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# Pennsylvania State Horticultural Association News

Vol. V

STATE COLLEGE, PA., MARCH, 1928

No. 1

185

## Proceedings of the State Horticultural Association of Pennsylvania for 1928



SIXTY-NINTH ANNUAL MEETING  
HELD IN HARRISBURG  
JANUARY 18 - 19, 1928

# **Pennsylvania State Horticultural Association News**

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## **Proceedings of the State Horticultural Association of Pennsylvania for 1928**



**SIXTY-NINTH ANNUAL MEETING  
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JANUARY 18 - 19, 1928**

# State Horticultural Association of Pennsylvania

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SECRETARY . . . . . S. W. FLETCHER, State College  
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Boyertown.

FREIGHT RATE REVISION—(In cooperation with the State Horti-  
cultural Societies of Virginia, West Virginia, and Maryland) R. T.  
CRISWELL, Chambersburg.

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## CONSTITUTION AND BY-LAWS

(as amended January, 1928)

### Constitution.

**Article 1. Name.** The name of this organization shall be the State Horticultural Association of Pennsylvania.

**Article 2. Object.** Its object shall be the promotion of horticulture in the State of Pennsylvania.

**Article 3. Membership.** The annual membership fee shall be \$3.00. Present life members shall retain their privileges, but no new life members shall be received.

Members of county or local Horticultural Societies shall have membership in the State Horticultural Association under the following conditions:

(1) The county or local Society shall have at least fifteen paid up members and shall hold at least three meetings a year.

(2) The Secretary of the county or local Society shall remit to the Secretary of the State Horticultural Association two dollars for each member, before February 1 of each year, which shall be their dues in the State Horticultural Association for that year.

(3) The Secretary of the county or local Society shall transmit to the Secretary of the State Horticultural Association before February 1 of each year a list of its officers and members, together with a brief report of its work for the preceding year, particularly of those matters that would be of interest to the horticulturists of the state.

(4) The State Horticultural Association shall publish these reports in its Proceedings, which shall be distributed to the members of the county or local societies that have complied with these provisions.

**Article 4: Officers.** The officers of the Association shall consist of a President, Vice-President, Secretary, and Treasurer, all of whom shall be elected by ballot at each annual meeting; also an Executive Committee of seven members, four of whom shall be the elective officers. The Executive Committee shall have the general management of the affairs of the Association when it is not in session.

**Article 5. Quorum.** Twenty-five members of the Association and four members of the Executive Committee shall constitute a quorum for the transaction of business.

**Article 6.;Annual Meeting.** The Constitution and By-Laws may be amended by a two-thirds vote of the members present at any annual meeting, provided such amendment shall have been signed by ten members and presented to the Secretary in writing at least ninety days prior to the time of holding the annual meeting, and mailed by the Secretary to each member at least thirty days prior to the annual meeting.

### BY-LAWS

1. No member shall be eligible to the office of President for more than two consecutive years.

2. The Treasurer shall disburse the moneys of the Association only after the bills have been approved by the President and the Secretary. He shall execute a guarantee bond for such amount as the Executive Committee may determine, the premium to be paid by the Association.

3. The President, by and with the approval of the Executive Committee, shall appoint the following standing committees, each of three members: legislation, membership, fruit, exhibitions, advertising, and such other standing committees as the Executive Committee may deem desirable.

4. The President, by and with the approval of the Executive Committee, shall appoint a nominating committee, a resolutions committee and an auditing committee, each of three members.

5. The rules of the American Pomological Society shall apply in exhibits and nomenclature.

## WEDNESDAY MORNING

JANUARY 18, 1928

The First Session of the Annual Meeting of the State Horticultural Association of Pennsylvania convened in the auditorium of the South Office Building, Harrisburg, Pa., the President, Mr. Sheldon W. Funk, presiding.

### PRESIDENT'S ADDRESS

It gives me a great deal of pleasure to welcome the members of the State Horticultural Association to our 69th annual meeting. I hope that you will take an active part in all of the discussions so that when the time for adjournment comes we can all go back to our homes and to our orchards with information and knowledge that will help us to make 1928 just a little better than 1927.

I cannot help but contrast the difference between our position today and that of the same day in 1927. A year ago today we had in this country possibly the largest apple crop that has ever been produced. Our last year's program was taken up almost entirely with problems of advertising and marketing, and many growers experienced difficulty in selling their crops. We do not have enough apples to supply the demand now. Today we are getting about as much for a bushel of apples as we last year received for a barrel. Today we are not so much interested in marketing or advertising, but must again turn to production problems so that in 1928 we can produce more apples to supply the new markets that were created in 1927.

