, and are learning some things that we would not like to unlearn.

I am thinking of our roadsides as we traverse our country road. Some of the most beautiful roadsides have been stricken with the blight, as the result of a law that was connected with the mandates of highway commissioners, who think they are doing a great good, but who are doing a positive injury. We want a plea made for the beautifying of the country roadside, and I know of no one who can do justice to this subject more than Mr. John B. Martin, of this city.



The beautiful Maple Ave. at Ionia on which Mr. Luther E. Hall's home is situated

THE COUNTRY ROAD BEAUTIFUL.

The City Beautiful is an old theme. Newspapers, Chambers of Commerce, Improvement Associations, Ladies Clubs, private citizens, all are at work along this line. Even children are impressed into service on clean-up day and enter into the spirit of the occasion with manifest enthusiasm.

The Country Road Beautiful, however, is a new phrase, as yet. To this, little thought is given. Unsightly refuse from the city is dumped over the most convenient embankment on some country road, without a protest. The law of the State, with certain reservations, commands the overseer of each road district to each year cut down all shrubs or saplings along the roadside within the limits of the highway. The telephone and telegraph lines must be kept clear and so, with ruthless hand, sturdy young trees are thoughtlessly mutilated or destroyed altogether. Rugged oak, magnificent elms and maples of surpassing beauty are sawed and hacked until unbalanced, unshapely, deformed, they stand mute witnesses to the onslaught of unbridled commercialism.

Cuts and fills are made in our modern road building and not the slightest after thought given to embellishing the bared and scarred sides of these embankments. So much for the negative side of this question.

Just east of the city there is a farm; an unattractive, marshy swail extends along the highway. True in the fall it is glorious with golden rod, but in the winter, a dreary waste. At small expense the standing waters have been led into a waterway; the wild grasses have given way to tame; just inside the fence line an irregular strip ten or more feet wide has been given over to a planting of Sweet Briar roses, at this season full of their deep red fruitage, *Viburnum latana* with its white blossom and black berry, English Hawthorne—pink and white,—High Bush Cranberry with which you are all familiar. Then comes Sumac, with red dogwood now resplendant with color of bark and next—and best of all—a mass of golden willow to give color to the landscape. Here and there a young ash and soft maple are coming on apace, in time, to fling their bronze and gold and crimson against a background of young pine just beyond. Tartarian Honeysuckle—than which there is no better shrub—peers out all along the planting. Virginia creeper is rapidly taking possession of the fence, common barbary, now bending under its load of color, capitulates to the wondrous beauty of a group of white birch close by.

And so I might go on, but enough. And yet, lest someone say "Yes, but this is impractical, it is too costly," let me say "Not at all." 20,000 shrubs and trees for this ten acre planting cost less than \$300.00. A rough, quick planting was made. Little or no attention was given thereafter. The best and hardiest survived, the undesirable and tenderest died out. And let me say further to the man who is intensely practical, for I am in full sympathy with him, that I know.

Harking back to old Japan, full of artistic beauty at every turn, let me recall just for a moment an indelible impression that was made upon me by towering Japanese *Cryptomeria* that lined practically the entire

ninety miles of roadway from Tokio, the capital, to Nicko, the site of the most sacred shrines of all Japan. It is said that in the building of this road contributions were exacted from the feudal lords of that day. One, poorer than the rest, having more retainers than money, begged to be allowed to plant the highway as his contribution to the work. The ancient road bed itself is worn and each year needs repair. Not so, however, with that mighty avenue of pine standing like giant sentinels massed on either side, their lofty heads reared far above the winding roadway at their feet, their gnarled roots interlocking, their branches intertwined, every succeeding decade they are more impressive than the last. What a magnificent memorial. The services that seemed the least is now the crowning feature of it all.

Few of us can plant a road to Nicko, but we can do our part and so a few short years ago I planted about a mile of road front on my farm of elms, thinking that even though I might not be here to enjoy their mature beauty of form and grace of outline, others, passing beneath their shade in after years, would note the sweep of their great branches and carry away a memory of their majestic strength and beauty that would abide.

And so to-night, Mr. Chairman, I enter this modest appeal for the Country Road Beautiful.

Toastmaster: There is a grandeur in the forest, in the landscape from some lofty mountain, and there is a picturesqueness in a field of waving grain. Mr. Robert J. Coryell, of Oakland, will speak on this phase of the subject as relates to our country homes.

Mr. Coryell: We have heard much about the cultivation of the orchard, packages for shipping away the fruit, and marketing of it. But we have not heard very much about the farmer's home. How few country homes have surrounded them with any degree of sentiment. The house is built, and the family moves in, and there the matter stops. There is nothing done to beautify the home—nothing to make it a spot of beauty—there are no trees or shrubs to make it attractive. Many a boy and girl have left their country home because of this neglect—they go to the city and see homes surrounded with flowers, shrubbery and trees—the sight appeals to them. Then they go back home and the surroundings there are cheerless and unattractive. Is it any wonder that they become dissatisfied and leave the farm?

So I say, give attention to the beautifying of your homes. It may not be expensive; it need not take very much time. But when you do it, plan with your wife and children as to what and how it shall be done. Let them enter into it. Have an eye on the future. Make it such a place that when the children have grown up and left the parental roof, they will look back on their childhood days and cherish pleasant memories that will be a joy and satisfaction. Then when they return to visit the old homestead, at every turn they will see that which will remind them of days ago, in which they themselves, had a part in making permanent. And not only for the future, but it helps to make life worth the living for the present. So, let us give to the beautifying of our homes the best that we can and then life on the farm will be what it should be.

Toastmaster: We have here with us a gentleman from New York—he needs no recommendation to you this evening—Mr. Bush, who will speak on the topic, “Michigan and New York—sisters in horticulture.”

Mr. Bush: Mr. Toastmaster, Ladies and Gentlemen: This is not a part of the bargain that I made with Mr. Smythe. I have been quite sick all day, and I felt so bad this forenoon that I did not leave my room. This evening I was unable to eat anything, but I did not want to seem ungracious, and I do not want you to think that I am unmindful of your very kind hospitality. I have enjoyed my visit in Michigan, to Grand Rapids and to the Michigan State Horticultural Society extremely.

And now I want to make one more effort to drive home to every man here who is interested in the agriculture and horticulture of the great State of Michigan the importance to the farmer and fruit grower of standing together. There is a bond of common necessity for uniting the farmers of New England and the farmers of Michigan. Our interests are common interests. And unless we realize this thing, and wake up from the Rip Van Winkle slumber into which we have fallen, there is surely trouble ahead.

The value of the products of the farms and orchards of this country means ten billion dollars, the greatest business in America, a business to command the interest and respect and the ambition of those who are engaged in it. I said something to you at the meeting this afternoon about co-operation. There never was a time in the history of this country when the decent people of this country, the men who love their State and their country and their flag, ought to co-operate, ought to stand together and stand behind the man who is at the head of this great nation, guiding the ship of state through these times fraught with so much possibilities. We want to forget that our fathers were Democratic or Republican. We want to remember that we are Americans, first, last and all the time. (Applause.) We want to get a grasp on the possibilities of our business. You know there was a bill introduced into Congress to raise \$45,000,000 for a merchant marine. It was voted down. The people would not stand for it—didn't want it. Since then, freight rates have increased 60%, and the farmers have contributed to the shipping trust, when it might all have been saved, but they didn't know it. It is time that we woke up to a consideration of the situation. It is time that this country had a merchant marine. It is a disgrace to every man, woman and child in the United States that there are lying in the sea-port cities hundreds of thousands of tons of foreign shipments simply because there are no ships to put them in. It would be different if we had a merchant marine.

I came here to Michigan to speak about peaches. There are different kinds of peaches—I love them all. (Laughter.) I want to say that since I have been here in Grand Rapids I have seen several—and if I were a bachelor, I am sure I would come again when I could stay longer and perhaps get better acquainted.

I know you have others to follow—New York and Michigan—they have much in common. We are of the same country of the same race, same flag, same climate and soil conditions. And while New York is

the greatest state in the Union, we are willing to take our hats off to Michigan, and I wish you all God Speed. (Applause.)

Toastmaster: I just noticed a gentleman come into the door that I want to say a few words to you—Mr. Fred D. Wright. He is a traveler, having encircled the globe, but when at home he is a horticulturist.

Mr. Wright: This is indeed a rare treat for me. I am glad to see you, and mingle with such a fine lot of men.

Just a word in a plea for the influence of a tree. We are cutting off our forests at a tremendously alarming rate, and what are we doing to replace them? Up in Greenland they appreciate the value of a tree, and they know something of what it is worth. Their wood comes from Siberia. These logs float around the coast of Greenland, up to the western coast, and every piece of wood found by a man belongs to him, and stealing wood on the shore is worse than horse stealing is with us.

But in China they do not appreciate the value of a tree. There is no country in the world where you can see so much of the evil effects of cutting off the forests as there. Whole tracts have been laid waste, the top soil washed away, the roads filled with huge boulders—all because the trees have been removed from the mountain sides, allowing the rains that come, to wash everything down into the roads, and then where the streams were before, it is dried up after the rains, and the country is almost a waste.

But in Japan it is different—here they are replacing the trees that have been cut away. They are cultivating the forests in the mountains. Only a small part of Japan is cultivated, and the remainder is being planted to trees, and the forests are being protected. China has almost ruined itself by using up its wood, while Japan is building up its forests. As I asked in the beginning of my talk, "What are we doing to conserve our forests?" Are we planning to replace the vast areas that have been shorn of its magnificent forests? This is a subject of vital importance, and I am glad of the privilege of saying a word in regard to the destructive effect of cutting off our forests and doing nothing to replace them.

Toastmaster: There are aliens that come to us—valuable adjuncts to our national life and national prosperity. They are not all of one nationality, and there are other aliens than people. We have aliens in horticulture that come to us from time to time, and valuable additions they are to our horticultural assets. We will hear from one you all know on this topic, Prof. Halligan.

Mr. Halligan: When this topic was assigned to me I was in doubt as to its meaning—it sounded as though it had some relationship to the present war, but I will tell you that it does not mean a German spy. It simply means fruits from another country. It is a good deal like the story of the Irishman and the Englishman and the Scotchman. They met one day, and the Englishman was bragging how proud he was that he was an Englishman. But if he could not be an Englishman he would prefer next to be a Scotchman. The Scotchman returned the compliment by saying that next to being a Scotchman he would prefer to be an Englishman. Then it was time for the Irishman to give his

preference, and he said, "Be jabbers, and if I could not be an Irishman I would rather be shot."

The Irishman is always at home when he is abroad. Many of our valuable fruits inherit the characteristics of the Irish,—at home when abroad. The early fruits, like raspberries, blackberries, cranberries, huckleberries, etc., that the pioneers had—these are about all of the commercial sorts that were here originally—all the rest are aliens—the apple, the pear, and some other like fruits go back to the very beginning of civilization. Asparagus comes from a Greek word meaning "sprouts." As the origin of the apple, so far as the historian's account goes, it agrees with the Bible account, and that goes back to Palestine, where the produce of the Bible was located. It is a very interesting fact to remember that the birth place of the apple is also the birthplace of the Caucasian race, and that the white race, in its tour around the world, in Greece, Rome, northern Europe, Greenland to the United States has carried the apple tree with it. The apple tree in its march through civilization typifies the advance of the white race. Once in America the apple crossed the Appalachian mountains and spread rapidly to the Mississippi River. It was carried by the Mormons farther west, and finally it found its way into Oregon and California. And now we find our American apple going to the most remote corners of the earth—to Asia, to its native home.

The history of the cherry is no less interesting. I am sorry that time does not permit me to go into details as to the development of this fruit. I suppose you know that the black cherry, the rum cherry or choke cherry is originally a native of this country. The cherry, both sweet and sour, are supposed to originate in that territory between the Caspian Sea and Constantinople. The peach is supposed to have come originally from Persia; plums from Arabia. From Japan came the nectarines—deriving its name from the supposition that it furnished the nectar for the gods. And so we have had these foreigners, these aliens that have come to us, and I am glad that we have given them a better reception than the reception in the story of the three men who had staid very late at a club, and fearing an unfavorable reception when they reached home, made a wager that the one who refused to do as he was bid by his wife would have to treat the others to supper. The first man went home and stepped on the cat's tail, whereupon she said to him, "John, why don't you kill the cat?" He thought a minute, and then decided it was better to sacrifice the cat than have to furnish the supper, so he killed the feline.

The second man thought he would be judicious and when he went into the house, in turning on the switch button, stumbled against the piano, making a great racket. "Why don't you smash the piano and done with it," said his wife. That was quite a proposition but rather than be the one who would furnish the supper, he proceeded to carry out his wife's suggestion.

The third man quietly entered his home, went up stairs on tiptoe, but just as he got to the head of the stairs, he stumbled over something that awakened his wife who said to him, "John, why don't you fall

down stairs and break your neck?" But after giving it a moment's thought, decided, "I would rather set up the supper than do that."

So, gentlemen, I am glad that we have given a better reception to these foreign fruits than these three men received. We welcome all alien fruits to our shores, for we know that the progress and development of our alien fruits is indicative of the progress and development of civilization itself.

Toastmaster: I can not close this splendidly interesting occasion without saying that while we have seen and said a good deal about Michigan, we are broader than Michigan—we are Americans. And while we are thinking of the material things connected with horticulture there is something that is higher and nobler for us to think upon, and that is, that there is a religion in horticulture; and there is connected with horticulture and its development in its highest form the suggestion of something that is higher than even the best things that we cultivate, and that is, that of a Creator whose laws we are learning as we study the intricate problems of the wonderful way in which horticulture is developed to its perfection, and let us not forget that back of all these wonderfully mysterious workings of nature, there is an unseen life and power that can come only from an infinite Being.

And now, to close this most enjoyable occasion, let us join with Mr. Smythe in singing one verse of America.

"SPRAYING."

MR. T. A. FARRAND, EATON RAPIDS.

This subject of spraying is one that is discussed more or less at every annual meeting of this Association. It is one of the live topics for consideration and every fruit grower has had experience with it in varying degrees of success and failure. Companies and firms organized and place upon the market spraying outfits many of them making extravagant claims for their product. Some year ago when it was found necessary to combat insect pests various solutions were used as a spray. With some these seem to be successful while with others they were almost a failure so you find among some fruit growers those who are skeptical as to the value of spraying while with others the claim is strong that without thorough spraying it is impossible to grow fruit of the quality to meet the demands of the public.

But during the past few years there has been a growing knowledge of fruit insect pests and the best methods of combatting them. With due deference to all who are in favor or against the question of spraying, one thing is sure the general consensus of opinion is that properly done spraying is absolutely necessary to the attainment of the best quality of fruit. On the other hand what will be a success with one man may be a failure with another and each must use his own individual judgment as to what will work best with him. This can

not be told without experience. There must be some cut and try business before he is able to say definitely whether any certain or particular method is the best for his individual use.

In the discussion of this question I desire first to say that there are certain principles that we all know can be applied at all times and with all kinds of fruit. Following the few remarks I may make we hope to have a general debate on this subject of spraying. I am frank to say that I have nothing new to offer in the way of a spraying formula. There are many styles of spraying equipment and there has been a decided improvement in it during the past few years so that you would hardly make a mistake in buying any of the standard make of equipments.

I will say in this connection if I had large operations and could have them at home instead of in different parts of the country as I do, I would equip so as to save a good deal of time and money that are now spent on the property of somebody else. For the last six or seven years in the orchards we have been operating it has taken us longer to come and go than it would to spray out a 200 gallon tank. At home we can do away with this.

I have had to change my methods from that which has been recommended, which you have always heard at all of our meetings and by all the Agricultural Colleges and especially along the line of fine misty spraying. That is what was recommended years ago, when we first began spraying but we have found out that for various reasons that it does not work satisfactorily. It is my opinion that the day for the fine misty spray has gone by. Now we use a coarse, heavy spray because we often have to spray against the wind. We finish up an orchard before we leave it because we cannot afford to run back and forth from one orchard to another two or three miles apart. We use a heavy nozzle and under high pressure and we spray against the wind. This you could not do with a fine spray. As it is we can drive it clear through the tree, all through its branches on both sides of the leaves and the work is thereby made really effectual. You will say that this is a waste of material—that we use more material than is necessary but time is worth more than material.

This year the scale has not been very bad and people have been liable to get a little lax in their spraying for it. Then the first they know there comes a hot season favorable to the breeding of the scale and then there will be a great many of them. So even though the pest has not been very bad I would caution you to be very thorough in your work of spraying for it, even though it is not bad.

On the other hand if you have an orchard that is bad with the scale there is one way to get rid of that scale. We had a couple of these orchards in one district and the ordinary spray that we had been giving for scale did not control it—it was too bad. Even with all the thoroughness with which we sprayed. The next year I said to the boys, "You spray those trees going on both sides of the tree and then when you get through, spray crosswise,"—and I want to tell you that did the business.

Another thing, some do not go into the tops of the trees. The little

fine new growth—it is hard for the mixture to stick to it—it is so smooth and shiny—you think you have it when you haven't.

Sometimes when there is a failure it is claimed that our spraying material is not good, but I think that the fault can often be laid at the door of incomplete spraying rather than poor material. You must be very particular in getting the spray material up into the tops of these trees. This year with the damp cloudy season that we had, the weather conditions have not been favorable for the development of the scale, but next year it may be hot and dry and then the scale will breed very rapidly and spoil your fruit for market purposes.

I have changed our method of spraying from what I used to practise. I do not have any towers any more. Instead of that I have had the spray manufacturers make up a four foot rod for my own special benefit but I could not use it because the men carried it away and would stand on the tank and shoot the heavy spray up through the trees reaching the top, doing the work just as well and with much less labor than the old way.

Sometimes there is a failure to get satisfactory results because of the proper mixture of spraying material. I am in the southern part of the State and the scale is not as general as along the lake shore. Some men declare that 1 gallon solution to 7 of water, or 1-8-9 is sufficient to kill the scale. I do not believe it is. I use it 1 gallon solution to 6 of water. I think a lot of our troubles have come by using too weak a mixture. I would recommend this for the scale spray, and if you can cook it, have all the sludge on it possible—the thicker it is the better it will be. When we use the old formula of 15-20-50 we have had the best results. You could not use it only when hot and that is the reason why we dropped it. You can make your own mixture and we get very good results when we are in a position to cook it ourselves. I would prefer to do it rather than to buy the lime and sulphur already prepared. You can cook a hundred of these mixtures but you will never get two of them just alike—they will test all the way from 24-30 or higher. I am not very particular—1-5 or 1-6, and we get very good results along that line. We put in everything. There will be some sediment in the bottom—4 or 5 inches—let it all go through and be pumped onto the trees. They look better—the sediment clears it up and makes it look thicker on the trees. It has given us the best results so that I prefer it and recommend it for spraying. Of course if you prefer to buy the commercial mixture it will be all right.

In the spraying of other lines of fruit—I am not a peach grower, being out of the peach belt, but I would spray with lime and sulphur early in the spring for scab and curl-leaf. The whole secret is to get there first. In an experience I had, I would have been wise if I had applied it in June when the peaches were small. Sometimes we do not know just when and where to do the spraying. I have some Northern Spies and a great many other varieties of apples—among them being Steele's Red, MacIntosh and Snow—these are most susceptible to scab and fungus of any of the varieties. The spraying of those trees was done by the same man, on the same day, with the same material. All the varieties were very clean except the Spy trees—and from these I would

not attempt to pack a No. 1 barrel of apples. These apples were sprayed five times and yet there was a failure. There was some period when these Northern Spies should have been given an extra spraying, in this particular instance, but we never had this experience before. Usually we have to wait a bit on the Spy as against the other apples. I do not know just when this was, but the weather was cloudy, ideal for the development of scab and fungus. Next year may be different.

The situation of fruit-growing for no two years is alike. You prepare for an emergency, and in the place of what you expect, there will be something else that we should have prepared for. There are years when three sprayings will give the finest kind of fruit, other years that will not do. We always want to be on the safe side as the only safe basis of production of fine fruit.

I give this as a part of my experience—in some orchards we had very clean, nice fruit, in others we had scabby apples, and this year it has been the Spies especially. Usually there are many other varieties more susceptible. This year up to July the apples were very clean. I was priding myself on what a magnificent lot of Spy apples I had, but there came a change. The spraying was done just the same, material the same strength and put on in the same way and by the same men as in former years—but we didn't get the same results. We did have some good fruit—perhaps the air drainage was better—but the spraying was just the same in every instance.

We can take a lot of pride in trying to produce something fine, but these things will happen in spite of anything we can do. It is due more to conditions than to a lack of what we do—we didn't know that those conditions were coming, but not being prepared for them, or possibly not recognizing them when they do come, we fail to get the required results.

I have been talking spraying to a number of individuals since coming here, and a number of questions have been asked me. I do not know as I can give you anything more—what I have said is only general in its nature. You can best get out of this what will benefit you most by stating your own experiences, your particular troubles, and we will all together try to give out what information we can, and then each one can take that which will be of benefit to him.

Question: What kind of a nozzle do you use?

Answer: I use the variable nozzle—there are others that may be just as good—mine is the Hi-Lo Nozzle. We open it wide open and never close it.

A member: Do you use nicotine combined with the other sprays for the aphids?

Answer: I use the Black 40 on a block of Greenings where the aphid had been the year before very bad. I don't know whether it did any good or not, as the aphid was not very bad with us. But there is no question but what Black 40, a pint to 200 gallons will give results. My youngest son did the spraying, and when he returned in two weeks he looked like an old man 75 years of age. This is worse than lime-sulphur. These little green aphid you can discover with a microscope will be scattered around on a bud before it is opened. You must get

the green aphid right there—if you do not, you will not get it at all. You can combine it with the lime and sulphur; it must be a late spray, just before the blossoms open, and we used a gallon of Black 40 to 1,200 gallons of water. I can not tell you for sure whether it will do the business—when we used it, the aphid was not very bad and did not bother us much. In some sections especially, the green aphid is getting to be a pretty serious pest to Michigan apples, and it is worth some experimental work, but I am too busy to conduct any experiments. We have institutions in this State to do that for us. I believe those are the people that should do it.

Question: Did you ever notice any difference in the aphid where you have used the home-cooked with sludge in it?

Answer: No, I haven't. It would not make any difference for this orchard where I used this Black 40 is where we always cooked the mixture.

Chairman: Right here is a good place to answer No. 6. "Has anyone tried carbolic acid for aphid? If so, with what effect? How would the expense compare with nicotine?"

Answer: No, I have never used it.

Question: Is commercial lime-sulphur, testing 28% Baume, be about what you would use for summer spray?

Answer: Yes, for apples; 28% is pretty low.

A Voice: We use one to 30.

Speaker: We use one gallon solution to 50 gallons of water—we could use it a little stronger.

Question: How do you control the blotch fungus—the sooty fungus?

Answer: I have never had it. It is not at all like the scab fungus.

Question: You said you used 1-50—I would like to get some information as to what they use at the College. I understand that at the College that under experiments they tested out and sprayed for the scab 1-50, and that it proved too strong. I got it from the fellow that did it. I have been laboring under a delusion and have used 1-40 and burned the foliage of my pears.

Answer: You will sometimes burn it when you used 1-50. Maybe that accounts for your scab.

Question: Do you have any trouble from russetting of the apple from long-distance spraying?

Answer: I do believe this; that a very high pressure or applied when the fruit is young and tender, you may get some russetting effect that you would not get with the fine misty spray. We had some russetting from frost last year but not from spraying. We haven't had any trouble with russetting since we quit the use of Bordeaux.

Question: Tell us a little about that sooty blotch.

Answer: This is a little blotch that will appear on the apples caused from the dripping down from the foliage of liquid matter, in which is dust and dirt, on to these apples. The skin is not punctured, but it remains on the skin and produces the results that are found. It is not found in a sprayed tree, but in unsprayed orchards. There is no doubt but what climatic conditions have something to do with it as well as the thick foliage.

Five year old Elbertas. "Hill Top Orchards," J. H. Henset, Hartford, Mich.



INSECT PESTS.

PROF. R. H. PETTIT, EAST LANSING.

I did not come here with a set speech but rather with the hope that you might let me discuss your insect troubles with you informally.

First of all, though, I want to say a word in reference to coarse sprays. We are gradually coming to use coarser and coarser sprays because we find that they do the work better. The reason is that we are now using arsenate of lead instead of Paris-green. When using Paris-green we were forced to use a fine fog-like spray and to stop before the tree dripped, in order to make the coarse particles of Paris-green stay on the tree. Now with the finely divided arsenate of lead, we can get plenty to stay or even if the tree drips and we can also use a coarser nozzle and high pressure and thus make the liquid stick better. You will also remember that I have been advocating home-made lime and sulphur right along in fact have been something of a crank about it. The home-made lime-sulphur carries a good deal of sludge which gives body to the spray and keeps more of it in contact with the insects.

While there has not been very much new to report this year, I want to say that we have found out one new fact of general interest. It happens to be about the bean-maggot. This pest has been very troublesome all over the State during the past season. It works in the roots and stems just after the beans sprout, sometimes killing an entire crop before the beans even get a chance to make a start. It had been believed up to this time that the adult flies laid their eggs on the stems as they pushed up above ground and that the maggots worked downward from there. The infestation just past gave us the opportunity, however, to establish beyond doubt the fact that the maggots are sometimes in the soil ready to attack the beans as soon as sprouted, since some fields were destroyed before the beans even appeared above ground. When this fact became apparent Mr. Whelan, field agent of the College department of Entomology, made a careful study of the conditions under which infested fields were grown. As a result of which we now know that the most favorable conditions for the maggot are those following a late plowing of a clover-sod which has recently been heavily dressed with fresh manure. Early plowed fields escape with little injury. Fall plowed fields usually with none. Clover-sod with the old stems and fresh manure seems to serve as a breeding place for the maggots and if the field be fitted late then the beans sprout before the maggots have time to become flies and disappear.

Now, gentlemen, as I said before, I have not come here with a speech to deliver. I want to be just as helpful to you as I can by discussing with you the problems that you meet in your every-day experience.

A Member: I would like to have a little information on the pear psylla.

Answer: This is a little creature that passes the winter in the cracks of the bark and in the creases around the bud scales. When we used the old home-made lime-sulphur with the sludge we did not hear anything about this pest, for the pest winters in the cracks that are covered with lime and sulphur, especially if there is body to the mixture. The oxygen is taken out of the cavity, and the insect dies because he cannot get more oxygen. The blister-mite is killed in the same way—the thing is driven into a hole and the hole is plugged. If you cannot get them with a strong winter spray, then just after the eggs hatch in the spring, use Black-leaf 40, or kerosene emulsion.

Question: I would like an answer to question No. 4, "Nicotine is so expensive—is there anything cheaper?"

Answer: While we can go back to kerosene-emulsion, we do not like to make it—it is miserable stuff to make and disagreeable in more ways than one. I do not know of anything better or cheaper or safer than nicotine.

Question: A few years ago you thought the lime-sulphur with sludge was effective on the eggs of aphids—do you use it now, or advocate it?

Answer: We used it and I doped twig after twig in that home-made stuff when warm, and full of sludge; only a few of the eggs hatched—although some of them did. We have stopped using it over the State so that we are not getting any more data on that. I wish we could come back to the home-made stuff—I am sure if we did, we would reduce the difficulty with aphids.

Question: What about the reports of the control of peach borers with lime-sulphur—what do you know about it?

Answer: I haven't seen any good results from it.

Question: How about the red bug?

Answer: It is still on the job. There is still some difficulty in distinguishing between the work of the aphids and that of the red-bug until one gets familiar with both of them. The work of the apple curculio may be confused with that of the red-bug also. Mr. Wooden of the College department of Entomology found the apple curculio for the first time in Michigan only recently.

Question: Is it necessary to spend the money always to make the first spray for aphids.

Answer: I would not do so always. I have never recommended a spray every year. Some years we should use the spray and some years not. The years when we have cool, wet springs, are the years when they do the most damage. In ordinary years the apple plant-lice are held in check by parasites. The parasites refuse to do business until it gets warm. If you have a cold backward spring the lice will go on multiplying and the parasites will not catch up until too late.

Question: Is it then a question of the weather or of the parasites? In other words, is the weather responsible for the killing of the aphids?

Answer: The weather controls the parasites.

Question: What can you tell us about the wooley aphid?

Answer: The only new fact about the wooley aphid is the discovery that it is the same louse that curls the leaves of elm trees. I do not know of any use that you can make of this information. You do not



Cutworms climbing the trunk of a peach tree at night. Taken by Geo. Low, Bangor, Mich.



Note Aphids in crotch of tree.

want to cut down your elm trees but it explains why the wooley louse sometimes appears when you use perfectly clean stock and set it at a distance from any other orchard. I do not know how to control the wooley-lyouse.

Question: Tell us about the onion maggot.

Answer: The latest news about the onion maggot is from Wisconsin. Professor Sanders, State Entomologist of Wisconsin, tells me that they succeeded fairly well with poisoned syrup. He placed small basins containing a poisoned syrup about the fields using from twelve to twenty of them to an acre, keeping them in operation from the time when the onions come up for several weeks. The syrup is made as follows: Five grams of arsenate of soda to a gallon of hot water; to this is added a half-pint of molasses. The object is to attract and poison the adult flies before they lay their eggs. If you do this you should place a wire screen over the basins to keep the bees out. I believe a quarter-inch mesh wire screen would be about right.

Question: I noticed cherries in my orchard that had a little speck on the outside and when I opened them up there was a worm inside. What is it?

Answer: You did not detect the worm until you ate it?

Member: That is it.

Answer (continued): You saw first a little speck—then the worm? That looks like one of the cherry fruit-flies.

Question: Will spraying right after blossoming control it?

Answer: We are recommending the use of a spray put on the lower part of the tree not covering the tree at all but merely the lower branches, the spray to contain a syrup or molasses to catch the adult flies before they lay their eggs, and just after the cherries set.

Question: How about the bees?

Answer: As yet there has been no complaint. Slingerland and Crosby recommend it either with or without syrup, and they claim it has worked all right in New York. We haven't tried it yet. As to the bees I do not know. We shall have to wait and see. Of course this spray will come at a time when apple is in bloom and I do not think that bees will bother with the syrup while the apple-blossom flower is on.

A Member: Down at South Haven there was a rush for nicotine with which to spray for the aphid. The weather turned suddenly warm, and the aphid all disappeared. A careful inspection of that orchard showed that there were carcasses of the aphid present.

Answer: You probably found the cast-skins of the aphid. There are three species of the aphid on apples that come out almost together. One of them leaves the apple and migrates to grass for the summer. If you were sure just which species you had I could tell you more about it. If the spring opens warm, you can afford to take more chances than if it is wet and backward.

Question: Does the nicotine injure the parasite that works on the aphid? In my own experience it seems as though I would kill all of them and then in a week they would all appear again.

Answer: We had a bad summer this year, and indeed for three years back, that may account for the trouble you had.

Question: Then I should spray for them more often during bad weather?

Answer: Yes, as a sort of insurance—but that is something you should settle for yourself.

Question: Do you use nicotine solution for the wooley aphid on nursery stock?

Answer: I would rather use a miscible oil—and I would use soap with the nicotine if I did not use oil.

Question: Is there any danger—or rather do these parasites multiply rapidly enough to keep up with the aphid?

Answer: They will go ahead of the aphid with proper weather conditions.

Question: Can we control this aphid by thorough spraying with lime-sulphur, strong, when it is in the egg form?

Answer: Not completely—you can to some extent.

Question: Have there been any experiments conducted whereby anyone can be assured that he can control the aphid by spraying thoroughly with Black-leaf 40?

Answer: Lots of people have done it.

Question: Have they done it and known it?

Question: I know of one who tried it for three years and declared it was a success, this year with him it was a failure. With me, I had the aphid bad last year, but this year it was not half as troublesome as it was last year.

Answer: Of course these experiences will differ, and there may be other reasons for the difference than the one's that appear at first thought.

Question: What effect does the spray have upon the canibal parasites?

Answer: Some of the parasites may be killed.

Question: Is not that one our difficulties—a reason why we have not been able to control it some seasons and other seasons we could?

Answer: I do not think so.

Q. What is a good book on injurious insects?

Answer: One written by Slingerland & Crosby, and published by McMillen. It is the finest and most complete book in the English language. I would recommend every fruit grower to have that book.

A Member: I do not like to keep asking questions, for it costs money to have this meeting, but I would like to know before going away from here, whether it pays to use Black-leaf 40 at any time during the season; whether our Experimental Stations at Lansing or elsewhere have conducted any experiments whereby they can say to any fruit grower that he can afford to spend this money to save dollars in apples. As it is, the State of Michigan is spending a lot of good money to save dollars in apples, and we want to know whether there is any reliable information as to whether it really pays—that is what we are after.

Answer: I will say yes, it pays.

A member: I would like to give my experience. There is a gentle-

man out our way who was almost crazy about the aphid—the green aphid, the woolly kind—and he used a lot of nicotine this year, and this fall has the aphid the same as usual. I told him not to worry so much, for if my conviction after an experience of twenty-five years, that the green aphid comes in cycles, the same as locusts. In 1902 I set out apple trees and the next year I was worried most to death. They did not stay more than a year and then they went. Then later they came back. The trees that I sprayed didn't have any aphid, neither did the trees that were not sprayed—just the same. I do not believe in a lazy-man's policy, but I do believe that they are recurrent—especially in particular sections. I believe that it is sending a dollar after 20 cents to try to control this by the use of Black-leaf 40. Sometimes I have thought it was helpful, then again I have thought it was not. There are some evils unmixed, and perhaps this is one of them.

Answer: The weather comes in cycles. There have been experiments made proving beyond the question of doubt that Black-leaf 40 does kill the aphid when it is present.

Question: But will it really do the work?

Answer: I would like to inquire if it was really Black-leaf 40 that you used? There is a lot of so-called Black-leaf 40 that is not what it is represented to be.

A Member: I had a similar experience—I didn't get the results that I thought I should, and it scorched the leaves.

Answer: Did you use this with lime-sulphur? Black-leaf 40 should not do that—it should kill the louse without injuring the leaf.

A Member: Tobacco stems did scorch the leaves. These were used clear.

Answer: I cannot understand why there was any scorching if the tobacco stems were used straight or a mixture of straight nicotine. I have scorched trees with clear water when the air was right but I didn't expect to do it. I once had a lot of tobacco stems analyzed. The tobacco grower delivers them after they have been sweated and everything taken from the stems, after that they are thrown out and often rained on, then they are sold for a cent a pound. When these are subjected to a chemical analysis, it will be found that there is very little nicotine present. Nicotine in its pure state is very poisonous. As the Harvard professor said, when lecturing before a class, "Gentlemen, a very small drop of this placed on my tongue would kill a very large dog." The black gluey stuff is not nicotine. The Black-leaf 40 is a combination of the straight alkaloid with dilute sulphuric acid. We use the combined nicotine because it will not evaporate so quickly. It takes a lot of the Black-leaf 40 in cool weather to scorch the leaves, if it does it at all. I feel that it may be possible that you got your scorching from lime-sulphur.

A Member: I didn't get scorching, but I didn't get anything else.

Question: What are the effects—or rather results—of powdered arsenate of lead?

Answer: It costs twice as much per pound and goes about twice as far and as long as it does not get lumpy, I would rather have it. Furthermore, you can use it in so many ways—you can kill cucumber beetles by dusting it on, and it has been used on potatoes as a dust.

SUCCESS AND FAILURE IN COLD STORAGE.

SETH J. T. BUSH, MORTON, N. Y.

The Cold Storage business is of very great importance to the fruit industry, but at the same time is very little understood or appreciated by growers generally.

If it were not for the cold storage houses holding the bulk of the apple crop every year and permitting it to be placed upon the market gradually, there would be mighty little "present" to say nothing of a "future" to the apple industry in the United States.

The common storage limit is usually February first, but in chemical plants it is common practice to successfully hold apples into May and June.

Just consider for a moment what the conditions would have been last year, with the enormous crop, had it been necessary to market it all by February first. As it was we were able to sell "A" grade Baldwins from cold storage early in June for \$6.00 and \$6.50 per barrel and got as high as \$4.00 for "B" grade.

My experience in the storing of apples has not been extensive, although I am now very much interested in that business, having organized a company two years ago and built last year at Morton, N. Y., what is conceded to be one of the finest and most up-to-date plants in this country.

Our idea was from the start to make it a GROWERS' storage, and have among our 125 stockholders, practically every grower in that vicinity. To begin with this gives us enough apples produced by our own stockholders to fill our 60,000 barrel plant in any ordinary season. We did not get the plant completed in time to use it last year, but being of reinforced concrete construction, this was really a good thing as the building had nearly a year to dry out and was in the finest possible condition when we commenced business in August. Building operations should begin not later than April first on a plant of this kind if it is to be ready for use in September or October.

We spent three months and hundreds of dollars in traveling about the country inspecting various plants; interviewing owners and managers, and consulting with manufacturers of refrigerating machinery.

Our idea is that the place for economy is in operation of a plant and not in construction, and we carried through the project from start to finish with the idea of getting the best that money would buy.

We were told by cold storage engineers that 100 horse power was altogether sufficient for our requirements, but we installed three 75 horse power units; we were told that two inches of cork insulation was sufficient but we put on four inches, in two 2" sheets with broken joints; we were told that one system, i. e., the Direct Expansion Ammonia System was all we could possibly have any use for, but we, in addition to

that system, installed the most elaborate cold air circulating system to be found in any plant in this country. This gives us two separate and distinct refrigerating systems, enabling us to carry a wider range of commodities and to keep the air in all rooms sweet and pure at all times—carry off the accumulation of gases thrown off by the fruit and prevent the “pocketing” of dead or foul air in any of the rooms.

We were told that it was possible to build a 60,000 barrel house at a maximum cost of \$1.50 per barrel of capacity, but we found that a first class plant of the capacity mentioned can not be built for a cent less than \$2.00 per barrel, and for a plant as complete as ours the cost is \$2.50 per barrel.

So far as I know ours is the only plant in the country using producer gas for power—also the only one of its size using a maximum of *one ton of coal per day*. Other plants of similar capacity in western New York use from four to six tons of coal daily. The fact that we are now able, with the plant filled to its utmost capacity, and with car-loads of fruit coming in and going out daily—to hold our temperatures without variation and only operate one engine and one ice machine from two to six hours of each twenty-four, is sufficient justification for our heavy expenditures for the best possible insulation.

Our plant being absolutely fire-proof, there being no wood about it except the refrigerator doors, we enjoy an insurance rate of thirty cents against a rate of from \$1.00 to \$1.75 (usually the latter figure) applying to other plants in the State.

As fruit growers, having experienced in common with our friends in other sections and states the most inefficient refrigeration service on the part of the railway companies, we decided to have our own ice plant and manufacture our own ice and ice our own cars. This feature has proven to be one of the most satisfactory as well as one of the most profitable features of our proposition. Instead of being compelled to accept a refrigerator car that had been iced inadequately and improperly from twenty-four to seventy-two hours before we got it, and being forced to pay for all the ice the bunkers *could* hold, notwithstanding the fact that we never got it, we are able to ice our cars to capacity with a far better quality of ice than that supplied by the railway company and at a lower cost and when our cars leave Morton the bunkers are full instead of from one-third to three-fourths empty as in the past.

In building our plant we had in mind its enlargement at the least possible cost as soon as conditions warranted the outlay. We can double the capacity now without increasing our power plant a single horse-power.

We manufacture our own electric current for the operation of two large thirty barrel elevators, hoisting machinery, lighting system, pumps, grading machines, air circulating system, etc. We also expect to furnish light for the village of Morton as soon as we can get to it.

We operate mechanical fruit grading machines for our patrons in large, well-lighted, convenient packing rooms by electric power.

The establishment of such a plant in a large producing section is of

inestimable value to the growers. It makes them independent of the "dealer" or speculator.

When harvest time arrives they know that they have as good a place in which to hold their fruit, in case the market is unsatisfactory, as the dealer can have. It is really worth, conservatively speaking, fifty cents per barrel on their entire crop.

If the grower needs money with which to pay his help and running expenses, he can do just what practically all the dealers do, take his warehouse receipts to his bank and get an advance of from 50c to \$1.50 per barrel and hold his fruit until the market suits him.

Another great advantage to the growers in having such a plant, is the facility it affords for the accumulation of small lots of fruit into car-loads, which is precisely what the dealer does—pre-cooling it as it is collected and shipping it out in the very best possible condition to carry well to market.

We are particularly fortunate at Morton in having an apparently inexhaustible supply of sweet, pure, cold water, obtained from wells within one hundred feet of our engine room. Ability to use this water direct from the wells at a temperature of fifty-one degrees and allow it to run away, increases the efficiency of our ice machines about forty per cent.

As I have said our proposition at Morton is a grower's proposition. Three years ago I organized the Eastern Fruit & Produce Exchange, with headquarters at Rochester, which supplies our growers with the most complete sales machinery. Next came the cold storage plant and now we are organizing a bank, and in due course will come the cooper shop, canning factory, dehydrating plant, and vinegar factory, with coal sheds and fertilizer and basket storages.

We are after every nickel that is to be obtained from our business.

We believe that duty and common sense demand that we do our own speculating, and that when it comes to a division of the proceeds and profits obtainable from the results of our toil and investment, that division should be with our own families and not with those who have taken no risk, borne no hardships and suffered no anxieties as the seasons have come and gone.

One of the things that surprised me and vexed me greatly when I was trying to collect definite information upon which to base plans for our plant, was the very great difficulty experienced in finding anyone from whom positive and reliable advice could be obtained. If we had not been possessed with a determination to know all the "whys and wherefores" before going ahead with our plans, I hate to contemplate the mistakes we might have made.

There are so many things done absolutely wrong in many of the plants we visited, that I am impelled to utter a friendly warning to my fellow growers and to extend to them all an invitation to visit our plant at Morton and to secure from us the benefit of all that we have learned at a cost of much time and money. We will be only too glad to be of assistance.

There are a few "Don'ts" that occur to us as worth while to pass

along to our friends, who may soon, or sometime, be interested in the building of a cold storage plant:

1. Don't use wood—use reinforced concrete, because of the low insurance rate, low cost of up-keep, and lack of depreciation.*

2. Don't use granulated cork, as it is of little value as compared with sheet cork.

3. Don't allow the contractor to use steel nails in putting up the sheet cork insulation, as has been done in many, if not most of the plants throughout the country, because it is a perfectly absurd performance and largely destroys the value and efficiency of your insulation. Use nothing but wooden nails as they are non-conductors. How anyone possessed of any common sense could be induced to pay from \$25,000 to \$30,000 for high-grade insulation and then permit workmen to literally fill it full of holes, which is really what happens when the cork is fastened in place with thousands of steel nails, is beyond our comprehension.

4. Don't make the mistake of having too little packing room space.

5. Don't build your plant so that the long way of your cold rooms will be away from the railroad, but rather have the trucking distance just as short as possible. Labor in handling in such a plant is a very large item. At Morton this year we have operated our plant with one-half to one-third the number of employees that are used in plants of similar capacity in western New York.

6. Don't make the mistake of having narrow shipping or receiving platforms—it will be found that sixteen feet is none too wide and the longer they are the better and so far as is possible have them covered. Service is the thing to be considered first, last and all the time.

7. Don't keep your patrons waiting—have facilities for unloading half a dozen cars and wagons at the same time.

8. Don't undertake to operate your plant with a short stub switch, but have a track, on your own land if possible, that will hold twenty-four or more refrigerator cars and which has double ends so that the cars may pass the plant for loading or unloading and not have to be pulled out where they came in and thus cause all sorts of delay and inconvenience. With your track on a very slight grade you can easily start the loaded or unloaded cars on their way as soon as they are ready, in case there is no shifting engine available, and there never is, at all times.

9. Don't have your air ducts built of anything but wood, as metal air ducts will sweat and drip and cause much trouble and annoyance, and don't let anyone talk you out of installing a cold air ventilating system, because it is one of the important things to have in connection with any cold storage plant.

10. Don't let anyone talk you into piping your house at a ratio less than 18 to 1, and if you are going to handle peaches or other fruits that do not call for temperatures lower than 34 degrees, do not have the pipes in rooms that are to be held at 34 or above, hung on the ceiling, as they will drip and cause you all kinds of trouble, but have them hung on the side walls, one above the other so that one drip

pan will catch and carry off all of the drip and prevent it getting on the fruit. The cold blast system is much the best for peaches.

11. Don't build your plant where the drainage is poor.

12. Don't build a house without means of passing from one side to the other without opening doors to cold rooms. Our plant is the only one that I know of that has a passage-way from one side to the other which permits employees to get quickly across the building without opening and closing cold room doors a hundred times daily in the busy season; this feature is of inestimable value.

13. Don't forget that different kinds of products require that they be held at different temperatures and that, as an illustration: Twenty-ounce apples will freeze solid in a room where Baldwins will not be even touched. Unfortunately you will not find anyone to tell you all these things; the manufacturers of ice machines ought to know all of these things, and do know many of them, but they seem to be principally interested in selling their machines and don't trouble themselves to put you wise.

14. Don't have any windows in your cold rooms, the air ducts will give all the ventilation required and the best, and be sure to have vestibules and curtains at entrances to the rooms that are used the most, and finally, don't get the idea that it is an easy or simple matter to raise \$100,000, or \$150,000 in a rural community, or that as a grower you can afford, from a business standpoint, and a matter of self-preservation, to refuse to go in with your neighbors and fellow fruit-growers to the extent of your ability and secure for yourselves the facilities and advantages we have outlined.

If your apples are going into cold storage at all, they should if possible go in the same day they are picked, and in any case with the least possible delay.

I quite fully realize that it is not possible to have a 50,000 barrel plant at many points, and while a plant of that capacity is more economically operated than a smaller one for obvious reasons, it is desirable to have these facilities for holding your fruit even though on a much smaller scale, as the advantages and "dividends" to be received are not confined by any means to those received in the nature of stock dividends.

The business of Farming and Fruit-growing is the greatest business in the land.

The value of farm products of this country is ten billion dollars annually—a business to command the respect, the intelligence, and the ambitions of men.

Let us accept the responsibility that goes with our calling and bend our efforts to the improvement of all conditions affecting our lives and our business.

With our faces turned toward the morning and our wagon hitched to a star, let there be a common bond of sympathy and interest stretching from every farm on every hillside, plain, and valley of this broad land to every other farm and fireside, carrying and embodying good cheer and fellowship among all the sons and daughters of Agriculture and Horticulture, to the end that our calling may be dignified, our

living made easier and better, and our lives lived as they are, close to nature and nature's God, nobler and purer.

Question: What advice do the Madison Cooper people give?

Answer: I do not like to knock anybody at all, but I will say this, that one of my friends, a former president of the Fruit Growers' Association, who installed that system, after using it for two years, took it out and replaced it with another system.

Chairman: I was particularly impressed with what was said about the icing of cars. We are up against the same proposition in this State. I had to confess that I did not, and I do not believe one in fifty of the fruit growers of this State knows what the laws are governing the railroads in this State, and I would like to ask Mr. Bush if they are any different than those that govern in New York?

Answer: I do not know so much about the laws, but I know a little about what you can do. In the first place, in regard to this ice—I do know that if you have a cold storage plant that you can manufacture that ice and sell it to your shippers for \$2.50 per ton and make good money on it, and I presume you are paying Armour considerable more than that.

A Member: Yes, a good deal more than that. And we find that slack icing is one of the difficulties we have to contend with.

Mr. Bush: That is so, and especially where the railroads have it their own way and where no one gets after them. I got a Public Service hearing in Rochester and we as farmers for the first time made it pretty hot for the railroad company. I got into a row with the New York Central R. R., and decided that I would get right after them, and we did. Since that time we have had a much better service. I do know that in New York our law does protect us in this way, that if we order an iced refrigerator from the railroad company, we do so by filling out written orders and then keep track of the hour, and if the R. R. Co. failed to deliver to our station for our use such a car, we can pile our peaches on the track, tender freight charges, and any loss the railroad company will have to stand. We have found that the railroad company will get the car there the day you have the fruit. I have had the New York Central Company after dark send a special engine and train crew, with three refrigerator cars from Rochester, 30 miles away, to Morton, to take care of my stuff because they knew that as I had notified them, they would have to buy these peaches at 60¢ a basket, and this, of course, they did not want to do. There is another thing why they would go to all that trouble—the fruit-growers and farmers have not known what their rights were, but now they are finding out what they are, and they can not be played as a lot of suckers as they have been. When the railroads find out that you are on to your job, that you know your rights, that you intend to insist upon them, you will find that they will come across and do pretty nearly the right thing.

A Member: I would like to know your opinion on Question No. 11. "How small a cold storage is practical?"

Answer: I would not build a cold storage plant with a capacity of less than 50,000 bushels. There must be a chief engineer, two foremen, and frequently a house foreman, receiving clerk, and for this you can

operate a 70,000 bushels as cheaply as a 50,000 bushels capacity plant. The idea is to keep this overhead expense down.

Question: Is the railroad company compelled to deliver refrigerator cars uniced?

Answer: Yes. If the law of Michigan did not permit any grower in the State of Michigan to get from the railroad company a refrigerator car uniced, and allow you to ice it yourself, there is something the matter with the law.

A Member: I tried that but the Michigan Central would not do it.

Answer: They wanted to bluff you—wanted to sell you two or three tons of ice and charge you \$5 or \$6 a ton.

FARM MANAGEMENT DEMONSTRATIONS IN NEWAYGO COUNTY.

C. P. REED, EAST LANSING.

For some years the Michigan Agricultural College has been endeavoring to give to farmers of this State, the best methods of handling the soil; the best methods of handling the farm crops; the best methods of growing and marketing fruit; the best methods of feeding and caring for the dairy cow; the best methods of producing and marketing poultry, and has made no attempt to advise how these different lines of farm enterprise can be combined into one profitable farm business. Last year the College, in co-operation with the United States Department of agriculture appointed a Farm Management Demonstrator, whose duty is to give advice of this kind. His work does not conflict with the work of the older lines of agricultural extension work, but supplements them. The Farm Management Demonstrator's duty is to advise the farmer what proportion of his income should be derived from crops, what proportion from animals, what proportion from fruits, under his circumstances and what to do to alter those circumstances when necessary, but the crop specialist, the live stock specialist and the fruit specialist advise the best methods to employ in raising those crops, those animals and those fruits.

The Farm Management Demonstrator can not base his advice on hasty or snap judgment but must base it upon the past experiences of that farmer and his neighbors, properly correlated with the experiences of farmers in similar areas. This requires a comprehensive and detailed study of the farm business. In making this study we seldom find a farmer who knows what he has received for his year's work, but in most cases he has his business sufficiently well in mind to give the data necessary to make a summary as shown in the following chart:

DETAILS OF YEAR'S BUSINESS.

Capital at Beginning of Year.

Real estate	\$9,000 00
Live stock	1,656 00
Machinery	644 00
Feed and supplies	68 00
Cash	40 00
	<hr/>
	\$11,408 00

CURRENT EXPENSES.

Hired labor	\$114 00
Board for help	32 00
Family labor	90 00
Repairs	38 00
Feed	60 00
Taxes	89 00
Miscellaneous	102 00
Decrease in feed and supplies...	22 00
Depreciation of buildings and machinery	134 00
	<hr/>
Total	\$681 00

RECEIPTS.

Milk and butter	\$316 00
Cattle, net	216 00
Horses, net	225 00
Hogs, net	84 00
Poultry and eggs, net	111 00
Potatoes	124 00
Wheat	118 00
Rye	76 00
Beans	252 00
Apples	274 00
	<hr/>
Total	\$1,796 00

Farm income	\$1,115 00
Subtract 5% interest	570 00
Labor income	545 00

This chart shows the total investment on the farm, the expenses, the receipts and the net returns the farmer received for his work. It is to be noted that \$114.00 cash was paid for hired help; in addition to this, the help was boarded which was estimated to cost \$2.00 per week over and above the portion of the food which the farm furnished. The

boys in the family did work, which if paid for at usual rates, would have cost \$90.00. Repairs on buildings, machinery and fences cost \$38.00; in addition to these repairs, the buildings and machinery depreciated during the year an estimated amount of \$134.00. Buildings and machinery usually depreciate 2% to 15% a year, depending upon construction, care and treatment given them. These figures show that this farmer had less hay and grain on hand at the end of the year than at the beginning. This loss is included as current expenses. If he had had more feed, it would have been entered in the receipts column. The receipts are figured for each class of stock separately. The amount paid for all stock bought during the year is subtracted from the total sales for the year and allowance made for increase or decrease in value of stock on hand at the end of the farm year as compared to the beginning of the year.

LABOR INCOME.

Subtracting \$681.00, the total expense, from \$1,796.00, the total receipts, we have \$1,115.00. This amount is the Farm Income, or the net return for the farm investment and the farmer's labor. Subtracting \$570.00 which is 5% interest on the total value of all the farm property, we have \$545.00. This is what this farmer received for his year's work and is known as his *Labor Income*. In addition to this, he received such portion of his living as the farm furnished for himself and family.

This farm is a fairly successful farm and has three characteristics which make it successful. These are *Good Size*, *Good Quality* and *Good Diversity*. In making a summary of this kind of the farms around Fremont in the area selected by County Agent Blandford for the demonstration work, we found that one farmer out of every six did as well or better than this farmer. One-half of all the farmers made less than \$200.00 for their year's work after paying interest on total valuation and current farm expenses. One-half of these did not make interest after paying farm expenses. This is not an unusual condition. Similar conditions are found everywhere and usually these unprofitable farms are so because they fall down in one or more of the three factors mentioned above. In our farm management demonstration work, it is our special duty to analyze the business of these farms with reference to these factors in such a way that the farmer will see for himself what his labor income is, why it is so small; and to discuss with him what changes are possible that he may increase his income. The charts which I have here have been made that we may show the Newaygo County farmers how these factors which are known to apply to farm business apply in his community and on his farm. Chart A shows how to figure the farmer's labor income; charts B, C and D and their subdivisions, show how these factors affect the labor income in the community. Chart E shows how these factors apply to the individual farm. If we can in this way bring to the attention of the farmer with a small income the knowledge that his farm business is poorly organized and suggest changes to him which, when given satisfactory trial, results in an increased income, we feel that we have permanently benefited him and his family.

SIZE OF BUSINESS.

The figures on 96 farms in Newaygo county show that the larger farms enable the farmer to get better pay for his work than do the smaller. There are several ways to measure the size of farm business; one way is by the number of acres in crops. The following chart shows how the number of crop acres affects the Newaygo county farmer's income:

Chart B1.

Less than 35 acres, 32 farms, average	\$98 labor income.
35-49 acres, 27 farms, average	222 labor income.
50-65 acres, 23 farms, average	309 labor income.
More than 65 acres, 14 farms, average	234 labor income.

This chart suggests that farms having over 65 acres of crops are too large to be profitable, but such is not the case. Twelve of these fourteen farms had good-sized peach orchards and no peaches this year on account of weather conditions. With an average peach crop, these farms would probably have averaged the highest labor income in the group.

The larger farms enable the farmer to use more machinery and put in his own time at a better advantage than do small farms. A large investment in other farm property usually goes with a large number of acres. The following table shows how a large investment in equipment or farm property other than real estate helps the Newaygo county farmer to get good returns for his own time.

Chart B2.

34 farms having under \$1,200 equipment average...	\$92 labor income.
21 farms having \$1,200-\$1,600 equipment average...	238 labor income.
20 farms having \$1,600-\$2,000 equipment average...	260 labor income.
21 farms having over \$2,000 equipment average...	296 labor income.

This chart shows that the farmer who has not proper equipment is greatly handicapped and had better not start in farming until he can own, borrow or hire a reasonable amount of equipment. A young man just starting in without capital who wishes to own a good farm some day will reach that desirable goal more quickly by working for wages and saving his money until he has money and credit enough to rent and properly equip a reasonably large farm, renting that farm until he is able to buy a good sized farm, than he will by any other method. The young man with farm experience seldom makes a serious mistake along this line but the would-be farmer, the city man without farm experience very often makes disastrous mistakes. It is probable that the majority of these fail because they do not plan a farm business large enough to provide a sufficient income. Another mistake almost equally common and oftentimes associated with this mistake is that too large a proportion of available funds are invested in real estate and too small a proportion is invested in equipment. In many cases, all the

funds should be invested in equipment and working capital but are all invested in real estate. Such cases are almost always extremely pathetic. The amount of equipment necessary on a given sized farm necessarily varies with the type of farming practiced on that farm. It is the exceptional man who can make wages with a farm business so small that his equipment (teams, tools, live stock, feed, supplies and ready money) is valued less than \$1,500. The average man with average conditions does not do it. If we make a similar division of these 98 farms based on the number of animal units* on the farm, we have the following chart:

Chart B3.

Under 8 animal units, 16 farms, average	\$8 labor income.
8-11.9 animal units, 27 farms, average	134 labor income.
12-14.9 animal units, 23 farms, average	260 labor income.
15-18 animal units, 13 farms, average	235 labor income.
Over 18 animal units, 17 farms, average	396 labor income.

This chart harmonizes with and emphasizes charts B1 and B2. They bring out the point that the farmer who is able to manage a large business and has a large business to handle make a better labor income, a larger wage per hour, than the farmer who has a small business. This is true in Newaygo county—it is true everywhere. In other areas, some other measures of size are found necessary to show this same principle. In an exclusively dairy region the number of cows kept is a good measure of size. In an exclusively fruit region, the gross receipts or the number of productive work days furnished by the farm business might be taken as a convenient measure of size of business.

QUALITY OF FARM BUSINESS.

In addition to having good size of business, it is just as necessary to have a good quality of farm business; that is, good crops must be raised, a good quality of live stock must be kept and maximum results must be secured from both horse and man labor employed on the farm. The following chart shows how good yields affect the labor income of the Fremont farmers. In this chart we have taken the average yield for the community for that season as 100%. Each crop raised is rated on this basis and the average of these ratings makes the rating given the farm.