This is a good time to try to figure out what we have before us for 1928. Nineteen twenty-seven has shown us very clearly that the people of this country will pay a good price for apples. Some of us, I am afraid, were rather dubious about that point last year. We rather felt that things had gotten to the point where people would never again be willing to pay three dollars for a bushel of apples, but 1927 has proven that if we give the people good apples, we can expect a good price, providing we do not give them too many apples.

**Bushel Basket Gaining Favor.** The most interesting development of the past year to me has been the way in which the bushel basket has come into favor. Not over three years ago, in Philadelphia, the buyers would pay more for one barrel of apples than they would for three bushel baskets. I think 1927 has proven very conclusively that the proper package for the eastern grower is the bushel basket.

Another thing that has pleased me, possibly in a selfish way, is the small difference between the price of a box of

western apples and a bushel basket of eastern apples on the market today. Not more than two weeks ago I went through the principal market district of Philadelphia and priced Western boxes, box after box, and it was impossible to find more than fifty cents difference between the best box and the best bushel basket. I remember when it was not at all uncommon for a western box to bring a dollar and a half more than a bushel basket. I went into the place of one man who ordinarily has half of his store filled with western boxes. In place of those this year I found bushel baskets. I said, "Why is it that your trade is demanding bushel baskets?" He said, "I don't know; but I do know that I do not have the call for the box." He was getting three dollars for apples in baskets that were not nearly as good as boxed apples for which he was getting \$3.25.

**Over-production.** Nineteen twenty-six taught us very clearly the possibilities of over-production. A good many men feel that it is not over-production but under-consumption. I do not feel that this is the case. I believe that there are more apples eaten today than there were a few years ago, but I would like to call this fact to your attention. During the last few years we have gotten rid of our greatest consumer of apples—waste and decay. A very large percentage of the apples that ten years ago rotted in the bins and in the cellars today are going into consumption. Our conservation has increased more rapidly than has our population. We are saving much more of the crop and that, to me, indicates that the problem is not under-consumption but over-production.

Some men may say that our carlot receipts are not very much larger than they have been. A great majority of the apples formerly hauled into market by trainload, are now going to markets by truck and are never accounted for. They go into consumption just the same. Practically every consuming center in this country is now surrounded by an apple producing district. The number of carloads that is being moved does not fairly represent the number of apples that are going to the market.

The discouragement that a good many men felt because of last year's crop had its effect on the membership of this Association and the Secretary had considerable difficulty in getting sufficient funds to print the proceedings; that is the principal reason why you received your copy of the proceedings at a late date. We should have at this meeting the very best speakers that it is possible to get, but it takes money to bring in outside men. I wish you would try to think out some plan whereby we can increase our finances so that we can spend more money on the meetings.

**Summer Tour.** The summer tour was quite successful. We started with the Cooperative Association at West Chester

going from there to the DuPont Gardens at Longwood. We then stopped at the Experiment Station at Newark, Delaware, where we were in the hands of Director McCue; this part of the program was very interesting indeed. The next day we covered practically the entire state of Delaware, visiting a number of the largest orchards. The next night was spent in Ocean City, Md. The weather was extremely warm and it was a relief to get to the seashore and to enjoy the cooling breezes of the ocean. The next morning we were very hospitably entertained by the Harrison Nursery Company at Berlin, Md. In the afternoon some of the members left the tour at Berlin and the remainder went to Salisbury, Md., where they were entertained by W. F. Allen Co., possibly the largest strawberry plant growers in the East. From there a great many of the members went on to Annapolis and to Washington. It was a very successful tour.

#### SECRETARY'S REPORT

**R. E. Atkinson.** The proceedings were very much curtailed this year as we were handicapped by lack of funds. We didn't have sufficient memberships, consequently we shaved everything as closely as we possibly could; all the business proceedings of last year's meeting were cut out. I still have those in typewritten form if anybody wants access to them.

You will notice that the list of county and other affiliated horticultural societies was not printed in the proceedings, as formerly. That was also a means of cutting down expense. We had over 700 copies printed where formerly we had a thousand. There are a few still in my possession but I have applications for more than I have.

If the Association wants service it must respond with memberships. Almost half of our income is cut off by that one dollar left in the hands of the county associations and a very large proportion of the membership is made up of membership in the county associations, which means only one dollar per member to this Association. Compared with our position the New Jersey State Horticultural Society gets an annual appropriation of \$4500. It has, in addition, a full two-dollar membership fee. We are considerably handicapped in comparison.

Last year representatives of our Association were successful in having incorporated into a bill before the Legislature an appropriation of \$1,000 for the use of our Association, but the Governor struck that out. The matter of having our proceedings printed by the state printer was discussed at last year's meeting, but was rejected on the ground that if this were done the proceedings would be free to any one in the state. Consequently, our membership wouldn't count for very

much and we would again be left without funds. So the decision was to leave it as a closed publication sent only to members of the Association.