Chart C1.

22 farms with less than 86% yields have average labor income of.	\$74
18 farms with 86%-96% yields have average labor income of....	150
10 farms with 96%-104% yields have average labor income of....	154
22 farms with 105%-114% yields have average labor income of....	316
24 farms with over 115% yields have average labor income of....	284

*An animal unit is 1 horse or 1 cow or 5 hogs or 7 sheep or 100 hens; 2 growing animals equals one mature animal of the same class.

It often happens as in this case that the farmers with the very high yields do not make as much profit as do the farmers whose crops are consistently a little better than average. It is well known that without good crops the farm can not prosper but it is just as important if not more so that the farmer have good live stock as shown by the following chart.

Chart C2.

Receipts below \$60 per animal unit, 40 farms average.	\$85 labor income
Receipts \$60-\$75 per animal unit, 27 farms average.	203 labor income
Receipts above \$75 per animal unit, 29 farms average.	367 labor income

This chart is based on net live stock receipts per animal unit as explained in Chart A and must not be confused with profits per animal unit nor with cash sales. In addition to good crops and good live stock, the available horse labor and man labor must be utilized to the best advantage. In order to show the efficiency of labor, we have sorted the farms on the basis of number of crop acres per horse and again on the basis of number of crop acres per man as shown below.

Chart C3.

Less than 15 acres of crops per horse, 31 farms average..	\$171 labor in.
15-20 acres of crops per horse, 41 farms average.....	220 labor in.
Above 20 acres of crops per horse, 24 farms average....	255 labor in.

Chart C4.

Less than 22 acres of crops per man, 25 farms average..	\$144 labor in.
22-32 acres of crops per man, 23 farms average.....	162 labor in.
33-42 acres of crops per man, 25 farms average.....	200 labor in.
Above 42 acres of crops per man, 23 farms average.....	311 labor in.

These charts reinforce Chart B2. The farmer whose farm is large enough to afford a good investment in tools and equipment does not necessarily work harder than others although he usually does, but by using modern farm machinery can do more work in the same time and get proportionately better returns for his labor, as shown in the chart.

Charts B1, B2 and B3, all show that the larger the farm business, the better returns the farmer gets for his labor. There is, of course, a limit of size but it is evident that none of the farms in this area have passed that limit. Chart C1 shows that up to a certain limit the bigger the yield of crops, the better the returns for the farmer's labor and evidently some of the farmers have passed that limit. Chart C2 shows that the larger the returns per animal unit, the larger the net income of the farmer. There is, of course, a limit to this but it appears that the limit is not reached by this group of farmers. This method of analysis can be criticized because farm business is quite complicated business and the farmers' labor income is influenced materially by each one of the factors mentioned jointly with other factors and not entirely

influenced by the single factor which we have considered separately. In the following charts we will show how size and quality combined affect the farmer's labor income.

CHART D1.

Crop, acres.	Average labor income.	Receipts per animal unit.	Number of farms.	Average labor income.
Under 35.....	\$98 00	under \$60 00 over 60 00	17 15	\$41 00 163 00
35-49.....	222 00	under 60 00 over 60 00	12 15	122 00 302 00
50-65.....	309 00	under 60 00 over 60 00	5 9	91 00 314 00

This is Chart B1 with each group of farms subdivided on the basis of returns per animal unit. If we choose to subdivide these groups in B1 on the basis of crop yields, we get practically the same proportionate results but not quite the same farms in the respective groups. If we wish to continue this farther, we can divide the farms on the basis of the number of cows kept, eliminating the farms having less than five cows and subdividing each group on the basis of creamery receipts per cow with the following result.

CHART D2.

Farms having	Average labor income.	Receipts per cow.	Number of farms.	Average labor income.
5-6 cows.....	\$226 00	under \$55 00 over 55 00	13 13	\$79 00 327 00
7-8 cows.....	315 00	under 55 00 over 55 00	6 14	232 00 373 00
Over 8 cows.....	295 00	under 55 00 over 55 00	7 10	109 00 455 00

From these charts already shown you have seen that size of business and quality taken separately affect the farmer's income but taken jointly they produce a very marked result. Large size and good quality produce excellent results. Small size and poor quality produce most discouraging results. Small size and good quality seem to make a better combination than does large size and poor quality.

DIVERSITY OF FARM BUSINESS.

The farmers of Newaygo county evidently realize that better returns are secured by having several important sources of income than having only one or two. Several important sources of income furnish a good seasonal distribution of labor and prevent the risks resulting from having all the eggs in one basket. With records of two seasons avail-

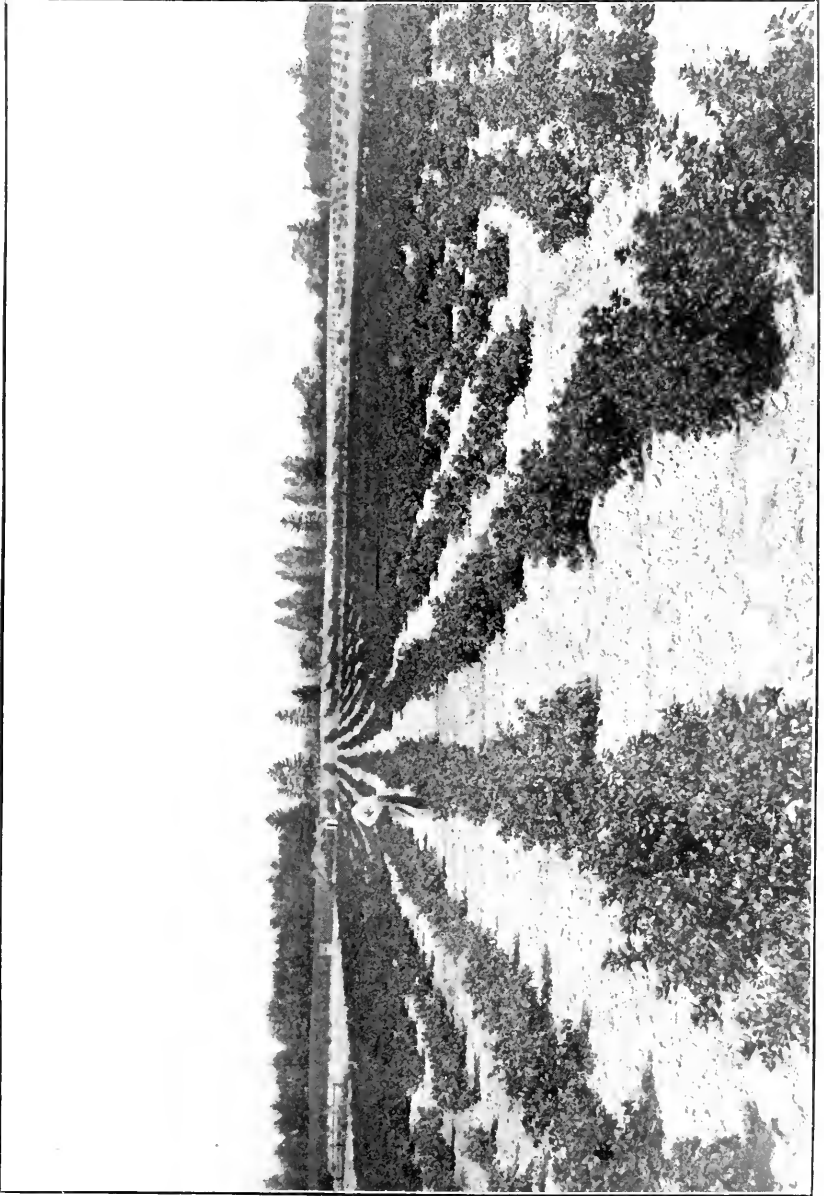
able, it seems that the majority of the farmers around Fremont have good diversity of farm enterprise. A great variety of fruit, crop, and animal sources of income prevail. No combination of these is found that is decidedly more profitable than other combinations for the two years covered in the work. As a general proposition two to four major sources of income with some minor sources make a better combination than any other arrangements. Individual instances are often cited that seem to disprove this statement but a careful analysis of these cases almost always discovers some special condition which can not be duplicated by any large number of farmers. The specialty farmers who can cater to some fancy trade usually make good incomes but the specialty farmers who produce any one of the ordinary farm crops or farm animal or animal products exclusively without special conditions and sells them at ordinary market prices very seldom make a good labor income. Experienced farmers often make mistakes of this kind. An eighty-acre farmer doing general purpose farming oftentimes finds that a market for milk has opened up in his region; he cuts down his acreage of cash crops, stocks up with six or eight cows and finds that he is doing better than before. If he continues along with that new arrangement he does very fine but oftentimes he farther enlarges his herd of cows and eliminates all his cash crops thinking he will thus increase his income and maintain a higher degree of fertility on his farm than formerly. This may result satisfactorily if he has a special outlet for his dairy products but if he has only ordinary market prices he makes a very serious mistake with the result that he works longer hours than formerly and gets a smaller wage per hour than ever before. Dairying is good business on a farm which has good diversity but is mighty poor business on a farm which has no other sources of income and receives only ordinary market prices for dairy products. One source of income involves a big risk and very seldom produces a good income for the farmer except as a result of special conditions.

I have here shown a number of charts which we are using in our Farm Management Demonstrations in Newaygo county. This data has been prepared in an effort to show these farmers that certain efficiency factors materially affect their income. In the following chart I will show how we analyze a farmer's business and show him how these factors, size and quality, affect his own business.

CHART E.

	Farm A.		Farm B.		Average of 96 farms.	
Labor income.....	\$744		\$158		\$203	
Size.						
Total crop acres.....	64		58		45	
No. of cows.....	8.5		8.5		5.8	
Total animal units.....	16.4		23		13	
Equipment.....	\$1,786		\$2,218		\$1,558	
Total receipts.....	1,959		1,425		1,146	
Total expense.....	766		761		556	
Quality.						
Receipts per animal unit.....	\$80		\$43		\$69	
Crop acres per horse.....	21		12		17	
Crop acres per man.....	36		32		32	
Crop yields per acre.	Acres.	Bu.	Acres.	Bu.	Acres.	Bu.
Corn.....	7	25	17	41	7	37
Potatoes.....	7	143		2	103
Wheat.....	3	17	4	36	6	21
Peas.....	9	\$41	6	\$23	3½	\$24
Oats.....	4	25	6	26	7	32
Hay.....	9	1.8T	21	1.4T	11	1.5T

Consider this chart in detail. Note the labor income of each farm and find the cause of the difference. Notice that every measurement of size adopted on this chart shows farm A and farm B are both larger than the average and if good size is all that is necessary for a good income, these farmers should both be better than average. Farm B has a smaller acreage but more live stock and we can consider size of business on these two farms about equal. The first glance under quality, we see that the stock on farm B is of poor quality and is giving very poor returns—much less than average returns for the region and only about half of what the returns per unit on farm A. This farmer doubtless has realized that his stock is not making as good returns as he would like but he did not know the condition to be as bad as it is. These figures show him that this is the weak spot in his farm business and the improvement of his stock is the big problem for him. It may pay to sell off his stock and buy new; he hesitates to do it, fearing he will make a bad matter worse. A safer and more conservative method is to weed out the unprofitable ones, send the boarder cows to the block, and raise up better ones. With this course tentatively decided upon, we can proceed with farther analysis and determine if there are other points to consider. His horses handle only 12 acres of crops each, 5 acres less than the average and 9 acres less than farm A. He is keeping 5 horses to do the work of 3. This may be because his work is so arranged that he needs 5 horses at certain seasons of the year and other seasons the horses are idle; if so, he had better make a new arrangement which will better distribute his horse labor throughout the season. If his horses are so small or so old that it takes 5 to do the work of 3, he had better dispose of them and get better ones. His crop yields are very satisfactory and apparently there is little to criticize there. We conclude then that this farm has good size of business and



Downing goosberries, L. F. Titus farm, Grand Traverse Peninsula. A big crop was harvested in 1915

good yields but is lacking in two things; quality of stock is below par and the horse labor is not efficient. It takes years to raise up a new and better lot of farm animals and this farmer needs suggestions that will be of immediate help in increasing his income. The farmer knows more and the demonstrator knows more about this man's business than can be shown on a single chart.

Farm B sells half his hay and thus has 20 acres of hay, wheat and peas for his cash crops. Farm A has 23 acres of potatoes, wheat, peas and buckwheat, for his cash crops. The acreage of cash crops is about the same and each farmer has adopted those respective crops thinking them the best considering the amount of labor available but evidently farm B has chosen wrongly. He is spending so much of his time on his stock, his unprofitable stock, that he feels it necessary to devote his land to crops taking the minimum amount of labor. If he should keep his stock, he would have time to raise some of the more intensive crops that require more labor than does hay and pay more for that labor. That ten acres devoted to hay sold will make larger profits if he raises some of the hoed crops common in his neighborhood. Thus we conclude that this man must reorganize his business by improving the quality of his stock, plan so that he can dispose of two horses and while this is being done he should keep less stock and raise more of the intensive cash crops. In the limited time at my disposal I have attempted to show how we figure labor income, how some of more important efficiency factors affect that income and how we apply to each farm visited a test of efficiency in these factors. We do this work in counties having County Agricultural Agents that the county agent and his farmers may learn a method of analyzing the farm business which determines the factor that limits the farmer's income. After this analysis has been completed, it then becomes the duty of the county agent to render such assistance as he may to the farmer that the labor income may be increased. It is a new line of extension work but we believe it fully as important as any being done by the College and we thank you for the opportunity of presenting the work.

DISCUSSION.

Question: Is not the wife entitled to something? Why should she not be figured wages? Her work is never done. Why not charge that as part of the farm expenses?

Answer: We can not do it for this reason, no matter where you are, the household and family expenses go on just the same, and that is not figured in, working on the basis that we do.

Question: Where is it that you get your basis for 5% interest?

Answer: Of course there is a chance to argue—just what interest to charge. There are plenty who are paying 6% and taxes besides. It is figured 5% after the taxes are paid. This might vary with different communities, but this has been thrashed over and over and the conclusion has been reached that this is about as fair a standard as we can get. Four per cent is good returns on money with the best of security. We regard farm property as the best security. Livestock should have a much higher per cent, perhaps ten per cent. The princi-

ple would be the same. We have a whole series of charts which we show where these demonstrations are conducted, and show the farmer some things that make for inefficiency on a farm. We find that there are 365 different things that affect the farmer's income, a new thing every day. These can be grouped. There are a few major things that go for making efficiency on the farm. Farm business is more like the manufacturers' business than any other line of business, and, by the way, what we want to do is to get the farmer to conduct his business as would a manufacturer. The manufacturer assembles the machinery about the plant so as to get the very highest efficiency from his workmen and capital invested, and so it should be in farming operations. In our demonstrations we attempt to show farmers a few of the fundamental things that makes for farm efficiency. We group these factors under three heads—the farm must be of reasonable size; the help must be efficiently employed; then there must be diversity—stock, crops, etc. This diversity of farming gives employment for the labor on the farm, thus giving profitable employment all the year round, or as nearly so as possible; in other words, a distribution of labor as uniformly as possible over the entire season. One particular line of farming may succeed if special conditions are right, but in the long run, it is the universal history of this country that the one-crop man comes to grief. If you were to go to some of the dairy conventions, you might gather the idea that dairying was profitable. It is profitable, but dairying by itself, if you are dependent on the average price of dairy products, is not profitable. The dairyman works longer hours than any other class, and has less to show for it. Everywhere we find writers emphasizing the fact that this is a day of specialties. All right—let us apply it to the farmer; just so long as that farmer has special conditions that give him a special market, he will do all right; but when he comes to sell on the open market, with unlimited competition as the farmer always has to do nearly, then he must diversify, and that diversity must be of such a character that it will give profitable employment to all the help as nearly as possible all the year round, and not be unduly busy at any one time. I do not mean that the farmer must have a little of this and a little of that—three or four major sources of income. Prof. Warren of Cornell, who has gone into this perhaps more fully than any other man, after giving the question the fullest investigation by visiting the fruit belts and interviewing the farmers, is thoroughly of the opinion that fruit farmers must diversify—keep some livestock, have some cash crops besides your fruit. He claims that his theory has been demonstrated, thoroughly demonstrated, and proven true. And the further he went in his travels, the more he learned, and he discovered that a fruit farmer can have a diversity the same as any other farmer.



Single Vetch plant. Farm of C. H. and H. C. Hilton, Benton Harbor, Mich.

MY EXPERIENCE WITH SWEET CLOVER AS A SOIL RE-JUVENATOR.

O. W. BRAMAN, GRAND RAPIDS.

I feel that I would just like to take a little shot at our Secretary—I notice that he has put especial emphasis on my having had experience in growing sweet clover. He has over-estimated my experience in that line.

Nevertheless, I will take up a little of your time in discussing this valuable crop. But I will say right here that my experience covers only about two years—a little less. Sweet clover is a cousin to the alfalfa. It is a plant that has been called to our attention very generally throughout this State, as well as a number of other states. It seems to thrive abnormally well along the roadsides, in gullies, in the wash-outs, in cuts, in gravel beds and in other places where there is no vegetable matter practically. It comes up and grows to the height of five, six, seven, eight and even ten feet high. Our attention was called to it because of this fact, that it had wonderful possibilities as a soil builder (filler).

There are three varieties: White blossom, dwarf annual and the biennial variety. A year ago last season I sowed the first sweet clover that I ever had any experience with on my own farm, although I had seen my neighbors—and the experience they had had with it, and also noticed it growing along the highway.

I supposed I was buying white blossom, but it turned out that I got only one-third white blossom and the other two-thirds was of the yellow variety, hence my experiment from that point of view was a partial failure.

I took nine acres of soil that had been farmed with the general farm crops for about thirty or forty years, the last ten being with such crops as corn, potatoes, oats, timothy hay, etc., without any special attention paid to the proper crop rotation. The result was this one particular field got into bad physical and chemical condition. The soil was sandy clay loam, and had naturally produced good crops until the last four or five years. I plowed it up in July after the hay which was on it was off. The field was inoculated with alfalfa—the same bacteria work on the sweet clover as on alfalfa. I got the field in good condition, and there came a shower and I sowed the sweet clover, and in four days it was up. I was quite enthusiastic over the possibilities of it at first. This field had had no fertilizer or lime—just simply got into good mechanical condition, so far as tillage was concerned.

Well, I watched that clover very closely, but after it had been in three or four weeks, certain specimens commenced to quit growing—as though they did not have the energy, or vitality that it should have. The next winter I went to work and top-dressed about two-thirds of

this field—that was a year ago last March. All through the growing season there didn't seem to be any perceptible difference in the growth of the sweet clover where it was top-dressed and where it was not. The clover with the exceptions of a few spots, did not meet my expectations. It seemed to be sick—something the matter with it. I called in our county Agricultural Agent; had him come and look over the field, and he got hold of Mr. McCool, of the College, and he came up and gave it close examination; took samples to the College to see what he could find out by an analysis of the soil. Mr. Willis at the Round-up claimed that on a worn-out soil we needed lime. (?) My experience with this field was disappointing along that line. It seems on the west side of the field a number of years ago there was a hedge-row right along the roadside, and the men who rented this farm, in order to get as much off it as possible, went to work and cut off the wood, and piled up the brush and burned it, and wherever these brush piles were, the sweet clover stood sometimes ten feet high, and then not more than ten feet away from that spot, it made no such growth. They suggested that this difference in the growth was due possibly to lime. I was under the impression that possibly the excess of potash might have had something to do with it.

We went to work and cut the sweet clover; plowed it up, and gave that field a systematic application of lime, putting on 500 lbs. hydrated lime to the acre. Then followed this with an application, starting on the south side, using 10% potash and 10% phosphoric acid, using 500 lbs. to the acre, and then left a strip a rod wide without using this commercial fertilizer, and then continued as before. Along about the first of October, on that strip a rod wide on which there was no commercial fertilizer, it looked as though there was two months' difference in the size of the clover. Also those spots that had brush burned a number of years before, the clover and the alfalfa acted just the same as the sweet clover, which I had had the year before. I called up Mr. Skimmer to look up the experiment, and he did so, and then he said, "Braman, it looks as though lime had got a black eye in this field."

I call attention to this to show you what that field seemed to be lacking. This soil was analyzed, and they claimed, according to the chemical analysis, that it was lacking in phosphoric acid, but that it was sour, and that if I would give that field 500 lbs. phosphoric acid and about 3,000 lbs. of lime, that it would correct anything of this kind.

We had another field right south of it that we did make that application and did that thing. We sowed the alfalfa just after we sowed a field with sweet clover, and the results brought out the fact that potash in the growing of sweet clover and alfalfa on worn-out soils was the proper thing to do.

I had another orchard of eleven acres which I have an application of about 1,000 lbs. phosphoric acid last May when I plowed the orchard, using about 2,000 lbs. of lime to the acre. I conducted an experiment by sowing one strip along about the first of July of sweet clover across the orchard of two acres. Then another strip of rye, the balance seeded to clover. Mind you, that orchard had lime and had phosphoric rock. The sand vetch and the common clover seemed to do much better than

the sweet clover, although the sweet clover runs from eight inches to a foot and half high. But it does not seem to have the energy nor the color that the common clover does. What next year will bring forth is another question. I am not in a position to forecast any great amount of success, nor have I any great degree of enthusiasm along the line of growing sweet clover, although there are some fields in our vicinity, Mr. Perkins, for instance, has had very good success in growing the sweet clover on certain fields, but on some other fields we do not seem to do anything, and is very unsatisfactory. I am inclined to think that if we spend as much money in buying potash as we do, for instance, as we did on that experiment, \$10 in lime and potash—that which had potash, had a good healthy color, while that that didn't have it, didn't amount to much.

Question: How much did the seed cost?

Answer: We sowed twelve to fifteen pounds to the acre, and it cost \$15 per bushel.

Question: Was it hulled seed?

Answer: Yes.

Question: Did you try inoculating the seed?

Answer: No.

Question: What percentage of potash did you say you used?

Answer: We did not use clear potash—the fertilizers were 10% potash, 10% phosphoric acid, and the other brand was 6% potash, 8% phosphoric acid and 2% nitrogen, but we had a strip right south on which we did not use the potash and phosphoric acid, but where we used only the phosphoric acid and lime, we did not get the result. But on all the fields that we used potash, we got splendid results. The strip on which we did not have any potash was unsatisfactory.

A Member: I carried out an experiment like that. I took five rod strips and then skipped a strip, used both the phosphate clear, that is, 5% phosphate made over in Detroit; used three or four strips of that then took a strip of muriate of potash and used that, then put several tons of commercial sheep manure on it in a dry stage; put checks on these, and I found there was a lot of difference between the strip I used the potash and the strips that I did not use anything on. And the potash seemed to be ahead of the phosphoric acid, but not ahead of the sheep manure strips. The sheep manure strips showed better than any of the other experiments. I sowed a mixture of clover, red alsike, sweet clover and the alfalfa. The most marked results were with the sheep manure.

Chairman: We have a gentleman here, Mr. Hopkins, who has had considerable experience—we would like to hear from him.

Mr. Hopkins: It is always interesting to me to sit and listen to some people tell their experience about what they have tried to do. Standing on the platform like I am here, I could tell you just as nicely how to do this thing as anything could be. It sounds just as plausible—tickles you all over—but the practical side is what we want—not theory.

“I will go right back home” you say, “and will conduct my farming and fruit-growing operations according to scientific plans, and I will

have a farm that everybody will look up to." Well, when you get back home, and next spring when you begin to put these things into operation, you will see stars before you get through. Every farm in Michigan is different. The land that Mr. Braman has wants potash, while perhaps the next farm does not want it, and no man can tell you just what you want. Wallace told you wonderful stories—we took two hours and drove up there and went over his place. You could almost count the stalks on that big forty—it was June grass! (Laughter.) The land does not produce—you stir up a little batch of phosphates and nitrogen—it may look all right—but whether it will give the required result depends on something else—you must go back and look into the past of the farm. Do not go back on the farm till you know something about it. It is not the man who has the most of dollars in his pocket that knows the most about a piece of land that he may pick up, but it is the man who is making his living off that land—and right here I want to say, "Go slow on this sweet clover deal." We have a lot of experiments—we have 40 acres—they were not very good—the winter and snow were not good—we had \$200 invested in sweet clover seed—I have an idea that it is sunk, and pretty deep too. I find that if there is any success in farming operations, you must pay a lot of attention to details or you will not get anywhere. If you miss that one thing, you will miss the whole thing. If you can get sweet clover to grow you can get alfalfa, and alfalfa has sweet clover beat a mile. When you have only a crust of bread and come in to dinner hungry, you will eat it rather than starve. That is the difference between sweet clover and alfalfa—one is palatable, the other is not. I can take you to spots where the conditions are just right and the yield is fine; then a rod from there perhaps you could not get the soil to grow a stalk. Find out whether you will win out with this or that crop—there are other cover crops that are much more to be depended upon than sweet clover. These new things may be all right in some places and under certain circumstances, but until you have tried them out in a small way, and know for yourself what they will do with you—GO SLOW.

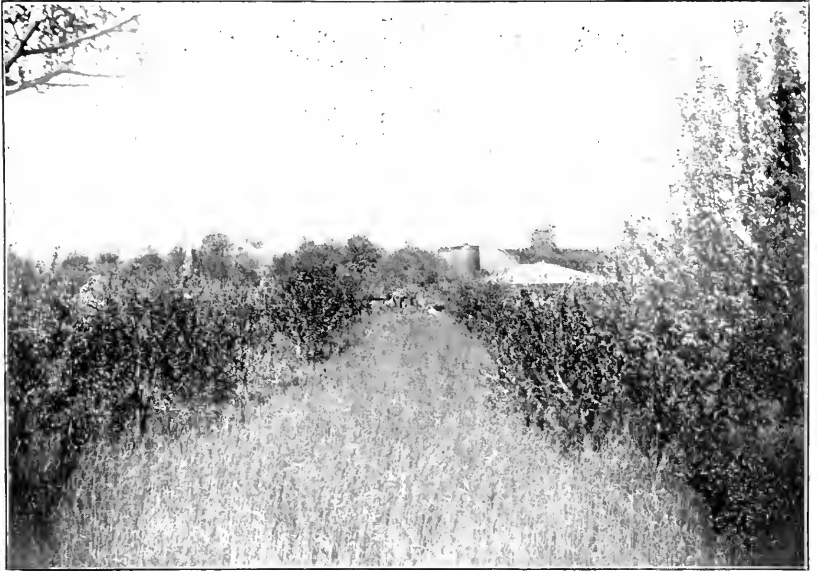
A Member: I want to criticize this man for saying what he did about going slow—this fellow went too fast. If he knew the red clover would do well on his land, why did he invest so much in sweet clover seed? I went slower than that. I am satisfied that it is a failure on my land, for when I sowed it, it did not even come up.

Question: What time of the year is best to put it in?

Answer: It is better to prepare the land before in the cultivation of potatoes and eradicate the weeds, put out into the cover crop of vetch or rye. Plow in the spring, cultivate until the latter part of June, then put in your clover and you will get the best results.

A Member: Of course there are different conditions—right by my house we had splendid results with sweet clover. If I had not cut it three times, I do not know where it would have stopped. I got two cuttings of the sweet clover. I did not lime that ground but it was rich in potash—was a clay soil. It was chemically right for the sweet clover.

A Member: Sweet clover is regarded as a noxious weed—I was



Note cover crop in ten-year-old apple orchard of C. B. Cook of Owosso.

wondering whether it still remains on our statute books as such. Perhaps some of our Lansing people can tell us. It would be a good idea, if it is as hard to start as Mr. Braman indicates, I do not see why our farmers should be afraid of it. It is now recognized as one of the best soil renovators known. If we can succeed in growing it, it will be a good thing. It comes in and fills a gap, for it is good for forage, makes good silage, and better in the earlier part of the season than alfalfa. I would be glad to have it more generally cultivated. We do not get much honey from alfalfa and if we can get both honey and forage, from this same plant, we would like to have it. If it is classed as a noxious weed, we had better have it changed on the law books.

Answer: Last winter I had this matter looked up, and it was classed as a noxious weed.

A Member: I know of one experiment in this State. There was a little two-acre field that had on it a good stand of sweet clover. That was plowed under about two feet and I never saw such fodder corn as was raised off that piece in all my life. There may be some difficulty in getting it started, but when it is once started, it will well pay out and give wonderful results.

In regard to the sowing time for clover, I have decided notions on this. But for twenty years I have summer-fallowed for my seeding, and sow late in August. I have my land in perfect condition. I find that my meadows produce almost double than when I use a nurse crop. I believe in summer-fallowing and last summer I used it as a cleaning process.

THE USE OF LIME IN AGRICULTURE.

PROF. M. M. McCOOL, EAST LANSING.

I desire to state that the Secretary suggested that I change the subject on which I was announced to speak this afternoon, and talk for a short time on the subject of lime. In view of what has been said on the subject, and from the fact that the use of lime as a soil improver has been common for centuries we will not call it a new subject. In England during the 16th and 17th century, lime was used extensively, sometimes as high as 50 tons to the acre being applied. While the subject is in fact an old one possibly we can dress it up a little and inject into it a few ideas new to some of us.

If we examine the soils of the United States east of the Mississippi River, we will find that probably one-half of them are more or less acid. So the subject is really a national one as well as a State problem.

Coming down to the State of Michigan, the majority of the soils are acid or sour in reaction. We have found during the past year that practically all of the samples of sandy soil and also many of the clays and others that have been received from various parts of the State are acid in reaction. Some of them need as high as 8,000 pounds of lime to the acre to correct the acidity.

Perhaps the reason for this acid condition is due to the rainfall and loss by leaching, the deficiency in the material from which the soils were formed and the removal by cropping. Lime is lost from the soils that are cropped much more rapidly than from uncropped virgin soils.

During the past season we have been carrying on studies of virgin and cropped soils, and here note the lime requirements. I have given only two or three illustrations as follows:

Increase in acidity of soils by cropping.

Sandy Loam Soil From Kalamazoo County.	Lime Requirement, lbs. per acre.
Virgin	1,250
Cropped 75 years	3,500
Fine Sandy Soil From Van Buren County.	Lime Requirement, lbs. per acre.
Virgin	500
Cropped 70 years	3,800
Sandy Soil From Wexford County.	Lime Requirement, lbs. per acre.
1. Virgin	Not acid
Cropped 20 years	2,250
2. Virgin (Fine sand)	1,250
Cropped 15 years	1,750

Such differences are not due wholly to the removal of lime from the soil by crops, but in addition there is usually an increased loss by leaching of lime from cropped soils on account of the solvent action of the roots and other changes taking place.

The addition of stable manure or commercial fertilizer will increase this loss so we can say that any field under cultivation that is not receiving an occasional application of lime is turning toward an acid condition.

Now the next point concerns the variations in the results obtained from the use of lime by different farmers. There are several reasons for these different results, indeed, the action of lime in soils is quite complex. First, we must find out just what lime does when it is applied to soil—what conditions it brings about. Undoubtedly, organic matter will be decomposed more rapidly when there is sufficient amount of lime present. In some of our soils vegetable matter exists in rather advanced stages of decay, which means the decomposition processes are slowed up, but an application of lime may speed up the rate of decomposition of such material, therefore, it will increase the amount of available nutrient for your crops. In fact, everybody knows that decaying vegetable matter in soils results in more available mineral matter for crops.

Furthermore, we know of some cases, at least, where the application of lime will loosen or unlock certain phosphates and potash compounds. This has been determined by the analyses of plants growing on treated

and untreated soils. Again, if the root development of the plant is increased, naturally the amount of phosphorus, etc., taken up by that particular crop will be increased and in many cases the yield also. I should strongly emphasize this point. It is possible that we have not studied sufficiently the changes taking place below the surface of the soil! The last point in this connection is the correcting of soil acidity, we usually apply lime to soil to correct this condition. It seems that we may have other changes taking place at the same time. It is not strange, therefore, that different individuals get different results. We should never lose sight of the fact that soils vary in different localities.

In order to discuss this matter fully, perhaps we ought to mention the kind of lime compounds. You know they are divided into carbonates, hydrates, and oxides.

There are several forms of lime used for agricultural purposes. Those most commonly used are the carbonates, or ground limestone, marl, air-slacked, sugar factory, tannery, and wood ashes, the hydrate or water and partially air-slacked lime, and less commonly, the caustic, quick, or oxide of lime.

In using lime we must consider the solubility of these compounds, the requirement of the soil, and the kind of crops we are to grow on the soils.

The form of lime to use will depend primarily upon the cost of application. In general, two or three parts of finely ground limestone, or marl, are required to do the business of one part of hydrated lime that is immediately. It should be borne in mind, however, that the hydrated lime is somewhat more soluble than the carbonate, but such differences in most cases are accounted for in the above ratio.

Marl is one of the most valuable forms of lime to use where it is within striking distance of the land. It is in a very finely divided state and therefore goes into solution more readily than coarser particles.

Hydrated lime reacts more vigorously and quickly in the soil the first season and precautions should be taken to apply it several days previous to seeding a crop, inasmuch as it may injure the young seedlings, especially if it is not thoroughly incorporated with the soil. Its caustic action on organic matter in the soil has been somewhat over-estimated, but long continued experiments show that it does cause a somewhat more rapid decay of the vegetable matter. Hydrated lime soon changes to the carbonate in the soil and if it is more active after such change than other carbonates, it is due to its fineness of division and thorough mixing with the soil.

In practice it is generally true that various forms of lime show best results the second year after application. This, however, depends in part upon how thoroughly it is mixed with the soil when applied, by means of a drag or disc.

ANY LIME COMPOUND SHOULD BE THOROUGHLY INCORPORATED IN THE UPPER TWO OR THREE INCHES OF SOIL, ESPECIALLY IN THE CASE OF FINE TEXTURED SOILS.

I have had a number of inquiries covering the relative value of magnesia limestone and ordinary limestone. Magnesia limestones, in general, are composed of about 45% carbonate of magnesia and about the

same amount of carbonate of lime, the so-called ordinary limestone contains about 95% carbonate of lime. Long continued experiments show that one is about as valuable as the other.

As above stated, the successful use of lime and the amounts to apply depends in no small measure upon the kind of crop grown. There are a number of crops that are indifferent to somewhat acid soils, while others are very sensitive, and others slightly so. The following list after Wheeler and Coville bears out this statement:

Crops Adapted to Sour Soils.

Blueberry.	Sweet potato.
Cranberry.	Rye.
Strawberry.	Millet.
Blackberry.	Buckwheat.
Raspberry.	Carrot.
Blackcap.	Lupine.
Watermelon.	Serradella.
Turnip.	Cowpea.
Red top.	Soybean.
Rhode Island bent-grass.	Castor bean.
Hairy vetch.	Radish.
Crimson clover.	Velvet bean.
Potato.	

Crops that are Injured by Sour Soils.

Alfalfa.	Barley.
Red clover.	Sugar beet.
Saltbush.	Currant.
Timothy.	Mangel-wurzel.
Kentucky blue-grass.	Celery.
Maize.	Cauliflower.
Oats.	Cabbage.
Pepper.	Cucumber.
Parsnip.	Lettuce.
Pumpkin.	Onion.
Salsify.	Okra.
Squash.	Peanut.
Spinach.	Tobacco.
Red beet.	Kohlrabi.
Sorghum.	Eggplant.

Thus, according to the above table one can plan a rotation including a legume without the use of lime, that is on soils not acid to excess.

In conclusion, I should state that lime is not a panacea for all soil troubles, and it will not take the place of proper tillage, good rotations, or applications of stable manure, or good drainage, a deficiency of nitrogen, potash, or phosphorus. However, lime will correct soil acidity, it will increase the yield of many crops that are injured by acid

soils, and improve poor sanitary conditions to a remarkable degree in some instances. In a word, the use of lime should be looked upon as being ONE of the factors in good soil management.

Question: What is the comparative value between hydrated lime and ground stone?

Answer: In answering that question I will have to say, that the most soluble form is oxide, or hydrated. If you can get the carbonate lime finely divided it nearly approaches it.

Question: Is marl injured by freezing?

Answer: Most marls are improved by freezing.

Question: If we have marls that are 95% and we can buy that lime for 50c a load, which would be 1½ yards, would be the cheapest product to put upon land?

A. Yes, if the labor cost of application did not exceed that of a more concentrated form, as the hydrate.

Q. How about the lime from tanneries?

A. We have found samples that contained 85-95% carbonate with a small per cent of nitrogen.

Q. So many of our lakes have a heavy deposit of marl—would you let it freeze on shore?

A. In answer to that question I will say the efficiency of the application of lime will depend largely how thoroughly you incorporate it in the upper 3 or 4 inches of soil, in order to get it distributed uniformly throughout the soil, so that it will go into solution. That being the case, many marls will be improved by freezing, but in many places in this State it is hauled out of the deposit right on the ground.

Q. Will the coarse ground limestone become available?

A. The coarse ground will go into solution in time, but there must be a larger application to get the same results. It always becomes available sometime, but it does not all readily manifest itself.

Q. How long should ten mesh become available under our condition?

A. I could not say.

Q. How much lime do you apply to the soils of sandy nature?

A. The average acidity of 100 samples required about 3,000 pounds per acre. Some required 8,000 pounds and some not nearly so much.

Q. Do you have reference to ground limestone in these figures?

A. Yes, sir.

Q. For how long a period?

A. It will be most frequent on sandy soil, inasmuch as the loss by leaching is greatest in such soils, about four or five years, depending upon the methods of management.

Prof. McCool: I always appreciate the opportunity of meeting with an organization of this kind in Michigan. I am personally anxious to meet and to keep in touch with farmers and fruit-growers wherever I can. I may not always have a message, but even then it is not a dead loss for if I do not succeed in giving out anything, by coming in contact with people of practical experience, I always get something myself.

HOME MAKING.

MRS. H. M. DUNLAP, SAVOY, ILL.

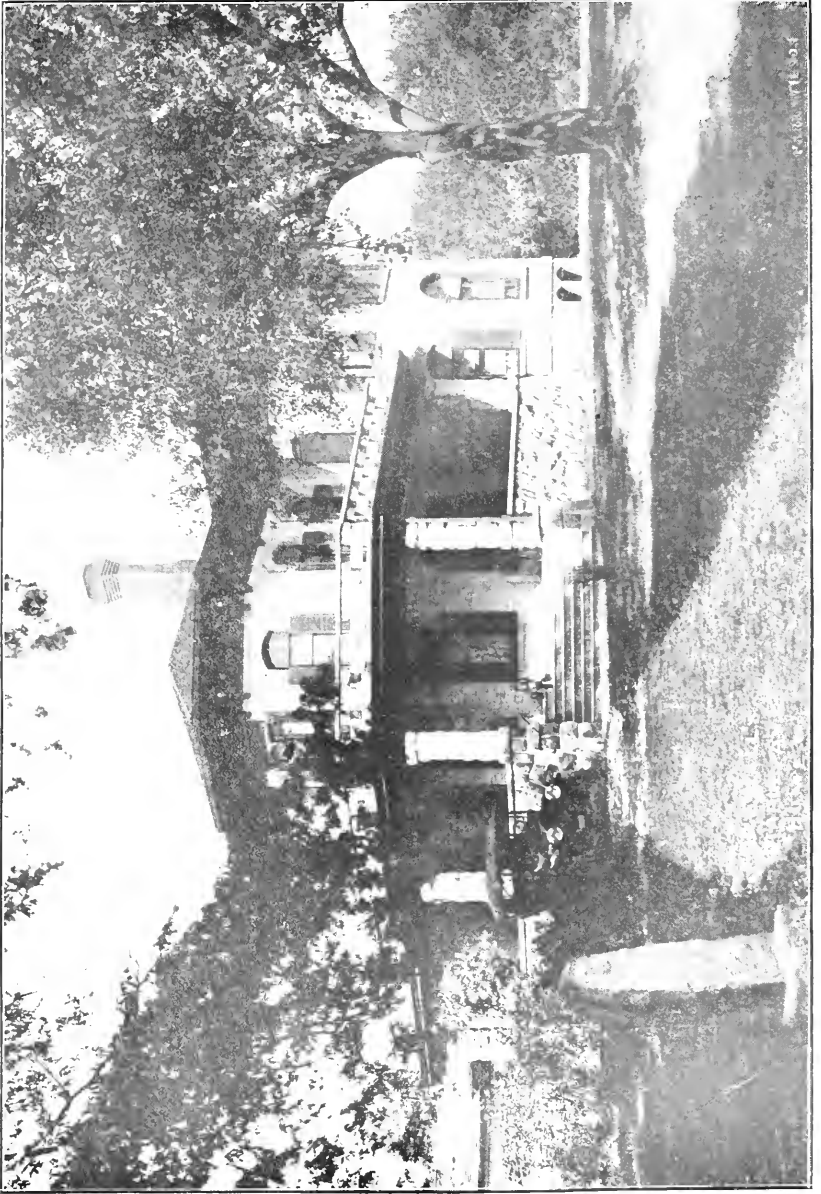
So much is being written and said, to-day, about the home and its interests, that one at times feels that all has been said that can prove helpful or interesting. But as every home is an individual expression of its inmates, perhaps, the story can be prolonged indefinitely and some helpful hint and inspiration be still extended to those who are willing to listen or read.

After almost forty years of home making effort I still appreciate the help granted me from my household magazines and books pertaining to the home and its interests and from my associations in clubs and otherwise where this all important subject is discussed.

In no form of civilization has there been slowly but surely such a far reaching change as we find in the American home—its life, its growth, its ideals and its purposes. If we cast a glance backward into the home-life of fifty or even twenty-five years ago we see its life's activities very different from the present day standards and requirements. Then the work, that provided food and clothing for its inmates was done in the home, but now most of it is taken outside the home and done in factory and shop.

Woman's position in the home in the past has been more as an individual subject to the will and requirements of the male members of her home. She lost her identity, her aspirations, and the natural bent of her mind as soon as she occupied the position of wife and mother. To-day women are beginning to think and act from an entirely different standpoint. Woman is on the "Path of Attainment" and the home will be required to make changes to meet her attitude of mind. Once started she is never going back to the old form of servitude and lost identity, but she is going forward to reach the God-given position always intended for her, that of companion, partner and helpmate of man. No true companionship is possible, only from those that are equal physically, spiritually, morally, socially, financially and politically. Through these different standards arising our home life to-day is more or less in a chaotic condition making ready for the adjustments that are sure to come that will bring a more perfect relation between men and women in the home, and consequently a higher type of manhood and womanhood.

We do not need to fear for the home of the future, for with all its present-day faults, we can look to its future from an optimistic standpoint. And why? Because the whole thought and attitude of our National and State governments are changing, and they are beginning to turn some attention toward the home and its requirements. Departments are being established that bear directly upon the home and the care of the child. Money appropriated that must go for home im-



Home of Luther E. Hall at Ionia, Mich.

provement. Men and women are being educated to be leaders in guiding and directing the unskilled mind and hand of our home-makers. Clubs are being formed for the express purpose of learning better methods in the home. Mother's clubs, parents and teachers clubs are formed to study the problem of the child. Community centers are everywhere being fostered to bring co-operation between the home, school and church. Out of all this agitation and effort much good must result.

None too soon have all these forms of education and thought development entered into the life of the American home, for present-day conditions are far from ideal. We can only correct that which is evil in our mode of thought and action by substituting that which is good. So to grow along any line of effort we must sometimes drag out our faults and short comings, and face them squarely and conscientiously and cultivate a desire for their uprooting and elimination from our lives and our homes.

Serious charges can be preferred against our homes when divorce is so prevalent and rapidly on the increase. Certainly there is a cause back of every divorce and must not these causes be made known if our homes of the future are to guard against it.

Something is radically wrong in regard to the knowledge possessed by our home-makers when ill health is more common among our people than good health. Dietetical knowledge together with good cooking is the crying need of the day. No greater need have we as a nation than to have that knowledge possessed by our home-makers.

Let me quote from one of our best health journals:

"Race degeneracy is rampant in the world."

"The care of the insane, criminals and defectives costs the State more than the education of the sane."

"A third of a million of babies die annually—one-fourth of all babies born die before a year old."

"The death rate from heart disease and kidney trouble has more than doubled in thirty years."

"Centenarians are becoming rarer every year."

"The birth rate is fast falling off and at the present rate of decline will be zero at the end of a century."

Then again let me quote from a bulletin issued by the Equitable Life Insurance Company under the heading: "Another Kind of Race Suicide."

There are in this country 20,000,000 school children or twenty per cent of the whole population. Seventy-five per cent of these children are suffering from some partial or completely remediable defects, which are more or less interfering with their physical, mental and moral advancement.

500,000 have organic heart disease.

1,000,000 have spinal curvature, etc.

1,000,000 have tuberculosis.

1,000,000 have defective hearing.

5,000,000 have defective vision.

5,000,000 have malnutrition.

6,000,000 have operable tonsils and adenoids.

10,000,000 have defective teeth.

Who is responsible, if not the parents, in our homes for such conditions of our children as this?

Admiral Albert Ross, United States Navy officer, retired, was the principal speaker at a luncheon recently in Chicago. He started his hearers by declaring that 50 per cent of the young men seeking enlistment in the navy are rejected because they are below the standard mentally and physically. The Admiral almost painted a picture of decadent America so far as real men go.

Speaking of the large number of applicants rejected he said: "When you think carefully what this means you will see that it shows rapid and shocking deterioration on the quality of our manhood."

"Such degeneracy is a Nation's peril, both in war and peace."

"In Boston recently out of 600 applicants for the navy only thirty were accepted. This is an example of the proportion of our fit young men in our cities. What we must do is build men and then we will be safe."

These few facts given must make one think that there is work to do for the American home if our Nation will be able to meet its full requirements.

I may be considered radical and extreme in some of my criticisms of the present day standards in our homes, but if so, it is because I see them largely through my own mistakes and failures, and from my experience as a worker for a number of years in our State Farmer's Institute.

Dr. Mary E. Green says; "If every women's club in America were to devote the next two years to the study of household economics I believe the domestic problem could be solved." While all women's clubs could never be made to do that I do know that the women's club movement is the strongest organization we have, to aid us in this home directing and improvement work.

No one can come in the atmosphere of the written or spoken word of our present president of our National Federation of Clubs, Mrs. Penny-packer only to be convinced of how strong her desire and how sure her purpose is, to lend her support and that of her organization to the home and all its interests.

The home economics department of the Biennial is to-day, one of the strongest departments and at present is being led by its chairman, Miss Helen Louise Johnson, in a very capable and enthusiastic manner to a more successful and practical position in the minds of all federated women.

At the last Biennial, which was held in Chicago, at one of the conference meetings she provided a symposium taking for the subject, "What is the Greatest Need in the Home To-day." Five to three minute talks were made to the subject and you can imagine what an interesting meeting that would make.

One made a very strong point in saying that we need the old fashioned fire-place again established in our homes, that there might be again a common meeting ground for the members of the family to dis-

cuss their problems and their successes together, where the amusements could have a central pivot to revolve around and where more of the old time home feeling could be promulgated. A point well taken when to-day in the hurry and rush of life, we lose that close and valuable intimacy between the inmates of the home, and when the boys and girls and fathers and mothers as well, only too often, go outside the home to find amusement.

Another made a strong plea from the educational standpoint and was she not right also? If education was filling its mission to man, every boy and girl would receive that education that would fit them for life. But see the millions of people that education has failed to do that for.

Orison Sweet Marden in his recent book "Woman and Home," gives utterance to a truth that I hope may be heeded by our educational world. He says: "Civilization needs schools of matrimony more than it does schools of law, commerce or engineering. If we had marriage schools under State and government supervision presided over by the wisest experts obtainable the happiness of married life would be increased immeasurably, and the divorces diminished incalculably. Only those superbly fitted for marriage and scientifically prepared for it would be allowed to enter this holy state. This may be a utopian idea, but does it not make one think of the effort that should be begun and directed towards more qualified requirements of men and women before they enter the profession of home-makers.

He also says: "I believe the time will come when three certificates will be demanded of every applicant for marriage—first, a health and heritage certificate; second, a certificate showing that the bride has been properly trained in the science of household management; third, a certificate from the bridegroom showing that he has at least a fair prospect of maintaining a family in respectable circumstances, so that at the very outset of their married career the love of husband and wife shall not be strained or killed by a grinding poverty which does not allow even the necessities of life." Another utopian idea, but a good one which sooner or later in our civilization we will surely in a measure take heed of.

A number made the keynote of their remarks, companionship between the two making the home as the greatest thing needed. This lack of companionship in our homes may be attributed to the fact that men and women do not have enough interests in common to make them real companions.

Another said: "The greatest need is mothers." We all must acknowledge that fact, but if it had been said, fathers and mothers then it would have been better stated. The crying need of the homes of today is fathers as well as mothers. We have too long assumed that mothers hold the key to the knowledge of child rearing and that fathers were not supposed to assume much responsibility or care of the child. But without doubt in the home of the future fathers will be expected to contribute some of their personality to the care and development of their children.

It was my pleasure to answer the question and I worded it thusly:

"The greatest need in the home to-day, is an understanding of, and a co-operation in, the relations that should exist between men and women in creating a home."

Let us name a few of these relations and the position they occupy in the home and its proper administration:

First, Every home is a business proposition, usually founded upon the earning capacity of one and the administrative ability of the other of that earning power, that the physical, moral and spiritual needs of the inmates of said home may be realized. Both forming this business partnership should be fully qualified to meet the demands made upon them without any let or hindrance. Remember, that money well spent is well earned, and any woman who spends well the money of her husband has helped to earn it and no restrictions or qualifications should be placed upon that fact.

I am fully persuaded, that four-fifths of the misunderstandings that arise between husband and wife in the home have their beginnings from a moneyed standpoint. Neither had the correct view of the relation that should exist between them on the money question when they entered this partnership.

I have noticed in my magazine reading of late how much this subject is written upon and discussed which means well for the future.

Perhaps all of you before me have this matter properly adjusted in your homes and what I am saying has no meaning for you.

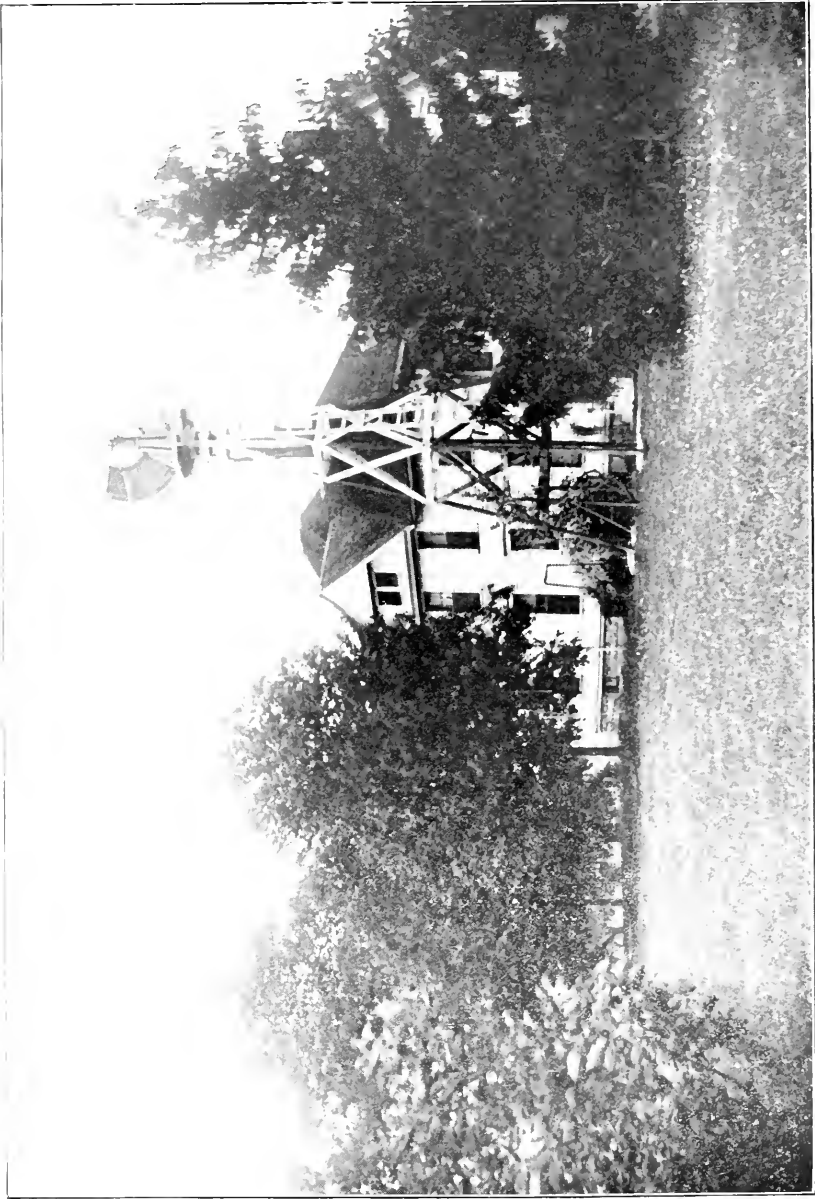
Michigan may be ahead of Illinois in that respect. I, certainly was awakened to the fact that all of the homes of Illinois were not properly financed, when a few weeks ago I attended a Farmer's Institute in my own county, and quite unexpectedly, this finance question forced itself upon the meeting.

During the course of some remarks I was making, a woman asked: "Do you believe in and use the bread mixer." I said: "Most emphatically I can answer both questions in the affirmative." As our farmer's institutes in Illinois are planned for educational purposes, I immediately assumed the teachers prerogative to ask questions and said: "How many here are using a bread mixer?" and only three hands went up. Then I said: "How many are using a mop wringer?" and only one hand went up. I expressed my astonishment by saying: "How does this happen when you are living right under the shadow of our great University?"

This meeting was being held in a country community about 12 miles from Champaign where a church and town hall stood side by side—the women holding their meeting in the church and the men in the hall. There were between 60 or 70 women in the room.

Soon one woman had the courage to say: "Mrs. Dunlap, the women don't carry the pocket books." Then I said: "Is it possible we still have women in Champaign county who have not attained to their financial freedom and are working for their board and clothes." They looked somewhat shocked at my blunt statement of the case but the heads kept assenting to the fact all over the room.

No home has the proper financial relations existing, when women are not real financial partners with their husbands, when they must ask



Home of Ex.-Pres. C. B. Cook, Owosso.

for every dollar they get, and they have it given in a grudging and superior manner, as if they were the guardians of a woman's soul and body through the dollars that they claim are theirs. In this new education that is beginning to hold up its head for recognition, a man will be taught that he can never hold the love and respect of his wife, unless there is to be established the proper financial relation between them, and that relation must be begun before the wedding ceremony is performed, by making his financial standing and earning capacity a matter of knowledge and importance between them.

I do not put all the blame of present day conditions upon the men for women should early in their married life, if they did not do it before marriage, make the men understand that they are not serfs or menials, but they are human beings with desires and aspirations equal to their own and these demands of their natures can only be met by expenditure of money at the proper time, without any questions or suggestions from them. When we give the proper education to our girls and train them for self support, no man will dare to make any thing less out of his wife than a financial partner, because she will submit to nothing less.

In this book "Woman and Home" the author says: "Marriage is supposed to be an equal partnership of husband and wife in the greatest social institution—the home, the family. But most connubial partnerships are conducted something after this fashion: The bride puts into the concern everything she has in the world, all her material capital as well as her attractiveness, her youth, her loving sympathetic heart, her self-sacrificing spirit, which no man can equal, her tenderness, her strength, all her wealth of mind and body. She gambles her whole fortune in the partnership, she risks everything in it. She is even going to take the chance of losing her life which is an infinitely greater risk than ever a man takes in any business venture. The husband of course in like manner puts in or is supposed to put in every thing he has but—and here's the rub—how does he treat his partner in regard to the joint earnings of the institution? He collects all the money, banks it, draws it out by check just as he pleases, doles out a little here and there to his wife, if he approves of the way she is going to use it, and demands of her an itemized expense account just as he does of his traveling salesman. This account he usually criticizes and if it doesn't meet with his approval he cuts it down. About all the power money gives in the household the husband holds. The wife gets no salary, the profits are not divided, the partner who takes the greatest risks receives the smallest returns."

Perhaps if an experience meeting could be indulged in we all would have some experiences to relate along this financial question.

The second most important relation to exist is co-operation.

Very few homes are founded upon a complete understanding of that relation. They usually enter into it with a strong line of demarcation as to what is man's work and what is woman's work and to overstep the bounds by either is not supposed to be possible.

Men and women should be so trained that when they assume the duties and responsibilities of home-making that they would know it

is a relation of co-operation in every activity and condition of the home that results in the good of all concerned in that home.

To-day women have not been trained for finance or business and men have not been trained for or do not know anything about the many professions that are wrapped up in a home when well conducted so that at the very beginning of their home keeping they have not enough interests that are common to both to make them companionable and real partners. I have always contended that equal suffrage would give such an added relation and interest in the home between men and women that it would prevent divorce instead of adding to it. The more interests they can have in common the greater and stronger the tie that will bind in this God given work of creating a home.

Since viewing so frequently the indifference of man to woman's varied activities and responsibilities in the home I have often wished it were possible for them to change places for at least one week and that might be when the semi-annual period of house-cleaning is in full sway. I have never seen it tried. Perhaps if it were possible women might have an added regard for their husbands problems and difficulties that are to be met in this business world of competition and grind.

Tolstoy tells the story of a Russian peasant and his wife. After a discussion as to which of them had the most and hardest work to do, this peasant and his wife decided to change places for a day. The man entered blithely on the task quite confident that he would be able to show the woman a thing or two at the end of the day. So he listened quite loftily to her admonitions and instructions. He was to tie up the hen and chickens so no hawk could get them; stake out the cow; watch the pigs that they did not get into the garden; do the churning, and above all have dinner ready on her return home. She returned at meal time with her allotted work done to find her husband in a state of confusion and distress and the house in a state of disorder. She said: "My task is done but where is the dinner." "Dinner, how could I get dinner—I forgot to tie up the hen with the chickens and the hawk has taken most of the chickens. The pigs were in the garden, the dog tripped me with the churn and the cream is spilt and gone and now how could I have dinner ready—you had only one thing to do at a time, while I was supposed to do a dozen things all at once." The story goes that from henceforth there was more consideration and co-operation on the part of the husband than before on account of his experience.

From my present-day experience as a home-maker I have found that I need knowledge in part of fifteen to eighteen different professions to meet the demands of the profession I entered thirty-eight years ago—that of home-maker. Because of the lack of this knowledge regrets and sorrow could mar my whole life if I would let them. Again, as I view the matter to-day, it would have been, as well for the home, if my good husband had known a part of some of these professions, that we could have more readily co-operated in bringing our home more quickly to meet our ideals.

I shall name them and briefly tell of their position in the life of any home. First of all a financier and business manager.

It is said women spend nine-tenths of all money earned—should they

not be educated from a financial standpoint as well as the men? Second, architect. It is claimed that everyone is the architect of his own life, and I say every woman should be the architect of her own home as far as possible. If there is to be a greater love and interest in the home, we must have a different architecture and women must help to bring it about. The architects of our home, are, almost without exception, men and because of the lack of proper training and education in co-operative housekeeping they have not been able to see women's needs as they should. Third, cook and dietician; what does not revolve around just those two words. I am sure the health, happiness and efficiency of every member of the home is wrapped up in those professions. Orison Marden says: "A cook is as useful and ought to be as dignified a member of society as a college professor." Yet society as a whole is still stupid and foolish enough to look down on the office of cook as an inferior one.

It would be well for every man to have a few dietetical and cooking principles included in his education that he might be a better homemaker.

If fathers and mothers could be made to feel that they are responsible for the health of their children and they alone, there would be more co-operation in the home along these lines.

Fourth, seamstress. Go into any school room and judge of the average mother's qualifications in that respect, by the character of the children's clothing. It would make you feel that every boy and girl should have a working power with needle, thread and thimble at their command.

Fifth, milliner. Many dollars and hours of comfort could be saved to women if they knew but a little of this profession. It would have been more valuable to me than all the higher mathematics that I spent hours upon, and have never used in my profession. I believe my brain could have received some training when I was making a hat.

Sixth, laundress. In the past the work of the laundry should have been as much man's work as it was woman's work because of the physical labor connected with it. To-day, with all the improved machinery it is good work for both men and women. Some skill and training is required of any one who is responsible for clean, stainless clothing in the home.

Seventh, wife. Is there any profession known, unless it is that of husband, that requires so much tact, education and training as that of wife. Because of the lack of proper education in this respect, we find one marriage in every ten a dismal failure, and made prominent in our divorce courts.

Eighth, mother. Here I must speak of motherhood and fatherhood as one. "And the twain were made one." So we speak of two entering the matrimonial sea and surely it is so when we come to the care and training of the child in the home. We hear much to-day about a trained motherhood but very little about a trained fatherhood and to-day the world is suffering as much for the one as the other.

Do you suppose that if girls were being trained for proper motherhood, that they would select men to be the fathers of their children

that could not bring a clean bill of health and free from habits that handicap, such as alcohol and tobacco? Do you suppose if our men were trained for fatherhood that they would go on cultivating those habits that are bringing so much disease and degeneracy into the world? Read a recent book published, called "Habits that Handicap," by Chas. B. Towns, and see if you do not think it is time that boys and girls should be trained early in life for this profession of fatherhood and motherhood.

Ninth, doctor. Every home has cases of emergency and diseases acquired or thrust upon it, so it behooves every man and woman to cooperate and acquire enough knowledge in that direction, to be a safe father and mother in the case of the children in the home.

Tenth, nurse. Many a life could be saved and a doctor's help augmented, if the father and mother knew the use of water in hot and cold compresses. Every doctor has better success with his patients where the principles of good nursing are understood, if only in part. That knowledge is more important than much that is accorded our youth today that is never used to make life better.

Eleventh, hostess. Most of the hospitality of our homes is in the hands of the wife and mother; but it should not be. Men should know how and should have an equal desire and responsibility in extending the hand of friendship and welcome to the friends that present themselves to receive that act, as do the women. That welcome should especially be well directed to the boys and girls that present themselves as friends of the boys and girls of the home.

Twelfth, teacher. Every act of both father and mother stands prominently before the child to become a part of this home education. Precept and example is ever before him and the child's plastic mind gains his education for good or bad more readily than the average parent thinks. Chas. B. Towns, in his book "Habits that Handicap," says: "The boy who keeps clean does so against tremendous odds, to which frequently his father, his school teacher and his clergyman are the chief contributors." He farther says: "There is no question in my mind that this matter of tobacco should be made the basis of a very thorough educational campaign among the youth of the United States. The shocking spread of the tobacco habit among the women of American cities indicates, moreover, need for extending this instruction to girls as well."

I, being a farmer's wife, feel greatly in need of just a little working knowledge and power with machinery and the tools of the plumber and carpenter. It might also save many a dollar and hours of inconvenience to the city or town home-maker, as well. So the three professions: Machinist, carpenter and plumber, now that our homes are being equipped with machinery and so much plumbing, have some working possibilities for every conscientious house-keeper.

Agriculturist, which includes its various branches, has great possibilities in knowledge for any woman, whether living on a farm or not. France will recuperate her industrial and financial permanency quickly after this horrid war ceases, because every man, woman and child has



A young Horticulturist at "Oak Crest" Fruit Farm, Benton Harbor, Mich.

been taught the principles of agriculture and knows how to grow things and loves the performance of that labor.

Another point of attack in the home is its amusements. The spirit of co-operation must ever abide therein. It is an appalling fact that so few parents appreciate their responsibility in that respect, but pay so little attention to that part of their boys' and girls' development. Amusements have been taken out of the home, and too many parents are paying but little attention to the quality of these amusements and the effect they will have upon the child's character. The spirit predominates in the mind of most of our young people to-day of having a good time. A good time regardless of every other condition in life or whether it meet the approval of those nearest and dearest to them. The moving picture show is going to prove a great menace to the Nation or a great benefit, and we can make it just what we desire it to be. If you do not believe it is so, listen to these facts. In the city of Madison, Wis., 31,000 out of 35,000 population visit the moving picture shows every week. Some censorship has been done but not sufficient to guarantee parents to trust their children to enter picture shows whenever they so desire. Well, we may ask, what are we going to do about it? And the answer must be, educate parents to their responsibility in the matter, so that the picture show may perform its mission of amusing and educating properly at the same time.

I have gone into the details of all these requirements of home-makers that you may see how closely they are allied to the co-operative relation and spirit that should exist between men and women in the home. It must be established if the home is to be one of happiness and harmony.

The third great relation that will be as sure to follow as day does the night if there is co-operation in the home, is consideration for each other. What do we mean by consideration? That fine sense of appreciation of each other's likes and dislikes; that we may not bring notes of inharmony into each other's daily life. How considerate men and women are of each other before marriage and how soon it is entirely ignored when the honeymoon is over. I will give just one illustration: The untidy appearance of both men and women in the home so soon after marriage is a lack of consideration for each other. We find that true especially among farmers and their wives, until we speak of a man that tills the soil, thusly: "Oh, he looks just like a farmer."

These are some of the most prominent relations that must exist in the home if it is to be a real home. Home-making is truly a profession that means wise training and a broad education to meet all its demands. Should not our present-day training of our boys and girls have this home-building science, the keynote of all their education? Would they not be more truly fitted for life and all its high and lofty purposes if such could be the case? Should we not put forth greater effort along all lines of child development or human development that the ideal home may predominate in our midst?

Orison Marden says: "The ideal home of the future will not only be equipped with all the comforts, conveniences and refinements of life;

it will also be, not a mere nest of common instinct, but a training ground for young mortals, a sanctuary for the heart, a refuge from storms, a sweet resting place after labor, a consolation in sorrow, a pride in success, and a joy at all times.

To you fellow home-makers, is it not worth our individual effort to help create such a home, asking God daily to give us courage, strength and knowledge, that we may act well our part in the home-building work?

‘A home is a spot apart from the world’s tempestuous strife;
 ’Tis the one great throbbing heart wherein is born new life;
 ’Tis the place where love divine should reign supreme
 With your’s and mine.
 Behind its portals must contentment dwell,
 And through its open windows tell
 That joy and peace abide within.
 ’Twas thus decreed when God made man
 And moulded woman as his kindred soul,
 That the two might live and lead the world
 Toward love of life at home.’

The Annual Business Meeting of the Society was held Wednesday forenoon, Dec. 8th, 1915, and the following Report of the Secretary was presented.

At the Annual meeting held in Kalamazoo, Dec. 1-2-3, 1914, I was Secretary and Treasurer, and as I had to keep the accounts of both, I will give the Secretary and Treasurer’s Report up until the 1st of Feb., 1915. I delayed turning over the Treasurer’s account until I had all of the accounts of the last Annual meeting settled.



The old style equipment required one week to plow and plant one acre of rye and vetch.



SECRETARY-TREASURER REPORT.

1914.		
Dec. 1.	Cash on hand in bank.....	\$341 98
Dec. 3.	134 annual members.....	134 00
Dec. 3.	15 life members.....	75 00
Dec. 3.	Received for banquet tickets.....	149 00
Dec. 3.	Single admissions.....	6 50
Dec. 3.	Received from Lyon Memorial.....	251 22
Dec. 9.	Received from adv. in program.....	20 00
Dec. 23.	Received from rent of space.....	140 00
Jan. 31.	3 annual members.....	3 00
		\$1,120 70

DISBURSEMENTS.

Dec. 3.	Cash returned to Lyon Memorial fund on life members.....	\$250 00
Dec. 3.	Paid for banquet.....	150 00
Dec. 3.	Paid for doorkeeper.....	5 00
Dec. 3.	Paid for Potato Association's share in floor space.....	16 00
Dec. 4.	Paid Secretaries. Expense at annual meeting.....	13 00
Dec. 4.	Paid Roland Morrill, expense speaker.....	5 00
Dec. 6.	Paid H. J. Eustace prize money for students.....	60 00
Dec. 6.	Paid H. Chambers, work on 1913 report.....	2 50
Dec. 7.	Paid Ricaby and Smith for printing.....	2 62
Dec. 7.	Paid W. W. Farnsworth, speaker at annual.....	16 14
Dec. 8.	Paid Hale Tennant, speaker at annual.....	5 84
Dec. 9.	Paid Mrs. Hulst, speaker at annual.....	3 94
Dec. 12.	Paid H. P. Campbell for stamps.....	2 00
Dec. 15.	Paid E. O. Ladd, Executive Board expense.....	13 24
Dec. 15.	Paid C. A. Pratt, Executive Board expense.....	8 44
Dec. 15.	Paid C. F. Hale, Executive Board expense.....	9 32
Dec. 23.	Paid R. O. Brundage, rent of Knights of Pythias Hall.....	70 00
Dec. 26.	Paid Clark Allis, speaker at annual.....	29 60
Dec. 30.	Paid J. Pomeroy Munson, speaker at annual.....	9 50
Dec. 30.	Paid R. A. Smythe, Dec. salary and office expense.....	54 52
1915.		
Jan. 14.	Paid Alice Baker, stenographer at annual meeting.....	55 00
Jan. 23.	Paid for stamps.....	13 00
Jan. 30.	By balance on hand.....	326 04
		\$1,120 70

SECRETARY'S REPORT.

1915.		
Feb. 1.	Cash on hand with treasurer.....	\$326 04
	93 annual members taken in the year.....	93 00
	8 life members taken in the year.....	40 00
	Received from Lyon Memorial fund.....	500 00
		\$959 04

EXPENDITURES.

	Speakers for Mid-Winter meeting.....	\$33 12
	Expense of Executive Board attending meetings.....	41 22
	Badges for the year of 1915.....	13 50
	Printing of notices and programs.....	44 45
	Stamps used.....	54 00
	Secretaries traveling and office expenses.....	44 28
	Secretaries salary for 11 months.....	550 00
Dec. 1.	Balance with treasurer.....	178 47
		\$959 04

MICHIGAN STATE HORTICULTURAL SOCIETY.

Financial Statement.

Year ending December 7, 1915.

RECEIPTS.

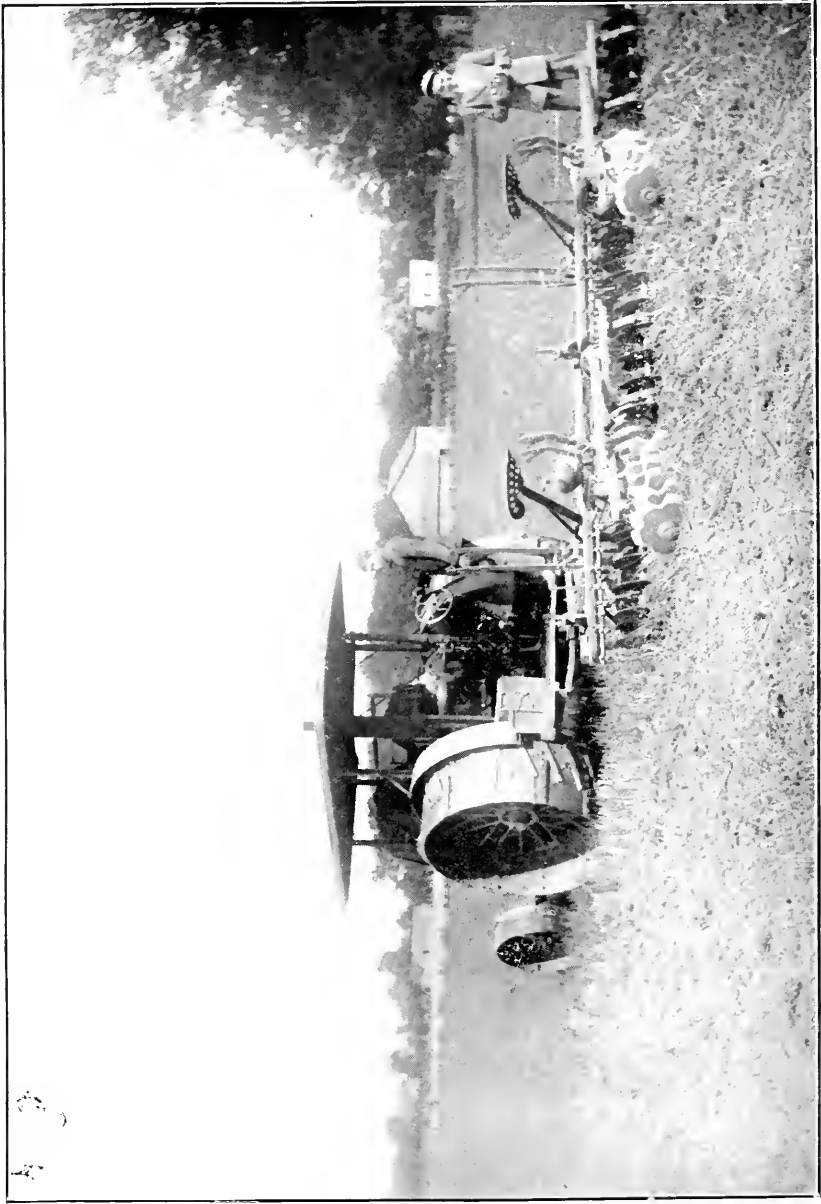
Feb. 1.	Cash on hand.....	\$326 04
Feb. 8.	18 annual members.....	18 00
Feb. 8.	2 life members.....	10 00
Feb. 12.	1 life member.....	5 00
Mar. 8.	1 life member.....	5 00
Mar. 8.	1 life member.....	5 00
April 8.	6 annual members.....	6 00
July 3.	4 annual members.....	4 00
July 3.	2 life members.....	10 00
July 10.	Lyon fund.....	500 00
Aug. 3.	5 annual members.....	5 00
Aug. 10.	52 annual members.....	52 00
Nov. 20.	1 life member.....	5 00
Dec. 1.	6 annual members.....	6 00
Dec. 2.	2 annual members.....	2 00
Total receipts.....		\$959 04

DISBURSEMENTS.

By order No. 1.	Date 2 5.	St Louis Button Co.....	\$13 50
By order No. 2.	Date 5.	Ricaby & Smith.....	20 00
By order No. 3.	Date 5.	R. A. Smythe.....	72 13
By order No. 4.	Date 6.	E. O. Ladd.....	9 41
By order No. 5.	Date 6.	C. A. Bingham.....	12 00
By order No. 6.	Date 11.	R. H. Sherwood.....	6 65
By order No. 7.	Date 11.	R. A. Gill.....	15 76
By order No. 8.	Date 11.	C. A. Pratt.....	7 81
By order No. 9.	Date 16.	F. M. Braden.....	6 01
By order No. 10.	Date 18.	Ricaby & Smith.....	11 20
By order No. 11.	Date 18.	R. A. Smythe.....	100 00
By order No. 12.	Date 4/2.	R. A. Smythe.....	155 41
By order No. 13.	Date 7/2.	Ricaby & Smith.....	9 00
By order No. 14.	Date 8/2.	R. A. Smythe.....	75 00
By order No. 15.	Date 10/2.	C. A. Bingham.....	12 00
By order No. 16.	Date 5.	Ricaby & Smith.....	4 25
By order No. 17.	Date 5.	R. A. Smythe.....	110 21
By order No. 18.	Date 5.	R. A. Smythe.....	83 03
By order No. 19.	Date 11/20.	R. A. Smythe.....	52 00
By order No. 20.	Date 12/1.	C. B. Cook.....	4 70
Total disbursements.....			\$780 57
Cash balance on deposit.....			178 47
City Trust & Saving Bank.....			\$959 04

Respectfully submitted,

HENRY SMITH,
Treasurer.



The new style equipment required 3 days to disc and plant 100 acres of rye and vetch. Farm of Thomas & Sons, Allegan Co.

ANNUAL REPORT OF J. SATTERLEE, SECRETARY OF THE
BOARD OF TRUSTEES OF THE LYON
MEMORIAL FUND.

To the Members of the Michigan State Horticultural Society:

During the last day of the Annual meeting of the State Horticultural Society held at Kalamazoo in 1914, the Board of Trustees of the Lyon Memorial Fund held a joint meeting with the Executive Board of the Michigan State Horticultural Society. At this meeting, at which all the members of the two boards were present, various matters pertaining to the relations and work of the two boards were discussed, and the probable permanent income to be derived from the Lyon Memorial Fund, and the slowly increasing Life Membership Fund was made clear. It was voted by the Executive Board of the State Horticultural Society to turn over \$250.00 of the general fund then on hand to the credit of the Life Membership Fund. This brings the Life Membership Fund up to \$750.00. Since that time this board has had no regular or special meeting.

I have received the following report from Chas. W. Garfield, treasurer of the Board of Trustees of the Lyon Memorial Fund.

Grand Rapids, Mich., Nov. 18, 1915.

James Satterlee, Secretary of the Board of Trustees of the Lyon Memorial Fund, Lausing, Mich.:

My Dear Sir:—In accordance with my usual custom in carrying out the spirit of the trust which has placed the management of the Lyon Memorial Fund in our hands, I herewith present you with my annual report as treasurer of that fund.

There is no change in the permanent securities which make up the volume of this fund, so I will not list them in this report. (They are found in full in the report for 1914.)

The aggregate of securities		\$8,335 00
Cash in Bank		516 23
		<hr/>
Total		\$8,851 23
The Lyon Memorial Fund	\$7,600 00	
Life Membership Fund	750 00	
		<hr/>
		\$8,350 00
Leaving a balance due State Society		501 23

For the purpose of record and to give you an idea of the manner in which the funds have been received and disbursed since my last report. I give you here a list of the transactions as recorded in our Savings Book in the Grand Rapids Savings Bank:

Bank:—

November 17, 1914, cash on hand		\$16 22
December 1, 1914, Worden interest		70 00
December 8, 1914, paid State Society	\$1 22	
January 1, 1915, bank interest		2 94
January 2, 1915, Consumers Power interest		22 50
February 18, 1915, Dykema interest		3 75
March 1, 1915, Agricultural College rent		275 00
April 12, 1915, Consumers Power interest		22 50
May 19, 1915, Dykema interest		5 03
June 3, 1915, Worden interest		70 00
June 11, 1915, Greenhouse coupons		45 00
June 11, 1915, Commonwealth interest		30 00
	<hr/>	
	\$1 22	\$562 94
June 11, 1915, Savannah Bond interest		12 50
June 11, 1915, Detroit Gas interest		25 00
July 1, 1915, Bank interest		4 43
July 2, 1915, Consumers Power interest		22 50
July 10, 1915, paid State Society	\$500 00	
July 19, Savannah Bond interest		12 50
July 19, 1915, Detroit Gas interest		25 00
August 12, 1915, Dykema interest		5 05
October 2, 1915, Greenhouse Coupons		45 00
October 7, 1915, Consumers Power interest		22 50
October 11, 1915, Agricultural College rent		275 00
November 11, 1915, Dykema interest		5 03
November 18, cash in bank		516 23
	<hr/>	
	\$501 22	\$1,533 68

During the year \$250.00 was paid into the Life Membership Fund by the State Horticultural Society. According to my report made to you one year ago the State Horticultural Society still owes the Life Membership Fund \$370.00. I mention these facts for the purpose of making the record complete, and expressing the hope that in some way the Life Membership Fund may be made complete during the coming year, so that there may be no criticism on the part of the membership in regard to making every dollar paid into the life fund, a permanent endowment for the Society.

Yours respectfully,

CHAS. W. GARFIELD,

Treasurer of the Board of Trustees of
the Lyon Memorial Fund.

A word of appreciation of the loyalty and foresight of our former President, T. T. Lyon, is never out of place. If it were not for the income derived from his liberal bequest we should be much more greatly handicapped in our work than we now are. As it is, since the withdrawal of our state appropriation for expenses our income is

much too small for any large aggressive educational work. If it were not for the loyalty and self-sacrificing work of our secretary and the members of our executive board we should make a very poor showing indeed. Through the liberality of the State we are enabled to print and distribute the valuable information obtained at our annual, and other meetings thus making such information available to the horticulturists of Michigan. We need a larger permanent income which it is hoped may be secured through a large increase in our Life Membership Fund. Or perhaps through the loyalty and large liberality of some of our prominent horticulturists who owe much to the work of our Society and who have at heart the best interests of the future horticulturists of our State.

We need, too, a larger annual income from annual memberships. (Such memberships show a lively interest in the work of today, of *this* year.) Or through some special efforts in making exhibits by local societies at our State or district fairs. In any case, if we are to do a larger and more aggressive work it means a livelier interest and a more self-sacrificing spirit in a large number of our best fruit growers and others engaged in general horticultural work.

Respectfully submitted,

JAMES SATTERLEE,
Secretary of the Board of Trustees
of the Lyon Memorial Fund.

Grand Rapids, Mich., Dec. 8, 1915.

Your Committee on Exhibitions beg to submit the following report:

We have examined the exhibits and made the following list of exhibits and specimens shown:

O. F. Marvin, Holton, Mich.—14 varieties of apples.

E. W. Lincoln, Greenville, Mich.—33 plates of apples; 5 varieties.

J. H. Crane, Fennville, Mich.—18 plates of apples; 16 varieties; 1 plate of Quinces.

McDermid Bros., Battle Creek—11 plates of apples.

A. N. Brown, Wyoming, Delaware—12 plates of Winesaps.

Henry Smith, Grand Rapids—Beautiful roses and chrysanthemums and 7 plates of apples.

Newaygo County Agricultural Bureau, Fremont—40 boxes of apples and 50 plates.

Berrien County Horticultural Society—195 plates of apples; 2 plates of Quinces; 6 plates of Pears.

We wish to give honorable mention of the following 20 bushels of apples displayed by the South Haven Fruit Exchange taken from their regular stock and placed in storage to exhibit at this meeting, it is a great object lesson in good packing and is to be most heartily commended.

Honorable Mention to E. W. Lincoln, for number of varieties and excellency of specimens.

Honorable Mention is given to quality of specimens exhibited by J. H. Crane, of Fennville, particular attention is called to the Spies.

Honorable Mention to A. N. Brown for the Staymans Winesaps exhibited from Delaware.

Especial Attention is called to the color of the single specimens of Spies exhibited by McDermid Bros.

Honorable Mention to the Fine Display of the Newaygo County Agricultural Bureau. They show Fine Quality and the manner of displaying them, all varieties being named.

Honorable Mention to the large and fine exhibit from the Berrien County Horticultural Society. (they should have been labeled.)

Your committee begs leave to make the following criticisms and recommendations:

1. All fruit should be labeled regardless of the package it is shown in.

2. We believe it is desirable that this Society should give annually some trophy to be competed for in such a class as this Society may decide on.

Signed E. O. LADD,
L. E. HALL,
I. T. PICKFORD.

The prizes given by the State Society were awarded as follows:
Newaygo County Bureau, First Prize, \$15.00.

Berrien County Horticultural Society, Second Prize, \$10.00.

The report of the committee on resolutions offered the following which was unanimously adopted:

Your committee on Resolutions beg to submit the following:

We wish to especially express our appreciation to Senator and Mrs. Dunlap, of Savoy Illinois; Mr. Seth J. T. Bush, of Morton, New York, and A. C. Carton, Secretary Michigan Public Domain Commission; Mr. Don Francisco, of Chicago; who have so kindly and generously come here without remuneration and by their presence and inspiration added so much to the value of our meetings.

To Prof. Halligan and his class in Horticulture, from M. A. C., who gave us the splendid series of addresses on Horticultural subjects, is due no small part of the success of the meeting, not only for their literary value but for the up-to-the-minute horticultural information which they so ably imparted.

We wish to thank also, Prof. Sargeant of the Kent Scientific Museum, for his very entertaining illustrated lecture on "American Birds" and their relation to Horticulture.

We appreciate also the material assistance of the G. R. Association of Commerce and their hospitality in so kindly furnishing the rooms for the ladies' meetings, also for the liberal donation to help defray the expense of the Coliseum.

As The Fruit Belt, a horticultural journal, published at Grand Rapids is devoted exclusively to the interests of fruit and vegetable growers, we recommend this journal to the horticultural class, because it specializes particularly in those things which pertain to the fruit and vegetable growers.

Signed M. D. BUSKIRK,
J. P. MUNSON.

Chairman: The executive board has been doing some work and I think it will be appropriate to take up this business and consider this matter at this time, and that is the raising of money. We will call on Mr. Merritt of Manistee to present the matter.

Mr. Merritt: Mr. Chairman, I will say that we had a meeting of the Executive Board Monday evening and in talking over the finances of the State Horticultural Society, what seemed to be most apparent to the members of the board is that this Society needs a meal ticket. Anybody can get along all right until we run out of a meal ticket, and then we are liable to go on to the rocks. The State Horticultural Society used to receive a liberal appropriation from the State, but we don't have that any longer.

I have just listened to the report of Mr. Satterlee. If it were not for the Lyon Memorial Fund, this society would not be in as good condition as it is and I wish to state to the members of this Society, that if it were not for the Lyon Memorial Fund, this society would be on the rocks.

This fund amounts approximately to \$8,000, invested in good securities and Experimental State property at South Haven, worth \$5,000 more. We derive something like 5% interest from our securities, or \$400 a year. And we receive rent from South Haven property of \$275 more, which makes our income \$675 from the Lyon Memorial Fund. This Lyon Memorial Fund, should be made the foundation of a permanent fund for this Society, and at the meeting of our Executive Board a committee was appointed to figure out some way to increase this fund and have a permanent fund. We would like to say to you that you make it \$50,000 instead of only about \$13,000; this would give us an income of \$2,500 a year. We drafted the following resolutions:

Resolved, That a Committee of three men be appointed by the President and Secretary in each fruit growing county of Michigan, the first named to act as chairman, to solicit Life Memberships to The State Horticultural Society during the year 1916;

That such Committee also report to the Secretary the names and addresses of all the fruit growers in said counties;

That a circular letter in the name of the President and Secretary be mailed to all said fruit growers soliciting Life Memberships—by the Secretary;

That the Life Membership fee be increased two years from date to ten dollars;

That the annual dues be increased two years from date to two dollars;

That the circular letter above referred to states that the object of the Life Memberships solicited is for the creating of a permanent fund for the support of the State Society.

Signed J. E. MERRITT,
HENRY SMITH,
C. A. BINGHAM.

This resolution was adopted with the idea of submitting it today to the Society and I wish to make a few remarks:

We have in the State of Michigan 40,000 fruit growers and less than 2,000 of them are members of this Society. Anyone paying a Life Membership in this Society will get the annual report and it is my opinion that a campaign should be inaugurated to secure 1,000 Life Memberships during the year 1916. This would bring us in \$5,000 to be added to the fund which we already have.

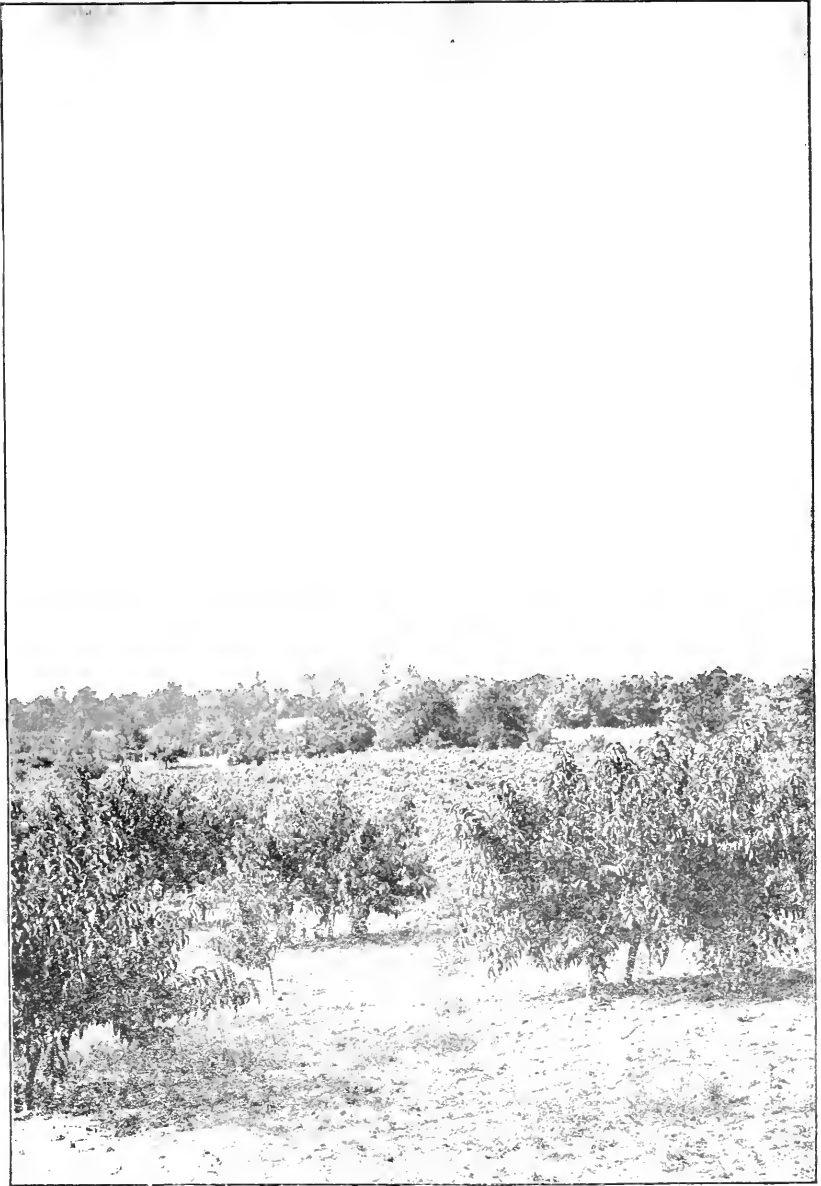
Another \$5,000 should be secured in the next year, making \$10,000, and when we secure this money, it is not for the purpose of blowing it out, but of putting it in the hands of the trustees of the Lyon Memorial Fund, to be invested in securities for the eternal and permanent benefit and support of this Society. We should have a secretary who gives his entire time throughout the year to this Society and to the promulgation of its interests.

Now in regard to the raising of this money, I am of the opinion that that in my own county, Manistee, we can sell or secure 100 memberships. Now we have 80 counties in which to secure these members, and by instituting an organized campaign, after we get through with Manistee, just go down into Mason county, and tell them that we have got 100 members in Manistee, and I think they will be ashamed of themselves, and come across with another 100 without any difficulty. And then we can go into other counties—in this county in which is situated the city of Grand Rapids. I am proud of this city for the reason that they do things. Look at the Masonic Temple—The Pantlind Hotel, the Y. M. C. A. Building. If you want to name in four letters the public spirit of this city you can name it in the four letters Y. M. C. A. I believe that right here in Grand Rapids, we should raise a good liberal amount to add to this fund. I do not mean that it should be raised wholly among fruit growers, for I believe there are others among the business men of the city, who are interested in the Horticultural development of the country, and will contribute in this way to its maintenance and support.

Take the Michigan Development Bureau, which has done such wonderful work. During the last five years it has raised by contribution in the State of Michigan over \$50,000 and spent this money in the development of western Michigan. There are hundreds and thousands of men who are going into Horticulture in the western part of the State, and they need the aid and benefit of the counsel and advice and books of this Society. Then in northern Michigan there are a large number of members, prospective members—all that would be necessary to get them would be to solicit them and have them see and understand the benefits to be derived from being in touch with this association.

It was our idea to keep the Life Membership of \$5 for two years, then increase it to \$10; keep it there for two years more, and then increase it to \$25; they charge \$2 a year membership in New York. I believe that this plan is practical, and that by it we can get \$50,000 into this Lyon Memorial Fund by a campaign of intelligent work in a few years, and then this Society will be on a permanent footing asking no favors. I therefore recommend that this resolution be adopted.

Mr. Garfield: If the Masonic people can go out and get \$100,000 among the Masons for the building of their Temple, I don't see why the same thing cannot be done by the Horticultural people of this State,



Peach orchard at "Oak Crest," Farm Secretary Smythe at Benton Harbor, Mich.

for there is no Masonic Temple that can do any more for the Masons than the Temple of Horticulture can do for the Horticulturalists of the State of Michigan

Mr. Merritt's resolution was put to a vote and was carried unanimously.

The annual election of officers was next held and the following officers were elected:

President—Charles A. Pratt.

Secretary—Robt. A. Smythe.

Treasurer—Henry Smith.

Executive Board Members for three years: Mr. E. O. Ladd, of Old Mission; Mr. Chas. A. Bingham, Birmingham.

CONSTITUTION AND BY-LAWS.

ARTICLE I.—NAME, TERRITORY AND OBJECTS.

The name of the society shall be the Michigan State Horticultural Society, and its territory shall be the State of Michigan. Its objects shall be the development of an adequate appreciation of the peculiar adaptation of the soils and climate of the State to the pursuit of horticulture in all its branches; and the collection and dissemination of information bearing upon the theory and practice of the same, as well as upon the arts and sciences directly or indirectly associated therewith, or calculated to elevate or improve the practice thereof.

ARTICLE II.—OFFICERS AND MODE OF ELECTION.

The officers of the society shall be a president, a secretary, and a treasurer, together with an executive board of six members, aside from the president, secretary and treasurer, who shall be ex-officio members of the said board. Any one who has held the office of president or member of the executive board for two consecutive terms or parts of terms shall be ineligible to re-election until after the expiration of one full term.

Said board shall designate one of its members as vice president. The officers shall be elected by ballot.

The society may, at its discretion, elect an honorary president, whose term of office shall be for life, said office to be an honorary one, without duties, and established to express the sense of obligations which the society may feel to one of its members who may unselfishly give a lifetime of earnest effort to promote its interests, to further the horticultural interest of this State.

ARTICLE III.—A QUORUM.

Four members of the executive board shall constitute a quorum for the transaction of business at any meeting of said board: Provided, That each of the members thereof shall have been notified, in the usual manner, of the time, place, and object of such meeting.

ARTICLE IV.—ANNUAL MEETING AND ELECTION OF OFFICERS.

The annual meeting of the society, for the election of officers specified in Article II, shall occur upon the first Wednesday of December in each year.

ARTICLE V.—TERMS OF OFFICE.

The officers specified in Article II shall hold their offices until the thirty-first day of December of the year for which they were elected, and thereafter until their successors shall have been elected, and shall have signified to the secretary their acceptance: Provided, That the terms of office of the six members of the executive board shall be so arranged that but two regular vacancies shall occur in each year.

ARTICLE VI.—ANNUAL AND LIFE MEMBERS.

Any person may become a member of the society for one year by paying to the treasurer the sum of one dollar; and the yearly term of all annual memberships shall expire on the thirty-first day of December of the year for which they were taken. Any person may become a life member by the payment at any one time of the sum of five dollars into the treasury of the society.

ARTICLE VII.—AMOUNT OR LIMIT OF PROPERTY.

The society may hold real and personal estate to an amount not exceeding twenty thousand dollars.

ARTICLE VIII.—BY-LAWS.

By-laws for the government of the society shall be framed, and when needful, amended by the executive board; but changes thereof may be at any time proposed by the society in general meeting.

ARTICLE IX.—AMENDMENTS.

This constitution may be amended at any regular meeting of the society by a vote, by ballot, of two-thirds of all the members present and voting: Provided, That notice of such proposed amendment, specifying its purport, shall have been given at the last previous regular meeting.

BY-LAWS OF THE MICHIGAN STATE HORTICULTURAL SOCIETY.

I.—THE PRESIDENT.

1st. The president shall be the executive officer of the society and of the executive board; and it shall be his duty to see that the rules and regulations of the society, and of the executive board, are duly enforced and obeyed.

2d. He may, in his discretion, and in the lack of needful rules, during the recesses of the society and of the board, prescribe rules for the management of the interests or business of the society such rules to continue in force till the next session of the executive board, and until, by its action, they shall have become no longer necessary.

3d. He shall act in conjunction with the secretary in the preparation of programmes or orders of business, for the sessions of the society; and in the devising of plans and processes for the maintenance of its interests.

4th. He shall have the best interests of the society at heart, and shall lead in forwarding any and all enterprises calculated to add to its permanency or to increase its usefulness, and establish it more firmly in the public confidence.

II.—VICE PRESIDENT.

The vice president shall perform the duties of the president in case of the absence or inability of that officer; and may be called upon by the president to assume the duties of the chair at any meeting of the society or executive board.

III.—THE SECRETARY.

1st. The secretary shall be the recording, corresponding, and accounting officer of the society, and he shall also be, jointly with the business committee, its financial and auditing officer.

2d. He shall incur no expenditure of a large or doubtful character except with the sanction of the executive board or of the business committee.

3d. He shall submit all bills or claims against the society to the business committee for approval, and indorsement to that effect, before drawing his order upon the treasurer for the payment of the same.

4th. He shall attend all meetings of the society, and of the executive board, and shall keep a faithful record of their proceedings.

5th. He shall sign all certificates of membership, and all diplomas and certificates of merit awarded by the society.

6th. He shall have charge of the society's books and papers, excepting only such as, by the advice or direction of the executive board, shall be placed in charge of the librarian, and he shall be responsible to the board for the safe keeping of the property placed in his charge.

7th. He shall be the custodian of the seal of the society and shall have authority to affix the same to documents when needful.

8th. He shall seek by all suitable means to secure the fullest announcement of the meetings of the society in this State, as well as in adjacent states, when such shall be found desirable.

9th. He shall, so far as practicable, cause the transactions of the society, to-

gether with such valuable or interesting papers as shall be read at its sessions, to be properly published, and thus placed within reach of the State.

10th. It shall also be his duty, yearly, to prepare for publication the annual report of the society, together with such other matter as he shall deem proper—he being aided in the selection of such matter by an advisory committee of the executive board.

IV.—THE TREASURER.

1st. All the funds of the society shall be paid into the hands of the treasurer.

2d. He shall disburse the moneys of the society that shall come into his hands only upon the order of the secretary, countersigned by the president.

3d. He shall keep the moneys received by the society for life memberships as a distinct fund, and shall turn same over to Lyon Memorial Fund for permanent investment, applying only the interest accruing thereon to the purposes of the general fund.

4th. Immediately upon assuming his office, and before entering upon its duties, he shall execute to the society an official bond for \$1,500 with sufficient sureties, conditioned for the safe keeping and disbursement of the moneys of the society, and for the proper discharge of the further duties of his office, in such sum as shall be specified by the executive board. Such bond shall receive the approval of the president and shall be deposited with the secretary. Expense of bond to be paid for by the Society.

5th. He shall at the close of each year, report to the executive board the amount of money that shall have come into his hands during the year, the sources from which it has been derived, and the disposition made of the same.

V.—THE LIBRARIAN.

1st. The librarian shall have the custody of the library of the society. He shall be appointed by the executive board, and may be displaced at its pleasure.

2d. He shall act jointly with the secretary in the care and arrangement of the same, and in the reception, custody, and disposal of the volumes of the transactions annually supplied to the society by the State.

3d. He shall have the custody of the rooms assigned to the society at the State capitol, together with such books and other property as the society or the board shall direct to be deposited therein.

4th. He shall report annually, at the close of the year, to the executive board the amount and condition of the property in his hands.

VI.—THE EXECUTIVE BOARD.

1st. The executive board shall enact all rules and regulations for the management of the affairs of the society, determine the salaries of its officers, and assume the control and management of its exhibitions.

2d. It shall have power to displace any officer of the society for neglect of duty or abuse of position, and to fill all vacancies by appointment, to continue till the next annual election.

3d. The board shall hold three regular sessions during the year, to occur at the times and places for the regular meetings of the society.

4th. Other meetings may be called by the secretary under the advice or direction of the president, or of a majority of its members, at such times and places as may be deemed most convenient; but in all such cases each member must be notified of the time, place, and object of such meeting.

5th. It shall be the duty of the board to carefully guard the general interests of the society, to watch over its finances, and to provide for its necessities as they shall arise.

6th. All important measures shall be submitted to this board, but they may by the board be resubmitted to the society for recommendations.

7th. The board shall, at the annual meeting, submit through the secretary, in connection with the reports of officers, such further report upon the condition, interests, and prospects of the society as it shall judge necessary or expedient.

8th. Two members of the executive board are to be elected each year, to hold the office for three years, but if any member shall absent himself from two or more consecutive meetings of the society and of the board, without reason satisfactory to the board, the said board may, in its discretion, consider the office vacant, and

proceed to fill such vacancy by appointment, to continue to the next annual election.

VII.—THE BUSINESS COMMITTEE.

1st. It shall be the duty of the executive board annually, upon entering upon the duties of the new year, to appoint from their own number three members who shall constitute a business committee for the year.

2d. All accounts or claims against the society, when presented to the secretary for payment, shall, before payment, receive the sanction and indorsement of the business committee.

3d. Such claims shall be submitted to this committee and approved in duplicate, one copy to remain with the secretary as his warrant for the payment of the same, and the other to be transmitted by him to the president, along with his order upon the treasurer, as his warrant for countersigning the same.

4th. It shall be the duty of the business committee, upon application of the secretary, during the recess of the executive board, to advise with him as to the expediency of making any contemplated but questionable expenditure for which occasion may arise during such recess.

VIII.—STANDING COMMITTEES.

1st. There shall be a standing committee on new fruits, to consist of a chairman, with as many associates as such chairman shall find it desirable to appoint.

2d. Such other standing committees may from time to time be appointed by the executive board as, in its discretion, it shall deem desirable or necessary.

3d. All standing committees are expected to report at the annual meeting in December any information of value to the society or its members that may have come to their knowledge during the year as well as any scientific theories, deductions, or facts that, in their opinion, may be useful in advancing the objects for which the society is laboring.

IX.—LIFE MEMBERSHIP FUND.

1st. All moneys coming into the treasury of the society in payment for life memberships shall constitute a perpetual fund, to be known as the life membership fund, and shall be turned over to the Lyon Memorial Fund for permanent investment.

2d. The principal of this fund shall be invested by the treasurer under the advice and direction of the executive board.

3d. All interest accruing upon any portion of said fund shall constitute and become a part of the fund of the society devoted to the payment of its ordinary expenses.

X.—MEETINGS OF THE SOCIETY.

1st. The society shall hold its first regular mid-winter meeting for the year during the month of February for the inauguration of the officers chosen at the annual meeting held the previous December, as provided in Article IV of the constitution and also to arrange its plan of operation for the year.

2d. Its second regular meeting shall be held in the month of July or August at such date as shall be most suitable for the mid-summer meeting.

3d. Its third regular meeting shall occur in connection with its annual election of officers, in December, as provided in Article IV of the constitution.

4th. The times and places for the occurrence of these regular meetings (excepting only the *time* of the annual meeting), shall be determined by the executive board.

5th. Other meetings may be called by the secretary, under the advice or direction of the members of the executive board, at times and places by them deemed expedient.

6th. In case of the calling of a special meeting for the election of officers of the society, in consequence of any failure to elect at the annual meeting, as provided in section IV of the constitution, all persons entitled as members to vote at such annual meeting shall be considered as retaining such membership for such purpose until such election, and until such officers so elected shall have been inducted into office.

XI.—RULES FOR DISCUSSION.

The deliberations and discussions of the society shall be conducted in accordance with ordinary parliamentary usages.

XII.—AUXILIARY SOCIETIES.

1st. The society shall, in all reasonable and proper ways, encourage the formation of local horticultural or pomological societies auxiliary to this society in all such counties or other municipalities of this State as shall afford a reasonable prospect that they will be able to effectually maintain the same.

2d. It shall be the policy of this society in supervising the organization of such local societies to secure an identity of constitutional provisions throughout, and in so doing to insure harmony among them; but at the same time it will not discourage the including by them of special or local objects in cases in which such shall be found desirable, so long as the introduction of the requisite provisions therefor into the constitution and by-laws of the auxiliary society shall not be deemed likely to interfere with the harmonious workings of the whole.

3d. On receipt by the secretary, from the secretary of such auxiliary society, of a list of officers and members of that society, he shall file the same; and upon issuance of the annual report shall supply such auxiliary society with a sufficient number of volumes to provide one for each of its members. He shall also transmit the names of such officers and members, with their postoffice addresses, to the secretary of any and all experiment stations and societies willing to supply bulletins and reports; and to the national department of agriculture for the same purpose.

4th. Reports of auxiliary societies shall be made to the secretary of this society on or before the first day of January of each year, and shall include the officers for the ensuing year and a statement of the proceedings of such society during the past year, which shall be incorporated into the annual report of the preceding year.

5th. For membership, see Article VI of the Constitution.

XIII.—AMENDMENTS, ADDITIONS, SUSPENSIONS.

1st. Amendments or additions to these by-laws may be made by a majority vote of the executive board, at any meeting; but if objection shall be made the same shall "lie upon the table" till the next regular meeting of the board.

2d. These by-laws, or any one or more of them, may be suspended for the time, by order of a majority of all the members of the society present and voting.

3d. A proposition in the general meeting of the society, for the amendment or addition to these by-laws shall be referred to the executive board for consideration and decision; but the society may submit therewith its advice or request.

4th. The Constitution and By-Laws were revised at the annual meeting held at Kalamazoo, Dec. 1, 2, 3, 1914. The above is the authorized document.



Mid-summer meeting at home of Amos Tucker, Bravo, Mich.



Home of Mr. A. L. Ross, Rochester, Oakland Co.

BERRIEN COUNTY HORTICULTURAL SOCIETY.

(Auxiliary to State Society.)

OFFICERS.

Jacob Friday.....	President.
C. H. Hilton.....	Vice-President.
Hale Tennant.....	Secretary.
J. M. Cunningham.....	Treasurer.
Henry Ewald	}.....Directors.
L. W. Ruth	
Miss E. McIsaac	

MEMBERS FOR 1915.

J. A. Stump, Sodus.	T. N. Perry, Coloma.
W. A. Rose, Benton Harbor.	Henry Pollard, Coloma.
J. F. Carter, Benton Harbor.	G. W. Loorner, Benton Harbor.
R. A. Smythe, Benton Harbor, R. 4.	Ralph Ballard, Niles, R. 4.
Joe Peters, Benton Harbor, R. 2.	Young Bros., Niles, R. 4.
Jacob Friday, Coloma.	Exilda Camfield, Benton Harbor.
Geo. Friday, Coloma.	A. B. Bishop, Coloma.
Will Renner, Benton Harbor, R. 3.	Aug. Schneider, Benton Harbor.
Henry Lecl, St. Joseph.	J. G. Wright, Benton Harbor.
W. M. Wissing, St. Joseph.	Fred Hobbs, Benton Harbor.
C. H. Hilton, Benton Harbor.	B. Bartram, Benton Harbor.
C. E. Hilton, Benton Harbor.	C. H. Mitchel, Benton Harbor.
William Geisler, St. Joseph.	Geo. L. Port, Coloma.
G. S. Drake, Benton Harbor.	Fred Bishop, Hartford.
Henry E. Ewald, Benton Harbor.	Arthur Dickinson, Benton Harbor.
L. T. Burrige, Benton Harbor.	W. W. Knapp, Watervliet.
H. H. Hogue, Sodus.	Dr. L. Ringle, Benton Harbor.
Hale Tennant, Sodus.	Chas. Reynolds, Benton Harbor.
S. McCord, Benton Harbor.	James Bishop, Benton Harbor.
Henry Pump, Benton Harbor.	Juan Hess, Benton Harbor.
Murphy Bros., St. Joseph.	Gaylord Trisbee, Benton Harbor.
J. H. Chamberlain, Benton Harbor.	W. H. Swarthout, Coloma.
E. McIsaac, Benton Harbor.	Ed. Dukesherer, Coloma.
F. J. Ewald, Benton Harbor.	Albert Beaton, Benton Harbor.
J. M. Cunningham, Benton Harbor.	Willard R. Mayes, Benton Harbor.
J. W. Reed, Benton Harbor.	John Heior, Benton Harbor.
R. O. Woodruff, Benton Harbor.	Philip Young, Benton Harbor.
S. Hull, Benton Harbor.	R. P. Streets, Benton Harbor.
B. J. Eaman, Benton Harbor.	R. L. Hayes, Benton Harbor.
E. H. Peters, Benton Harbor.	Earnest E. Lewis, Benton Harbor.
John Maas, Benton Harbor.	John P. Kniebus, Coloma.
C. C. Kniebes, Watervliet.	W. C. Cribbs, Watervliet.
W. B. Mosher, Berrien Center.	Philip Hosbein, Coloma.
Geo. Fritz, St. Joseph.	C. Beekwith, Coloma.
J. P. Versaw, Sodus.	Will Terwilliger, Benton Harbor.
Reinholt Wendzel, Coloma.	C. E. Stuart, Benton Harbor.
John O'Brien, Benton Harbor.	B. D. Bishop, Benton Harbor.

MANISTEE COUNTY HORTICULTURAL SOCIETY.

(Auxiliary to State Society.)

The Manistee County Horticultural Society, auxiliary of the Michigan State Horticultural Society, was organized at Bear Lake, January 26, 1912.

OFFICERS.

President—H. W. Marsh.....	Manistee.
Vice-President—Miss Edna McIntosh.....	Bear Lake.
Secretary—Jos. F. Brumais.....	Chief.
Treasurer—Mrs. Geo. Cole.....	Bear Lake.

MEMBERS.

- Geo. Crook, Bear Lake.
 Bert Bowling, Bear Lake.
 Arch Marshall, Bear Lake.
 Archies Graham, Bear Lake.
 Stanley Mallison, Bear Lake.
 Ed. Oleson, Bear Lake.
 Louis Lingg, Bear Lake.
 Bruce McIntosh, Bear Lake.
 H. M. Jones, Chief.
 Mrs. H. M. Jones, Chief.
 Mrs. Mary Burmeister, Onokama.
 Geo. Appleton, Bear Lake.
 Mrs. Nellie Wector, Bear Lake.
 Miss Mable Richmond, Bear Lake.
 K. M. Jones, Bear Lake.
 Fred Bradford, Bear Lake.
 Geo. Kuenzer, Bear Lake.
 J. C. Merritt, Manistee.
 S. L. Smith, Bear Lake.
 C. J. Milarch, Bear Lake.
 Matthew Lutz, Chief.
 Tom. Quinlan, Arcadia.
 F. E. Brunais, Chief.
 Fred Herrmann, Chief.
 J. E. Cody, Bear Lake.
 Richard Graham, Bear Lake.
 L. D. Connelly, Bear Lake.
 Joseph Patterson, Chief.
 P. C. Chamberland, Arcadia.
 J. C. Strickler, Bear Lake.
 Jas. H. Millard, Bear Lake.
 C. N. Russell, Manistee.
 H. M. Cosier, Bear Lake.
 Mrs. Geo. Cole, Bear Lake.
 Donald Crouch, Onokama.
 N. C. Bertelson, Bear Lake.
 Peter H. Lass, Bear Lake.
 L. A. Herkehrath, Pierport.
 E. O. Thompson, Bear Lake.
 Chris Shively, Chief.
 Roy Welch, Bear Lake.
 Jim McGuire, Bear Lake.
 R. W. Smith, Manistee.
 Geo. A. Hart, Manistee.
 T. J. Elton, Manistee.
 James Mullen, Manistee.
 L. S. Ramsdell, Manistee.
 R. R. Ramsdell, Manistee.
 James A. King, Manistee.
 Magnus Nelson, Manistee.
 C. B. Jentoft, Manistee.
 H. C. Bright, Manistee.
 Harlan MacMullen, Manistee.
 H. W. Marsh, Manistee.
 Lawrence Marsh, Manistee.
 Thomas W. Ferguson, Manistee.
 Herbert L. Harley, Manistee.
 Dudley A. Siddal, Manistee.
 B. R. Hindel, Manistee.
 C. H. Morey, Manistee.
 J. M. Peterson, Manistee.
 T. J. Ramsdell, Manistee.
 F. A. Mitchell, Manistee.
 A. E. Moen, Chief.
 O. C. Moen, Chief.
 John Cushing, Bear Lake.
 Geo. W. Holler, Bear Lake.
 Fred Baird, Arcadia.
 Carl Pickert, Arcadia.
 Charley Starke, Arcadia.
 Henry Montler, Arcadia.
 John Bradford, Arcadia.
 D. J. Martineau, Arcadia.
 Carl Bigge, Arcadia.
 Chas. P. Matteson, Arcadia.
 Wm. D. Ebert, Arcadia.
 H. J. Lang, Arcadia.
 Adolph Hasse, Arcadia.
 Jackson & Oppenheim, Arcadia.
 Edwards Bros., Arcadia.
 Shira Bros., Arcadia.
 Mary E. Carr, East Lake.
 Walter L. Dietz, Onokama.
 E. F. Marr, Bear Lake.
 Mrs. Jane Probert, Bear Lake.
 Fred Smith, Arcadia.
 Walter Kebaugh, Arcadia.
 H. C. Fox, Bear Lake.
 Lumen Garven, Bear Lake.
 A. J. L. Keddie, Bear Lake.
 Joseph Floersch, 7444 Normal Ave.,
 Chicago.

THE SUTTONS BAY FRUIT GROWERS' ASSOCIATION.

OFFICERS.

Claus Von Glahn.....	President.
Frank Weiler.....	Vice-President.
Theo. Esch.....	Secretary & Treasurer.

MEMBERS.

Chas. Kropp.	A. L. Freland.
John Bramer.	P. H. Pertner.
H. Kahrs.	Wm. Von Glahn.
Mrs. Anna Reynolds.	L. E. Bahle.
A. W. Mabert.	Geo. Steffens.
W. A. Smeltzer.	John Wahl.
Philip Egeler.	Leon Bixby.
Mat Spinnicken.	Ed. Grazier.
John Weisler.	Ener Christenson.
Dunkelow Bros.	Eli Firestone.
Wm. Horn.	Lyle Palmer.
John Burgeson.	Nels Olson.
Wm. Crocker.	Ole Larson.
J. H. Kahrs.	Claus Alpers.
Fred Revold.	Conrad Lather.

KALAMAZOO COUNTY FRUIT GROWERS' SOCIETY.

(Auxiliary to State Society.)

OFFICERS.

President, E. V. Kendall.....	Oshtemo.
Vice-President, Fred Meyers.....	Alamo, Rural 13.
Secretary and Treasurer, H. L. Jacobson.....	Kalamazoo, Rural 3.
Member of Executive Board, G. A. Cavanaugh.....	Kalamazoo, Rural 10.
Member of Executive Board, J. R. Blake.....	Galesburg.

MEMBERS.

Harry Middleton, Kalamazoo, 204 N. Rose St.	E. R. Jackson, Plainwell.
E. F. Stoddard, Kalamazoo, R. 12.	G. A. Cavanaugh, Kalamazoo, R. 10.
H. L. Jacobson, Kalamazoo, R. 3.	Charles Scudder, Augusta.
E. V. Kendall, Oshtemo.	A. J. Shakesphere, Kalamazoo, R. 5.
Fred Meyers, Alamo, R. 13.	Miss E. C. Reynolds, 709 West Cedar St., Kalamazoo.
C. W. Thompson, 530 Wheaton Ave., Kalamazoo.	Wm. Healy, Bloomingdale.
Herman Wunderlin, 815 Stockbridge Ave., Kalamazoo.	W. H. Dennis, Kalamazoo, R. 5.
J. S. Oswald, Doster, Barry Co.	G. H. Seiler, Kalamazoo, R. 10.
	Geo. M. Chaenels, Alamo, R. 13.

JACKSON COUNTY FRUIT GROWERS' ASSOCIATION.

OFFICERS.

S. E. St. John.....	President.
W. L. C. Reid.....	Secretary.

MEMBERS.

L. H. Field, Jackson.
 W. B. Field, Jackson.
 M. Gilbert, Jackson.
 Jos. Butler, Jackson, R. 5.
 John W. Boardman, Jackson.
 W. L. C. Reid, Jackson.
 S. E. St. John, Jackson, R. 2.
 M. L. Moon, Grass Lake, R. 3.
 J. E. McQuillen, Jackson, R. 4.
 Roy Heath, Jackson, R. 4.
 W. B. St. Johns, Jackson, R. 2.
 Jay Laverty, Jackson, R. 5.
 Geo. Shuart, Jackson, R. 2.
 Ned Beebe, Jackson, R. 9.
 C. A. Bullard & Son, Jackson.
 M. L. Abby, Jackson, R. 4.
 B. A. Simonds, Jackson, R. 5.
 I. A. Thayer, Jackson.
 Vern Snyder, Jackson, R. 5.
 S. B. Davis, Jackson.
 Frank Thompson, Jackson.
 H. G. Bailey, Jackson, R. 5.
 H. W. Maguire, Mason.
 C. E. Shotwell, Jackson.
 B. C. Cole, Jackson, R. 9.
 Norton Bros., 326 Losey St., Jackson.
 S. Schemahorn, Jackson, R. 7.
 E. L. Farrand, Jackson.
 J. E. Blake, Jackson, R. 2.
 C. W. Krooze, Jackson.
 J. E. Boey, Jackson, R. 5.
 H. J. Wilbur, Springport.
 E. T. Webb, Jackson.
 H. B. Snow, Parma, R. 1.
 Roy Brown, Jackson, R. 5.
 J. and C. Waltz, Jackson, R. 3.
 Henry England, Jackson, R. 9.
 H. C. Wollfle & Co., Spring Arbor.
 B. J. Nichols, 207 Merriman St., Jackson.
 John B. Ford, Jackson, R. 7.
 Glasgow Bros., Jackson.
 Jos. Johnson, Jackson, R. 5.
 Carl Johnson, Jackson, R. 6.
 C. W. Bond, Jackson, R. 4.
 D. B. Hatton, Rives Jet., R.
 Hadley Bros., Parma.
 H. G. Marvin, Jackson.
 Chas. Huntoon, Jackson, R. 5.
 James Davey, Jackson.
 E. Bromley, Onondaga, R. 2.
 E. B. Davidson, Cement City.
 Chris Siegrist, Rives Jet., R. 3.
 Jacob Cooley, Jackson, R. 7.
 Amos Rhoades, Jackson, R. 1.

Burt C. Hicks, Jackson, R. 4.
 W. D. Soper, Jackson.
 Clyde Kilpatrick, Jackson, R. 3.
 C. J. Reed, Spring Arbor.
 Harr Bros., Jackson, R. 2.
 R. A. Lee, Jackson, R. 6.
 W. E. Kennedy, Jackson.
 W. N. Curtis, Rives Jet., R. 1.
 Fred Graves, Rives, R. 1.
 Geo. Stiles, Rives.
 H. F. Wing, Grass Lake.
 W. O. Maxson, Grass Lake.
 B. R. Harrington, Munnith.
 Ray Borner, Albion.
 L. B. Benton, Napoleon.
 Wm. N. Ottney, Jackson, R. 4.
 R. D. Simmons, Jackson, R. 2.
 Milton French, Jackson, R. 3.
 John G. Noon, Grass Lake, R. 3.
 J. Geo. Friedricks, Brooklyn, R. 3.
 Enoch Bancker, Jackson.
 C. F. Hutchins, care M. C. R. R., Homer.
 Wm. Newman, Jackson.
 Floyd C. Palmer, Jackson, R. 3.
 L. L. Wheeler, Parma.
 A. E. Ellisthorpe, Jackson, R. 7.
 Dr. C. G. Parnell, Jackson.
 Mrs. L. A. Cooley, Jackson, R. 7.
 Wm. S. Cobb, Jackson.
 Willard C. Weeks, Napoleon.
 B. F. Lair, Jackson, R. 5.
 C. A. Barnes, Jackson.
 Chas. H. Allen, Jackson.
 W. J. O'Dwyer, Jackson.
 O. S. Ludlow, Parma.
 C. W. Flansburg & Son, Jackson, R. 7.
 Allen Bros., Jackson, R. 3.
 L. E. Landon, Springport.
 L. Whitney Watkins, Manchester.
 J. W. Dart, Spring Arbor.
 E. C. Baker & Son, Jackson, R. 2.
 J. P. Townsend, 811 Wildwood Ave.,
 Jackson.
 F. C. Burdick, Rives Jet., R. 3.
 C. E. Strong, Somerset Center.
 Walter L. Ford, Brooklyn.
 David Walker, Brooklyn.
 Jos. North, Brooklyn.
 W. E. Eckerson, Rives Jet., R. 3.
 J. H. Gaunt, Jackson.
 H. C. Richardson, Jackson, R. 1.
 Dr. W. W. Lathrop, Jackson.
 A. N. Sova, Jackson, R. 9.
 P. Fisher, Rives Jet., R. 2.

W. Abby, Rives Jet., R. 2.
 C. W. McCoy, 296 Wildwood Ave., Jackson.
 D. E. Turner & Son, Mosherville.
 W. H. Cordon, Jackson.
 Jos. Lutz, Grass Lake, R. 2.
 C. J. Hankerd, Mumith, R. 1.
 G. Ray Reed, Clark's Lake, R. 2.
 Dr. W. E. Spicer, Jackson.
 D. S. Fleming, Jackson.

W. W. Fisk, Jackson.
 Walter E. Sharp, Onondaga, R. 2.
 Albert J. Walker, Brooklyn.
 J. C. Bean, Jackson, R. 5.
 H. B. Kane, Jackson, R. 4.
 Leo Woodin, Hanover.
 Ivester Young, Jackson, R. 2.
 Vill Updyke, Jackson, R. 2.
 Jas. W. Dey, Springport.

BENZIE COUNTY HORTICULTURAL SOCIETY.

(Auxiliary to State Society.)

OFFICERS.

G. L. Dressel	President.
Joseph Smeltzer	1st Vice-President.
W. J. Pettit	2nd Vice-President.
E. J. Parker	Secretary.
Allen Case	Treasurer.

MEMBERS.

E. G. Lord, Arcadia.
 George Allen, Frankfort.
 Victor Allsberg, Elberta.
 Roseoe Burtker, Elberta.
 Allen Case, Frankfort.
 C. H. Chapman, Frankfort.
 N. J. Crawford, Elberta.
 George Cornell, Elberta.
 Ed. Crawford, Arcadia.
 John W. Cruse, Honor.
 C. F. Collier, Frankfort.
 E. Curtis, Frankfort.
 J. L. Chandler, Elberta.
 J. F. Conboy, Elberta.
 W. L. Davis, Frankfort.
 E. Dragoo, Elberta.
 G. L. Dressel, Frankfort.
 John Ehman, Elberta.
 A. Fairehild, Frankfort.
 Francis Forrester, Elberta.
 M. E. Gavingan, Arcadia.
 S. C. Glarum, Elberta.
 Carl P. Gregerson, Frankfort.
 John Howard, Arcadia.
 C. Jacobson, Frankfort.
 Mrs. E. L. Johnson, Frankfort.
 C. J. Kinney, Frankfort.
 C. C. Keillor, Arcadia.
 Mrs. M. A. Knapp, Frankfort.
 H. A. Lewis, Frankfort.
 Wm. Little, Elberta.

Chris. Mathieson, Frankfort.
 Peter Mathison, Elberta.
 George M. Moore, Frankfort.
 George Morency, Frankfort.
 R. Mortensen, Arcadia.
 J. E. Nelson, Frankfort.
 E. M. O'Blenis, Thompsonville.
 F. W. Palmer, Frankfort.
 Byron Parker, Frankfort.
 E. J. Parker, Frankfort.
 M. D. Persing, Frankfort.
 W. J. Pettit, Benzonia.
 V. L. Putney, Arcadia.
 Wallace Putney, Arcadia.
 R. B. Reynolds, Bendon.
 Miss C. H. Rogers, Thompsonville.
 Paul Rose, Elberta.
 Joseph Smeltzer, Elberta.
 Wesley Smeltzer, Elberta.
 L. D. Spafford, Lake Ann.
 H. A. Sperry, Frankfort.
 Haven Talbert, Frankfort.
 W. R. Thomas, Frankfort.
 Loyd Valleau, Lake Ann.
 J. W. Van Deman, Benzonia.
 Wm. G. Voorheis, Elberta.
 Sam. Willis, Thompsonville.
 Byron Wolcott, Elberta.
 Seymour Wright, Elberta.
 U. S. Young, Frankfort.

MASON COUNTY HORTICULTURAL SOCIETY.

(Auxiliary to State Society.)

OFFICERS.

C. L. Houk	President.
Wm. Metzler	Vice-President.
R. C. Sabin	Secretary.
M. Fitch	Treasurer.

MEMBERS.

O. E. Hawley, Ludington, R. 3.	Jerome Harmon, Ludington, R. 1.
Wm. Fitch, Ludington, R. 3.	H. D. Stowell, Ludington, R. 1.
C. W. Fitch, Ludington, R. 1.	J. H. Gamertsfelder & Son, Ludington,
R. C. Sabin, Ludington, R. 3.	R. 1.
C. G. Wing, City.	Wm. Wadel, Ludington, R. 1.
Geo. Cribbs, Ludington, R. 3.	R. J. Fitch, Ludington, R. 3.
A. J. Houk, Ludington, R. 1.	John Rinebolt, Ludington, R. 1.
J. H. Withey, Ludington, R. 1.	Fred Peterson, Ludington, R. 3.
Martin Lund, Ludington, R. 3.	Michael Fitch, Ludington, R. 3.
Wm. Metzler, Ludington, R. 3.	Frank Kibbey, Ludington, R. 3.
J. H. Burns, Ludington, R. 1.	Arthur Morton, Ludington, R. 1.
J. H. Fitch, Ludington, R. 1.	Donald Jameson, Ludington, R. 3.
Wm. Kennedy, Ludington, R. 1.	Gilbert Broder, Ludington, R. 3.
Joseph Sellner, Ludington, R. 1.	Fred Beebe, Ludington, R. 1.
W. F. Curratt, Ludington, R. 3.	Henry Meisenheimer, Ludington, R. 3.
J. A. Gamertsfelder, Ludington, R. 1.	Joe. Pallasch, Ludington, R. 1.
Albert Kinney, Ludington, R. 1.	D. H. Morton, Pentwater, P. O., R. 1.
L. L. McClatchie, Ludington, R. 3.	Jas. McDonald, (no paper).
Louis Hawley, Ludington, R. 3.	C. L. Houk, Ludington, R. 3.
D. H. Grout, Ludington, R. 3.	Jesse Houk, Ludington, R. 3.
Smith Hawley, Ludington, R. 3.	A. R. Benjamin, Ludington, R. 3.
L. B. Lyon, Ludington, R. 3.	Joe. Prevost, Ludington, R. 3.
Theo. Ervin, Ludington, R. 3.	V. L. Olmstead, Ludington, R. 3.
Andrew Thompson, Ludington, R. 3.	

IONIA COUNTY HORTICULTURAL SOCIETY.

(Auxiliary to State Society.)

OFFICERS.

President, Claude Dickerson.....	Ionia.
Vice-President, Henry L. Nielson.....	Ionia.
Secretary, Frank E. Hall.....	Ionia.
Treasurer, Herbert F. Kellogg.....	Ionia.

MEMBERS.

Herbert F. Kellogg, Ionia.
 Claude C. Dickerson, Ionia.
 Geo. E. Dickerson, Ionia.
 Perry H. Stebbins, Saranac.
 Chas. C. Luce, Ionia.
 Ray Normington, Ionia.
 Thos. F. Martin, Ionia.
 Luther E. Hall, Ionia.
 Lee P. Spalding, Ionia.
 E. E. Branch, Ionia.
 H. D. Waldron, Ionia.
 F. P. Trowbridge, Ionia.
 Chas. Mattison, Ionia.
 James Little, Shiloh.
 J. B. Welch, Ionia.
 E. D. Weaver, Ionia.
 W. W. Bemis, Ionia.
 B. E. Goodwin, Ionia.
 H. B. Webber, Ionia.
 Chas. Stoddard, Ionia.
 J. R. Densmore, Ionia.
 Wm. Robertson, Ionia.
 Chas. North, Fenwick.
 Arthur Wilson, Ionia.
 James A. McCarty, Ionia.
 Harry S. Knapp, Muir.
 J. J. Eaves, Ionia.
 Samuel Eavey, Ionia.
 H. R. Bluemley, Butternut.

Herbert L. Smith, Shiloh.
 Jens Jensen, Orleans.
 H. L. Nielsen, Ionia.
 John Flater, Ionia.
 C. I. Goodwin, Ionia.
 Frank E. Hall, Ionia.
 Geo. Gott, Ionia.
 Maurice Yeomans, Ionia.
 Ivan J. Brooks, Ionia.
 Geo. Hulleberger, Saranac.
 F. T. Flanagan, Orleans.
 Geo. E. Green, Ionia.
 Fred Vanderheyden, Ionia.
 Clyde Sigourney, Ionia.
 Fred Glostrick, Ionia.
 D. A. McQuaid, Ionia.
 M. J. Allen, Ionia.
 A. G. Smith, Ionia.
 Elmer Peabody, Shiloh.
 Chas. Begerow, Lake Odessa.
 James Dildine, Ionia.
 P. C. Freeman, Lowell.
 E. H. Hunt, Saranac.
 Fred Kendall, Ionia.
 P. M. Slaybaugh, Orleans.
 B. A. Yeomans, Ionia, R. 4.
 George Sage, Ionia.
 Daniel Slowinski, Lake Odessa, R. 39.

NORTHPORT FRUIT GROWERS' ASSOCIATION.

(Auxiliary to State Society.)

OFFICERS.

R. E. Flood.....	President.
Antoine Bartlett.....	Vice-President.
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Mrs. F. H. Hemstreet,	
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Meetings the last Friday in each month.

ALREADY SIGNED FOR THE YEAR.

Abbott, R. E., Bellaire, Mich.	Guile, C. S., Bellaire, Mich.
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Dewey, Wm. J., Bellaire, Mich.	Weiffenbach, Chas., Bellaire, Mich.
Disbrow, N. H., Bellaire, Mich.	Williams, W. G., Bellaire, Mich.
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Kennedy, Wm.	Woodward, Bart.
Kennedy, Thos.	Wilbur, Geo. E.
Mahon, John.	Winters, W. B.
Mills, S. C.	Walker, C. M.
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WASHTENAW HORTICULTURAL SOCIETY.

Organized 1914. Its mission is to encourage among the People a greater love for choice fruit products; to awaken a larger interest in Washtenaw's Horticultural Possibilities, and to offer practical suggestions along modern cultural and marketing methods.

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C. S. Mills.
J. C. Hunt.
A. A. Porter.
A. I. Noteware.

Very truly yours,
PAUL D. KETCHUM, Sec'y.

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*Died May 10, 1914.	C. H. Pulman, Novi.
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H. Miller, Clarkston.	Ernest E. Green, Orchard Lake.
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Geo. P. Way, Detroit.	*Died April 19, 1914.
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 Chas. Knowles, Pontiac.
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 B. A. Holden, Wixom.
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 C. B. Welch Secretary.
 H. G. Welch Treasurer.

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 Welch, H. G., Fennville, R. 2.
 Crane, J. H., Fennville, R. 1.
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 Welch, Arthur, Fennville, R. 2.
 Van Valkenburg, Chas., Fennville, R. 2.
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 Taylor, Grace L., Fennville, R. 2.
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 Hoover, W. M., Fennville, R. 1.
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 Crane, U. S., Fennville, R. 1.
 Kingsbury, E. E., Fennville, R. 3.
 Kitchen, M. W., Fennville, R. 3.
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 Repp, Lewis, Bravo, R. 2.
 Wells, Henry, Bravo, R. 2.
 Wright, Perry, Bravo, R. 2.
 Berry, John, Bravo, R. 2.
 Williamson, C. P., Bravo, R. 2.
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 Wark, Will, South Haven, R. 6.
 Hamlin, W. M., South Haven, R. 2.
 Monger, R. C., South Haven, R. 2.
 Hilbert, Henry, South Haven, R. 2.
 Smith, C. S., South Haven, R. 2.
 Armstrong, W. H., South Haven, R. 2.

SECRETARIES OF STATE HORTICULTURAL SOCIETIES.

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| <p>Alabama—J. C. C. Price, Auburn.
 Arkansas—F. G. Robb, Springdale.
 California—Prof. A. J. Cook, Sacramento.
 Connecticut—H. C. C. Miles, Milford.
 Florida—O. C. Painter, Jacksonville, box 178.
 Georgia—T. H. McHatton, Athens.
 Idaho—Walter Wood, Boise.
 Illinois—A. M. Augustine, Normal.
 Indiana—M. W. Richards, Lafayette.
 Iowa—Wesley Greene, Des Moines.
 Kansas—O. F. Whitney, North Topeka.
 Kentucky—Prof. C. W. Mathews, Lexington.
 Maine—E. L. White, Bewdoinham.
 Maryland—E. H. Cohill, Hancock.
 Massachusetts Horticultural Soc.—William P. Rich, Boston.
 Massachusetts Fruit Growers Ass'n.—F. Howard Brown, Marlboro.
 Minnesota—A. W. Latham, Minneapolis.
 Missouri—H. S. Wayman, Princeton.
 Montana—M. L. Dean, Missoula.
 Nebraska—J. R. Duncan, Lincoln.</p> | <p>New Jersey—Howard G. Taylor, Riverton.
 New York State—E. C. Gilett, Penn Yan.
 New York, Western New York—John Hall, Rochester.
 North Carolina—Prof. W. N. Hutt, Raleigh.
 North Dakota—C. A. Clunberg, Hankinson.
 Ohio—F. H. Ballou, Newark.
 Oregon—C. D. Winton, Portland.
 Peninsula—Wesley Webb, Dover, Del.
 Pennsylvania—J. A. Runk, Huntingdon.
 South Dakota—Prof. N. E. Hansen, Brookings.
 Texas—G. H. Blackmon, College Station.
 Tennessee—R. G. Briggs, Knoxville.
 Utah—W. H. Homer, Pleasant Grove.
 Vermont—M. B. Cummings, Burlington.
 Virginia—William Massey, Winchester.
 Washington—M. Horan, Wanatchee.
 West Virginia—Corleton C. Pierce, Ronney.
 Wisconsin—F. Cranfield, Madison.
 Wyoming—Prof. Aven Nelson, Laramie.</p> |
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LIFE MEMBERS.

Name.	Town.	County.
Adams, H. Dale	Galesburg	Kalamazoo.
Allis, E. W.	Adrian	Lenawee.
Ansley, C. F.	Iowa City	<i>Iowa.</i>
Aveline, J. B.	Montague	Muskegon.
Anderson, R. W.	Clarkston	Oakland.
Bailey, J. H.	Ithaca	<i>New York.</i>
Baker, Klaus	Holland, Rural 11, Box 97	Ottawa.
Baldwin, O. A. D.	Bridgman	Berrien.
Ballard, Ralph	Niles, Route 4	Berrien.
Barden, F. M.	South Haven, Route 6	Van Buren.
Barnhart, Herbert	Fremont, Route 1	Newaygo.
Bartram, Burr	Benton Harbor, Route 4	Berrien.
Bassett, C. E.	Washington, 1342 Parkwood Place N. W.	<i>D. C.</i>
Braman, F. A.	Grand Rapids, Rural 13	Kent.
Beal, J. L.	Addison	Lenawee.
Beckerd, N.	Hesperia, Star Route	Oceana.
Beckman, Geo. H.	Ludington, Rural 3	Mason.
Bennett, Oscar S.	Holland	Ottawa.
Bishop, Dr. H. A.	Millington	Tuscola.
Blain, A. W.	Detroit, Supt. Elmwood Cemetery	Wayne.
Blue, George	Traverse City	Grand Traverse.
Bowker Insecticide Co.	Boston, 43 Chatham St.	<i>Mass.</i>
Bowles, J. H.	Northport	Leelanau.
Brackett, G. B.	Washington	<i>D. C.</i>
Bassett, Walter O.	Paw Paw, Rural 1	Van Buren.
Bristol, W. H.	Almont	Lapeer.
Brown, F. E.	Traverse City	Grand Traverse.
Brown, G. L. A.	Decatur	Van Buren.
Brubaker, C. S.	Hartford	Van Buren.
Brunson, Dr. E. E.	Ganges	Allegan.
Bryant, C. T.	South Haven	Van Buren.
Buckman, R. M.	Sodus	Berrien.
Bullock, A. M.	Lapeer	Lapeer.
Burham, W. P.	Ionia	Ionia.
Burton, Farley J.	Mitchell	<i>Indiana.</i>
Burrows, Geo. L., Jr.	Saginaw City	Saginaw.
Beatty, F. E.	Three Rivers	St. Joseph.
Buskirk, M. D.	Paw Paw	Van Buren.
Bingham, C. A.	Birmingham	Oakland.
Breggor, L. A.	Bangor	Van Buren.
Blake, J. R.	Galesburg	Kalamazoo.
Birney Bros.	Lansing	Ingham.
Badgley, W. D.	Old Mission	Grand Traverse.
Blanding, F. J.	Birmingham	Oakland.
Bristol, W. K.	Almont	Lapeer.
Bentall, Alfred	Old Mission	Grand Traverse.
Brown, E. H.	Benzonza, P. O. Box 211	Benzie.
Bos, A.	Hudsonville, Rural 3	Ottawa.
Bingham, Geo.	Birmingham, Rural 2	Oakland.

Name.	Town.	County.
Bishop, A. B.	Coloma, Rural 3	Berrien.
Breggor, John	Bangor	Van Buren.
Bristol, E. C.	Birmingham, Rural 5	Oakland.
Bazil, Chas. E., Jr	Hawks	Presque Isle.
Brubaker, A. A.	Wequetonsing	Emmet.
Bingham, Samuel	Birmingham, Rural 1	Oakland.
Beebe, A. H.	Birmingham, Rural 1	Oakland.
Bassett, W. A.	Birmingham, Rural 1	Oakland.
Button, D. B.	Farmington, Rural 1	Oakland.
Caie, Robert	Yarmouth	<i>Nova Scotia.</i>
Chamberlain, Glenn R.	Grand Rapids, care of Gas Co.	Kent.
Chandler, L. F.	Romeo	Macomb.
Chapman, Austin B.	South Rockwood	Monroe.
Chatfield, Geo. E.	South Haven	Van Buren.
Cheney, Calvin A.	Maple City	Leclanau.
Church, Wm. E.	Chicago, Title & Trust Bldg.	<i>Illinois.</i>
Coith, Alvin	South Haven	Van Buren.
Collins, G. H.	Hartford	Van Buren.
Cook, A. J.	Claremont	<i>California.</i>
Cook, C. B.	Owosso	Shiawassee.
Cook, W. N.	Grand Rapids	Kent.
Cooper, Madison	Calcium	<i>New York.</i>
Countryman, E. J.	Dixon, 111 Galena Ave.	<i>Illinois.</i>
Crane, John H.	Fennville, Rural 1	Allegan.
Crawford, Robt.	Armada	Macomb.
Curtice, J. E.	Coleman	Midland.
Cribbs, W. C.	Watervliet, Rural 3	Berrien.
Chesbro, C. C.	South Haven, Rural 3	Van Buren.
Campbell, J. P.	Jacksonville	<i>Florida.</i>
Conrad, Seth	Waylands	Allegan.
Clark, Fred K.	Sparta, Rural 19	Kent.
Crane, W. S.	Fennville, Rural 1	Allegan.
Coryell, R. J.	Birmingham	Oakland.
Coryell, Ralph I.	Birmingham	Oakland.
Darlington, Frank	Hesperia	Oceana.
Davidson, C. M. & Co.	Rockwood	<i>Ohio.</i>
Davis, Horace W.	Lapeer	Lapeer.
Davis, W. H.	Perrinton	Gratiot.
Dayton, J. H.	Painesville	<i>Ohio.</i>
Decker, Walter E.	Orleans, Rural 20	Ionia.
Dickerson, Geo. E.	Ionia, Stage Route	Ionia.
Dickerson, F. B.	Detroit	Wayne.
Dieckman, Mrs. Josephine M.	East Saginaw	Saginaw.
Dietrich, M. J.	Arcadia	Ottawa.
Du Mez, John	Holland	Ottawa.
Dutton, Chas. S.	Holland	Ottawa.
Dykeman, J.	East Saginaw	Saginaw.
Day, D. H.	Glen Haven	Leclanau.
Dow, H. H.	Midland	Midland.
Dyttman, Wm. H.	Dryden, Route 2	Oakland.
Damon, C. A.	Fenton	Genesee.
Dickinson, W. W.	St. Joseph	Berrien.
Dukesherer, P. D.	Benton Harbor	Berrien.
Echard, W. C.	Eaton Rapids	Eaton.
Edwards, O. C.	Battle Creek, Sanitorium Store	Calhoun.
Elsworth, R. H.	Traverse City	Grand Traverse.
Ernsberger, R. J.	Watervliet	Berrien.
Ewald, E. W.	Hartford, Rural 3	Van Buren.

Name.	Town.	County.
Emery, Nelsen.....	Benton Harbor, Rural 1.....	Berrien.
Elliott, Eugene.....	Pontiac, 330 Auburn Ave.....	Oakland.
Farley, Fred.....	Almont.....	Lapeer.
Farrand, T. A.....	Eaton Rapids.....	Eaton.
Field, Wm. A.....	South Chicago.....	<i>Illinois.</i>
Fraleigh, J. O.....	Casnovia.....	Muskegon.
France, J. G.....	Marshall.....	Calhoun.
Freeman, Mrs. Agnez.....	Ann Arbor, 419 N. State St.....	Washtenaw.
Freund, Chas.....	St. Joseph.....	Berrien.
Friday, Geo.....	Coloma.....	Berrien.
Friday, Jacob.....	Coloma.....	Berrien.
Frost, Frank H.....	South Haven, Rural 6.....	Van Buren.
Fisher, J. W., Jr.....	Milwaukee, 433 Lake Drive.....	<i>Wisconsin.</i>
Fritze, Geo.....	St. Joseph.....	Berrien.
Flint, W. D.....	Novi.....	Oakland.
Freeman, I. A.....	Fenton.....	Genesee.
Flint, L. B.....	Novi.....	Oakland.
Fosdick, Royal.....	Pontiac, Rural 6.....	Oakland.
Garfield, Chas. W.....	Grand Rapids, Savings Bank.....	Kent.
Gathman, Mrs. Augusta.....	Chicago, 6117 Calumet Ave.....	<i>Illinois.</i>
Gebhardt, Benton.....	Hart.....	Oceana.
Geddes, David.....	Saginaw.....	Saginaw.
Geister, Wm.....	St. Joseph, Rural 2, Box 92.....	Berrien.
Getz, Geo. F.....	Holland, Lakewood Farm.....	Ottawa.
Gephart, H. W.....	Hart.....	Oceana.
Grand Traverse Fruit Co.....	Detroit, 1007 Ford Bldg.....	Wayne.
Grant, John F.....	Chicago, 2710 Indiana Ave.....	<i>Illinois.</i>
Gray, W. B.....	Traverse City.....	Grand Traverse.
Green, S. A.....	Hillsdale.....	Hillsdale.
Greening, Chas. E.....	Monroe.....	Monroe.
Graley, Joseph.....	Pontiac.....	Oakland.
Geister, Jacob.....	Watervliet, Rural 3.....	Berrien.
Gibson, John I.....	Grand Rapids, 447 Wealthy Ave.....	Kent.
Green, Smith.....	Walled Lake, Rural 2.....	Oakland.
Griggs, Perry C.....	Pontiac, Bloomfield Highlands.....	Oakland.
Hale, Chas. F.....	Lowell, Rural 49.....	Kent.
Hall, Louis A.....	Orleans, Rural 1.....	Ionia.
Hall, Alfred R.....	Buchanan, Rural 4.....	Berrien.
Hall, Luther E.....	Ionia.....	Ionia.
Halstead, J. B.....	Farmington.....	Oakland.
Hubegger, Louis.....	Woodburn.....	<i>Indiana.</i>
Hamilton, Frank C.....	Northville.....	Wayne.
Hamlin, J. H.....	Bravo.....	Allegan.
Handy, Fred.....	Sodus.....	Berrien.
Hawley, Geo. F.....	Hart.....	Oceana.
Hawkhurst, W. F.....	Saline.....	Washtenaw.
Haynes, N. B.....	Muir.....	Ionia.
Hayden, Mrs. H. A.....	Jackson.....	Jackson.
Heinze, Edward F.....	St. Joseph.....	Berrien.
Hemstreet, F. H.....	Bellaire.....	Antrim.
Heuser, J. H.....	Chicago, 1262 Monadnock Bldg.....	<i>Illinois.</i>
Hill, R. Carroll.....	Ann Arbor, Rural 9.....	Washtenaw.
Hinebaugh, Wm. H.....	Ottawa.....	<i>Illinois.</i>
Hoffman, Max.....	St. Joseph.....	Berrien.
Hogue, H. H.....	Sodus, Rural 1.....	Berrien.
Hollaway, Geo. F.....	Sawyer.....	Berrien.
Hoopes, Abner.....	West Chester.....	<i>Pennsylvania.</i>

Name.	Town.	County.
Hopkins, A. L.	Bear Lake	Manistee.
Hosner, O. G.	Oxford, Rural 1	Oakland.
Howard, J. H.	Arcadia	Manistee.
Howe, J. C.	Old Mission	Grand Traverse.
Hubbard, Geo. M.	Jenison, Rural 1	Ottawa.
Huey, Harold E.	Shelby, Rural 2	Oceana.
Hughston, J. A.	Traverse City	Grand Traverse.
Hunt, L. C.	Eaton Rapids	Eaton.
Husted, Noah P.	Lowell	Kent.
Hinkins, W. A.	Benton Harbor, Rural 4	Berrien.
Hopf, Geo. F.	Chicago, 1630 Humbolt Blvd.	<i>Illinois.</i>
Hardie Mfg. Co.	Hudson	Lenawee.
Haynes Pump & Planter Co.	Galva	<i>Illinois.</i>
Hartman, W. P.	Grand Rapids, care of G. R. & I. R. R.	Kent.
Hensel, Floyd.	Grand Rapids, Rural 2	Kent.
Henion & Hubbell.	Chicago	<i>Illinois.</i>
Hulst, Mrs. Henry	Grand Rapids, 100 Fountain St. E.	Kent.
Hough, F. W.	Almont, Rural 2	Lapeer.
Howard, N. E.	Farmington, Rural 3	Oakland.
Howard, L. N.	Farmington, Rural 1	Oakland.
Hunter, L. R.	South Lyon	Oakland.
Ilgenfritz, C. A.	Monroe	Monroe.
Jenks, S. G.	Shelby	Oceana.
Johnson, R. L.	Lawrence	Van Buren.
Johnson, Wm.	Vassar	Tuscola.
Jacklin, J. R.	Fremont	Newaygo.
Johnston, J. C.	Kibbie, Rural 2	Van Buren.
Jackson, C. G.	Birmingham	Oakland.
Jakway, J. J.	Benton Harbor	Berrien.
Kales, Dr. John D.	Chicago, Savings Bank Bldg.	<i>Illinois.</i>
Keasey, E. L.	South Haven	Van Buren.
Keith, Bert W.	Winona Lake	<i>Indiana.</i>
Kellogg, Herbert.	Ionia	Ionia.
Kelley Bros.	Dansville	<i>New York.</i>
Kempf, Geo. J.	Tecumseh	Lenawee.
Kennedy, Thos.	Hesperia, Rural 3	Oceana.
Kennedy, Wm.	Hesperia, Rural 3	Oceana.
Keppel, Thos.	Zeeland	Ottawa.
Kettle, Burt	Coopersville	Ottawa.
Kidd, J. H.	Ionia	Ionia.
Kingsley, H. J.	Washington, 1342 Parkwood Place N. W.	<i>D. C.</i>
Klien, F. J.	Farmington, Rural 1	Oakland.
Kniebes, C. C.	Watervliet	Berrien.
Knight & Son.	Sawyer	Berrien.
Krebs, Geo. J.	Northport	Leelanau.
Kelly Bros. Nurseries.	Dansville	<i>New York.</i>
Keeler, B. A.	Lenawee Jet	Lenawee.
Kleins, John	Birmingham, Rural 2	Oakland.
Krake, H. G.	Coloma	Berrien.
Ladd, E. O.	Old Mission	Grand Traverse.
Laseh, A. A.	Suttons Bay, Rural 2	Leelanau.
Lass, Peter H.	Bear Lake	Manistee.
Lawrence, F. E.	Cressey	Barry.
Lawrence, L. L.	Decatur	Van Buren.
Leggett, E. E.	Fennville	Allegan.
Lindsley, Geo. W.	Harbor Springs	Emmet.
Lincoln, L. C.	Greenville	Montcalm.

Name.	Town.	County.
Loomis, P. B.	Jackson	Jackson.
Lord, E. G.	Arcadia, Box 56	Manistee.
Low, Geo. M.	Bangor	Van Buren.
La Duke, L. B.	Lawrence	Van Buren.
Lawrence	Delton	Barry.
Macauly, T. B.	Montreal	Canada.
Magill, R. M.	Chicago, 159 La Salle St.	Illinois.
Maguire, H. W.	Jackson, 115 Deyo St.	Jackson.
Mann, Clyde Allison	Chicago, Rand McNally Bldg.	Illinois.
Mann, S. B.	Glenwood	Florida.
Marshall, Wm. A.	Old Mission	Grand Traverse.
Marshall, W. C.	Chicago, 128 S. Sacramento	Illinois.
Matheson, Frank	Elberta, Rural 1	Benzie.
Mead, A. F.	Battle Creek, Rural 11	Calhoun.
Merritt, H. E.	South Haven, Rural 2	Van Buren.
Merritt, J. E.	Manistee	Manistee.
Messer, G. W.	Almont	Lapeer.
Methven, C. S.	Holland	Ottawa.
Miller, Chas. H.	Glen Arbor	Leelanau.
Miller, Frank A.	Northville	Wayne.
Miller, John T.	Birmingham	Oakland.
Mitchell, Jas.	Almont	Lapeer.
Monroe, C. J.	South Haven	Van Buren.
Monroe, Mrs. Clara O.	South Haven	Van Buren.
Montague, A. K.	Traverse City	Grand Traverse.
Moor, Mrs. Samuel C.	Rapid City	Kalkaska.
Morgan, Samuel M.	Chicago, 1301 Ashland Blvd.	Illinois.
Moorcs, J. H.	Central Lake	Antrim.
Morse, Miss Anna	Old Mission	Grand Traverse.
Mullen, James	Manistee	Manistee.
Murry, James P.	Albion	Calhoun.
Munson, J. Pomeroy	Grand Rapids, Knapp St., N. E.	Kent.
Myham, Geo. H.	South Haven	Van Buren.
Morris, Chas. D.	Ypsilanti, 106 N. Summit St.	Washtenaw.
Miller, J. W.	Fremont	Newaygo.
Mannwaring, E. B.	Ann Arbor	Washtenaw.
Maloney Bros. & Well Co.	Dansville	New York.
Monat, L. J.	New Britain, 61 Grove Hill	Connecticut.
Morehouse, J. B.	Fenton	Genesee.
Meyers, F.	Almo, Rural 13	Kalamazoo.
Munro, J. O.	Novi	Oakland.
McCallum, Niel	Hesperia	Oceana.
McClathie, G. C.	Ludington	Mason.
McCutcheon, R. F.	Big Rapids	Mecosta.
McGuire, J. Fred	Chicago, 101 Washington St.	Illinois.
McHardy, A. J.	Almont	Lapeer.
McDermid, H.	Battle Creek, Rural 11	Calhoun.
McKinney, W. J.	Birmingham	Oakland.
Nall, Louis A.	Williamsburg	Grand Traverse.
Neff, David	Ravenne	Muskegon.
Nielsen, Henry L.	Ionia	Ionia.
Nelson, C. A.	Northport	Leelanau.
Newhall, Benj.	Chicago, 840 Otis Bldg.	Illinois.
Newhall, John	Thompsonville	Benzie.
Nichols, W. W.	Ann Arbor	Washtenaw.
Nicol, Jas.	South Haven	Van Buren.
Nitt, M. C.	Ravenna, Rural 1	Muskegon.
Newberg, Fred	Grand Rapids, Rural 2	Kent.

Name.	Town.	County.
O'Donald, R. H.	Howard City	Montcalm.
Olney, B. J.	Reeman	Newaygo.
Overton, F. J.	Bangor	Van Buren.
Overton, Miller	Bangor	Van Buren.
Palmer, W. S.	Kalkaska	Kalkaska.
Pancost, C. E.	Lansing, Rural 6	Ingham.
Partridge, Newton A.	Chicago, Room 5354 W. Randolph	Illinois.
Pease, F. D.	Sparta	Kent.
Pennell, Ray L.	Traverse City, Box C	Grand Traverse.
Perry, Geo. L.	Mt. Pleasant	Isabella.
Perry, Jacob H.	Goodison	Manistee.
Petersen, J. M.	Manistee	Manistee.
Petersen, Oscar H.	Northport	Leelanau.
Pierce, Geo. W.	Harbor Beach, Box 235	Huron.
Port, Geo. L.	Coloma	Berrien.
Post, L. J.	Lowell	Kent.
Pratt, Chas. A.	Benton Harbor	Berrien.
Pratt, W. M.	Watervliet	Berrien.
Prentiss, Judge Wm.	Bravo	Allegan.
Preston, Wm. F.	Fremont	Newaygo.
Prettyman, O. G.	Scottville	Mason.
Pugsley, M. H.	Paw Paw	Van Buren.
Pickford, I. T.	Honor, Rural 1	Benzie.
Peters, R. C.	Omaha, 4822 Cass St	Nebraska.
Port, Ben. J.	Coloma, Rural 2	Berrien.
Peters, E. H.	Benton Harbor, Rural 3	Berrien.
Partridge, Newton L.	Champaign, 406 E. Healy St	Illinois.
Ramsdell, Dr. L. S.	Manistee	Manistee.
Ranney, D. D.	Leslie	Ingham.
Rasmussen, R. J.	Marlette, Box 416	Sanilac.
Read, G. P.	New York, 119 Duane St	New York.
Reed, P. A.	Beulah	Benzie.
Reynolds, E. H.	Monroe	Monroe.
Reynolds, H. G.	Pasadena, 257 California Ave	California.
Richmond, E. D.	Pentwater	Oceana.
Ricker, Dr. John D.	Pontiac	Oakland.
Robbins, W. H.	Bangor, Rural 4	Van Buren.
Robotham, Jay	Beulah	Benzie.
Rockey, Clyde W.	St. Joseph	Berrien.
Rogers, A. J., Jr.	Beulah	Benzie.
Rogers Bros.	Alpena, Box 452	Alpena.
Rowe, Geo. E.	Grand Rapids, Fountain St., E	Kent.
Ruckmann, H. P.	Hesperia, Star Route	Oceana.
Russell, C. N.	Manistee	Manistee.
Russell, Edwin	Manistee	Manistee.
Russell, J. B.	Wheaton	Illinois.
Reilley, Wm. J. Nurseries	Dansville	New York.
Reed, C. P.	Lansing	Ingham.
Rawson, W. A.	Grand Rapids, 502 Ashton Bldg	Kent.
Samuelson, Norman L.	Chicago, 1753 Warren Ave	Illinois.
Satterlee, James	Lansing	Ingham.
Seales, J. C. & C. R.	Chicago, South Water St	Illinois.
Sehenbeck, Edwin L.	Hesperia, Rural 2	Oceana.
Schreiber, Thor.	Fennville, Rural 2	Allegan.
Scott, Dr. Austin	New Brunswick	New Jersey.
Scott, Mrs. C. W.	Grand Rapids	Kent.
Scott, E. H.	Ann Arbor	Washtenaw.
Scudder, C. B.	Augusta	Kalamazoo.

Name.	Town.	County.
Scissions, Chas. A.	Mears	Oceana.
Scissions, Horace	Shelby	Oceana.
Sheffield, Wm. E. & Co.	Benton Harbor	Berrien.
Shepard, Leon	Grand Rapids, 613 Hawthorn St.	Kent.
Sheridan, John	Hudsonville	Ottawa.
Sherwood, R. H.	Watervliet	Berrien.
Sherk, Ralph	Grand Rapids, 151 Clinton St.	Kent.
Shirley, W. H.	Allegan, Rural 8	Allegan.
Simmons, F. P.	Northville, Rural 1	Wayne.
Sisters of St. Joseph	Kalamazoo, Nazereth Academy	Kalamazoo.
Skinner, Dr. E. P.	Chicago, Chicago Savings Bank	Illinois.
Sly, Miss Addie	Birmingham	Oakland.
Smeltzer, Joseph	Elberta	Benzie.
Smith, D. W.	Detroit, 175 W. Kirby Ave.	Wayne.
Smith, Henry	Grand Rapids, Cor. Monroe and Division	Kent.
Smith, Howard B.	Winona	Ontario.
Snyder, W. E.	Hart	Oceana.
Southack, Fred W.	Hammond, 217 Indiana Ave.	Indiana.
Stahelin, R. J.	St. Joseph	Berrien.
Stearns, J. N.	Kalamazoo	Kalamazoo.
Steele, Julius	St. Joseph	Berrien.
Stecre, B. W.	Carthage	Indiana.
Streator, H. D.	Galesburg	Kalamazoo.
Stroven, Henry	Fremont	Newaygo.
Stuckel, C. C.	Hesperia	Oceana.
Swanson, Edward	Schomberg	Leelanau.
Straight, Geo. W.	Holland	Ottawa.
Sly, Miss Sarah E.	Birmingham	Oakland.
Suhm, Edwin R.	Milwaukee, 772 Kinnickinnie Ave.	Wisconsin.
Sanitary Fermentation Tube & Inst. Co.	Rochester	New York.
Shupert, Harry L.	Alpena	Alpena.
Spencer, A. G.	Kibbie	Allegan.
Satterlee, Mrs. Jas.	Lansing	Ingham.
Tallant, C. W.	Shelby	Oceana.
Taylor, R. L.	Lapeer	Lapeer.
Thayer, Mrs. Celia	Benton Harbor	Berrien.
Thayer, Mrs. Dora	Wooster	Ohio.
Thomas, R. G.	Three Oaks	Berrien.
Thompson, T. G.	Benton Harbor	Berrien.
Thompson, W. D.	Jackson	Jackson.
Tilly, John S.	Watervliet	New York.
Toland, F. J.	Ludington	Mason.
Tracy, Will A.	Washington, Dept. of Agriculture	D. C.
Tyler, Comfort A.	Coldwater	Branch.
The Kentucky Tobacco Product Co.	Louisville	Kentucky.
Thatcher, H. H.	Pontiac, 188 W. Pike St.	Oakland.
The Modoc Co.	Philadelphia, 1040 Drexel Bldg.	Pennsylvania.
Tucker, Carne	Kibbie	Allegan.
Thomas, G. H.	Shelby, Rural 3	Oceana.
The New Way Motor Co.	Lansing	Ingham.
Tibbitts, Karl	Farmington, Rural 1	Oakland.
Taft, Prof. L. R.	East Lansing	Ingham.
Upham, Miss Mary C.	Old Mission, Rural 1	Grand Traverse.
Van Nordsell, Fred	Three Rivers	St. Joseph.
Vaughan, Leonard H.	Chicago, 31 W. Randolph St.	Illinois.

Name.	Town.	County.
Von Herff, Baron	Chicago, 1901 McCormick Bldg	<i>Illinois.</i>
Vaught, L. O.	Jacksonville	<i>Illinois.</i>
Ver Duyn, E. J.	Novi	Oakland.
Vick, E. C.	New York, The Sun Garden Dept.	<i>New York.</i>
Wagner, G. M. H. & Sons	Chicago	<i>Illinois.</i>
Wait, Walter J.	Sturgis	St. Joseph.
Walton, L. B.	Attica	Lapeer.
Walton, T. B.	Chicago, 1426 Republic Bldg	<i>Illinois.</i>
Warren, W. H. & Son	Ravenna	Muskegon.
Watkins, L. Whitney	Manchester	Washtenaw.
Watkins, L. D.	Manchester	Washtenaw.
Webber, Miss Francis E.	East Saginaw	Saginaw.
Welch, Chas. B.	Fennville	Allegan.
Wells, Frank D.	Rochester, Rural 3	Oakland.
Western, John	Rapid City	Kalkaska.
Wheeler, D. F.	Ionia	Ionia.
White, O. K.	East Lansing	Ingham.
Whitney, Granger	Williamsburg	Grand Traverse
Whitten, C. E.	Bridgeman	Berrien.
Whitworth, Arthur J.	Grand Rapids	Kent.
Weir, Antoine	Monroe	Monroe.
Wilde, Chas.	Grand Rapids, Rural 2	Kent.
Wilde, Thomas	Coopersville	Ottawa.
Wilder, L. E.	Grand Rapids, Rural 2	Kent.
Wilken, Frank A.	Detroit, care of Michigan Farmer	Wayne.
Willobebe, A. M.	Old Mission	Grand Traverse
Wilson, Archie	Beulah	Benzie.
Wilson, F. W.	Wilmington, care of Du Pont Powder Co.	<i>Delaware.</i>
Wilson, J. B.	Coloma, Rosedale Farm	Berrien.
Wilson, Wm.	Beulah	Benzie.
Witner, A. B.	Brown City	Sanilac.
Witner, John	Brown City	Sanilac.
Wooding, Chas. F.	Lowell	Kent.
Woodruff, A. N.	Watervliet	Berrien.
Woodward, David	Clinton	Lenawee.
Wundt, K. R.	Atlanta, 803 Peachtree St.	<i>Georgia.</i>
Way, Geo. P.	Pontiac, Rural 3	Oakland.
Wentworth, H. A.	Boston, 60 India St.	<i>Massachusetts.</i>
Wilcox, V. O.	Benton Harbor, Rural 1	Berrien.
Woodman, Jason	Paw Paw	Van Buren.
Webb, Walter	Ravenna, Rural 1	Muskegon.
Warnock, R.	Independence	<i>Missouri.</i>
Warner, F. E.	South Haven, Rural 5	Van Buren.
Whitten, Mrs. C. E.	Bridgman, Rural 1	Berrien.
Walton, Percy E.	Pontiac, Rural 6	Oakland.
Welch, E. A.	Walled Lake, Rural 1	Oakland.
Wenzel, Reinhold	Coloma	Berrien.
Young, A. M.	Shelbyville	Allegan.
Yoder, Leon J.	Almont, Superior Fruit Farm	Lapeer.
Yaple, Luther B.	Chillicothe, Avonlon Farm	<i>Ohio.</i>
Zeiger, J. C.	Saginaw City	Saginaw.

1915 ANNUAL MEMBERSHIP LIST.

Name.	Town.	County.
Armstrong, W. H.	South Haven, Rural 2.	Van Buren.
Averill, E. R.	Hart.	Oceana.
Atwater, E. H.	Ganges.	Allegan.
Aiken, Edw. D.	Grand Haven, Rural 1.	Ottawa.
Burridge, L. T.	Benton Harbor, Pleasant St.	Berrien.
Blandford, H. B.	Fremont.	Newaygo.
Babcock, L. E.	Battle Creek, Rural 37, Box 65.	Calhoun.
Borhnet, Fred.	Kalamazoo, Rural 9.	Kalamazoo.
Burbank, Dr. C. H.	Niles.	Berrien.
Braman, O. W.	Grand Rapids, Rural 4.	Kent.
Buskirk, J. D.	Shelby.	Oceana.
Burham, Geo. W.	Detroit, 45 Clairmount Ave.	Wayne.
Bixby, M. H.	South Haven, 752 Wilson St.	Van Buren.
Brown, Mark H.	Belding.	Ionia.
Bekken, Henry.	Fennville, Rural 2.	Allegan.
Bagley, J. J.	Old Mission, Rural 1.	Grand Traverse.
Beelen, G.	Holland, Rural 4.	Ottawa.
Bressett, Frank.	Custer, Rural 2.	Mason.
Bacon, F. H.	Grand Rapids, Rural 4.	Kent.
Bull, John.	Bailey, Rural 1.	Muskegon.
Brinkman, O. S.	Old Mission, Rural 1.	Grand Traverse.
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Converse, W. H.	Augusta, Rural 22.	Kalamazoo.
Callaghan, M. M.	Reed City.	Oceola.
Campbell, E. A.	Kalamazoo, Rural 11.	Kalamazoo.
Campbell, C. E.	Kalamazoo, Rural 11.	Kalamazoo.
Cowan, S. J.	Rockford, Rural 28.	Kalamazoo.
Camp, G. L.	Midland, Box 431.	Midland.
Crane, H. B.	Fennville, Rural 1.	Allegan.
Collins, W. E.	Fennville.	Allegan.
Castenhoz, R.	Muskegon.	Muskegon.
Conger, Louis H.	Muskegon.	Muskegon.
Calkins, E. E.	Ann Arbor, 324 State St.	Washtenaw.
Carnahan, Frank.	Adrian, Rural 3.	Lenawee.
Culligan, E. J.	Nunica.	Kent.
Case, Casper.	Birmingham.	Oakland.
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Davis, Eugene.	Grand Rapids, 54 Brown St.	Kent.
Dickinson, Wm.	St. Joseph, Rural 2.	Berrien.
Devereaux, Clark.	Fenton.	Genesee.
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Eckley, E. H.	Romeo, Rural 4.	Macomb.
Field, H. George.	Birmingham.	Oakland.
Fischer, W. H.	Wheaton, 113 Center St.	Illinois.
Flint, L. B.	Novi.	Oakland.
Griffin, G. W.	South Haven, Rural 2.	Van Buren.
George, Elmer.	Hopkins, Rural 2.	Allegan.
Gunson, Thomas.	East Lansing, M. A. C.	Ingham.
Garber, Otto R.	Essexville.	
Gren, Ross N.	Vicksburg.	Kalamazoo.
Gray, H. A.	Fennville, Rural 2.	Allegan.
Gooding, T. L.	Fennville.	Allegan.
Gibson, Roy.	South Haven, 937 Phoenix St.	Van Buren.

Name.	Town.	County.
Graham, R. E.	Grand Rapids, 329 Bridge St.	Kent.
Gascoigne, M. H.	New Baltimore, Rural 1.	Macomb.
Green, H. W.	Walled Lake, Rural 2.	Oakland.
Gaspie, P. B.	Millersburg.	Presque Isle.
House, Edwin H.	Saugatuck, River Side Farm.	Allegan.
Handy, Chas.	Sodus.	Berrien.
Hersey, F. D.	Casnovia.	Muskegon.
Hutchins, M. C.	Fennville.	Allegan.
Hawley, H. E.	South Haven, Rural 2.	Van Buren.
Hunt, J. Cecil.	South Haven, Rural 1.	Van Buren.
Hosking, James, Jr.	South Haven, Rural 1.	Van Buren.
Hall, Frank E.	Ionia.	Ionia.
Hutchins, Mrs. Ed.	Fennville.	Allegan.
Hartman, Miss B. I.	Fennville, Rural 2.	Allegan.
Heuser, Mrs. J. H.	Chicago, 1263 Monardnock Bldg.	Illinois.
Hurst, H. P.	Grand Rapids, 231 N. College Ave.	Kent.
Henry, H. P.	Grand Rapids.	Kent.
Halligan, C. P.	East Lansing, M. A. C.	Ingham.
Hill, Irving.	Owosso, Rural 6.	Shiawassee.
Humphry, J. E.	Casnovia.	Muskegon.
Hayes, A. C.	Muir.	Ionia.
Hemingway, Geo. R.	Oak Park, 121 Marion St.	Illinois.
Holmwood, Leonard.	Milford, Rural 2.	Oakland.
Ingerson, H. G.	Washington, Agricultural Dept.	D. C.
Judkins, John V. B.	Grand Junction, Rural 2.	Allegan.
Jacobs, G. E.	Sparta, Rural 18.	Kent.
Jackson, H. A.	Shelbyville, Rural 1.	Allegan.
James, C. M.	Lowell, Rural 46.	Kent.
Kerry, Dr. F. M.	Benton Harbor.	Berrien.
Ketcham, B. D.	South Haven, Rural 2.	Van Buren.
Kirby, C. J.	Monroe, 914 E. Front St.	Monroe.
Kelly, Joseph L.	South Haven, Rural 3.	Van Buren.
Kendall, Fred E.	Ionia, Palo Stage.	Ionia.
Kendrick, C. S.	Blissfield.	Lenawee.
Kober, Karl.	Conklin, Rural 2.	Ottawa.
Lymburner, H. A.	Sparta, Rural 3.	Kent.
Lilly, L. A.	Grand Rapids, Mich. Trust Bldg.	Kent.
LaBar, Geo.	Bravo.	Allegan.
Leland, E. P.	Fennville, Rural 1.	Allegan.
Loeffler, C. W.	Cedar, Rural 2.	Leelanau.
Leising, C. D.	South Haven, Rural 3.	Van Buren.
Lincoln, E. W.	Greenville, Rural 1.	Montcalm.
McMurtry, W. T.	Wayne.	Wayne.
Morgan, Dr. W. P.	Saginaw, West Side.	Saginaw.
Meyers Weil & Co.	Cleveland.	Ohio.
Morrill, Roland.	Benton Harbor.	Berrien.
Marvin, O. F.	Holton.	Muskegon.
Moore, Geo. M.	Frankfort, State Savings Bank.	Benzie.
Morgan, T. B.	Traverse City.	Grand Traverse.
Massa, James A.	Northport.	Leelanau.
Meyers, H. J.	Camben, Rural 36.	Hillsdale.
Martindale, C. W.	Grand Rapids, 327 Michigan St.	Kent.
Mawby, R. G.	Grand Rapids, Rural 9.	Kent.
McConnell, W. R.	Lowell.	Kent.
McNitt, S. S.	Ravenna, Rural 1.	Muskegon.
McKinney, S. E.	Birmingham.	Oakland.
Noteware, C. R.	South Haven, 802 St. Joseph St.	Van Buren.
Nummer, O. A.	Belding, Rural 18.	Ionia.

Name.	Town.	County.
Nash, C. L.	Muskegon, 183 5th St.	Muskegon.
Newton, H. S.	Hart.	Oceana.
Nummer, Lee	Belding.	Ionia.
Nafziger, Herbert.	Benton Harbor.	Berrien.
Owen, Edgar E.	Chicago, 137 N. Lutus Ave.	<i>Illinois.</i>
Owens, Geo. W.	Benton Harbor.	Berrien.
Osborn, F. W.	South Haven, Rural 4.	Van Buren.
Pierce, R. T.	South Haven.	Van Buren.
Pliter, W. C.	Clio, Rural 1.	Genesee.
Pierce, J. A.	Grand Rapids, Rural 1.	Kent.
Perkins, H. D.	Grand Rapids, Rural 4.	Kent.
Powell, W. C.	Chicago, 4949 Lake Park Blvd.	<i>Illinois.</i>
Phillips, E. A.	Fenton.	Genesee.
Patterson, C. E.	Baldwin.	Lake.
Ringle, Dr. L.	Benton Harbor, Rural 4.	Berrien.
Rottier, John M.	Fremont, Rural 2.	Newaygo.
Rasmussen, Geo. M.	Marlette.	Sanilac.
Reynolds, Mrs. E. C.	Kalamazoo, 713 W. Vine St.	Kalamazoo.
Roderick, Edward.	White Pigeon.	St. Joseph.
Robinette, E. P.	Grand Rapids, Rural 4.	Kent.
Rockwell, K. P.	Pontiac.	Oakland.
Ranek, S. H.	Grand Rapids, Public Library.	Kent.
Rood, F. E.	South Haven.	Van Buren.
Reene, E. P.	Custer, Rural 2.	Mason.
Richards, C.	Grand Rapids, Rural 9.	Kent.
Stone, A. G.	Niles.	Berrien.
Spielman Bros.	Adrian.	Lenawee.
Schwarberow, Lew.	South Haven, Rural 14.	Van Buren.
Schaefer, Henry.	Sparta, Rural 18.	Kent.
Smith, W. S.	Muir.	Ionia.
Starr, Geo. E.	Grass Lake.	Jackson.
Sereomb, H. H.	South Haven.	Van Buren.
Straight, Herbert D.	Holland, Rural 11.	Ottawa.
Schneider, John.	Ann Arbor, 1200 Main St.	Washtenaw.
Shakelton, Geo.	Grand Rapids, Rural 1.	Kent.
Stibbs, H. H.	Grand Rapids, 143 Fitzhugh Ave.	Kent.
Stoddard, J. H.	Kalamazoo, 1311 W. North St.	Kalamazoo.
Spooner, H. L.	Grand Rapids, Rural 3.	Kent.
Stickney, C. F.	Traverse City, Rural 1.	Grand Traverse.
Tucker, Amos.	Kibbie.	Van Buren.
True, Ernest.	Hopkins, Rural 1, Box 19.	Allegan.
Taylor, C. C.	Louisville, care of Kentucky Tobacco Product Co.	<i>Kentucky.</i>
Taft, H. A.	South Haven, Rural 1.	Van Buren.
Toot, Charles.	Grand Rapids, Rural 9.	Kent.
Van Tassel, Ed.	Pontiac, Rural 3.	Oakland.
Van Zee, Cornelius.	Kalamazoo, Rural 10.	Kalamazoo.
Van Erst, G.	Grand Rapids, Rural 9.	Kent.
Ward, F. L.	Pontiac.	Oakland.
Wallis, B. C.	Cleveland, 1937 Willey Ave.	<i>Ohio.</i>
Welch, Mrs. C. B.	Fennville.	Allegan.
Wade & Wade.	Fennville.	Allegan.
Wolcott, Byron.	Elberta.	Benzie.
Woodworth, O. D.	Grand Rapids, Rural 5.	Kent.
Warren, E. J.	Detroit, 1005 Majestic Bldg.	Wayne.
Warren, J. L.	Empire.	Leelanau.
Woodhouse, W. H.	Pontiac, Rural 3.	Oakland.

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