If we don't have memberships we don't have money to run the Association. If a man can't get two dollars out of this meeting or out of the proceedings, they aren't worth anything. I want you to cooperate with the new secretary and see that we get the money in. If you get the money the Secretary will deliver the goods.

**Mr. Shantz:** What additional service is New Jersey giving to the growers that it is worth a membership of two dollars and a heavy state appropriation?

**President Funk:** If we publish the proceedings in full, as we have been doing heretofore, and spend \$200 or \$250 on our program, it will require about \$1,000. At one time we had almost a thousand members. Today we have about seven hundred. The majority of the members of this Association are county society members, so that we are getting only a dollar from most of our members. With 700 members we get only a little over \$700, because we have between sixty and seventy life members.

**Mr. Shantz:** Why is it that the New Jersey Association is so valuable that they get an appropriation from their Legislature and we do not?

**President Funk:** That is largely a matter of politics. I don't think there is any chance in the world to get an appropriation. We have about twenty other state agricultural organizations and if the Legislature would appropriate any money to this Association, the other organizations would want an appropriation too. We may just as well forget about state aid; we have got to do it ourselves.

**S. H. Wertz:**—How important are the proceedings compared with putting on a better program? Why insist on publishing in good form everything that has gone on instead of making the next meeting a better meeting?

**Mr. Shoener:** I agree with this man. They are a year old before we get them. If a small pamphlet of the important facts could be distributed, I think that would be sufficient.

**President Funk:** There are a good many members of the Association who value the proceedings highly, but we want to have an expression of the sentiment of the Association.

**J. A. Runk:** The addresses are often more than our minds can absorb briefly and we like to have an opportunity to refer to them later. Moreover, our libraries and societies in the other states value these reports highly; we have lots of calls for them. I think it would be a reflection on this Society to do otherwise than to print the proceedings.

**J. A. Boak:** I am a representative from the Lawrence County Society of almost thirty members. Those thirty members read the report, but I am the only one that will get to hear the addresses of this meeting. Personally, I would like to have had more money put on this program, but the other 29 would not get any of the benefit of it. I doubt very much the wisdom of curtailing our proceedings in any respect. Many people will read it that wouldn't be able to attend the meetings.

### **ECONOMIC MANAGEMENT OF A LARGE APPLE ORCHARD**

**E. A. NICODEMUS, Waynesboro**

For the greatest economy in orchard operation it is important to start right. In selecting a location I would be very careful of the air drainage, avoiding air pockets, as there is very much more danger of frost injury in the low places and fungus diseases are much more difficult to control. I have also noticed that in a season with lots of rain the fruit will take on a much brighter finish in orchards that have good air drainage. It is not necessary, however, to plant an orchard on the side of a steep mountain to grow fruit. Very hilly orchards are expensive to operate. I would like my orchard to be a little higher than the surrounding country, or at least have drainage in one direction, and I would prefer an eastern exposure.

**Planting Problems.** I would plant the trees 20 by 40. I know that good authorities advise 40 by 40 and there are some very good arguments in favor of this method. If planted 20 by 40 you can spray them the first five years just about as cheaply as if they were planted 40 by 40 and you have the same opportunity to grow a crop between the rows. Between the ages of 10 and 15, you will get twice the yield of fruit per acre, with very little more expense. If your trees have made a fair growth, at the age of 15 or thereabouts you will be called upon to summon all your courage and begin cutting out your fillers. I would never allow the branches of one tree to touch the tree standing next to it and by cutting the fillers fan-shaped, you might keep them until the age of twenty; but at that age your trees should stand 40 by 40. In fact, unless you possess quite a little courage and will power perhaps you had better plant your trees 40 by 40 anyhow.

Another very important thing to be considered is pollination. The self-sterile varieties such as Stayman, should never be planted in large blocks. A good pollenizing variety should be planted about every fourth row.

In my opinion the most important operations in fruit growing are spraying, pruning, fertilization and thinning. I

believe it is pretty nearly a settled fact that the delayed dormant, the pink, the petal-fall the two weeks and the five weeks sprays will do the trick. A summer spray may be necessary if you have certain conditions, but I think I would omit the poison in the summer spray as it has been pretty well proven that the codling moth can be controlled by the two and five weeks sprays if a thorough job is done. I would never omit the pink spray on varieties that are susceptible to scab; and in a wet season that is favorable to scab development, I would give all the varieties the pink application.

In some sections quite a number of growers are adopting the stationary spray plants and find them very satisfactory, but I have always felt that the cost of installation is too great to be economical, except in very steep orchards. We find that we can spray 75 to 100 acres of bearing orchard with one sprayer.

**Pruning.** During the first ten years of the life of an apple tree, prune little, but shape the tree and keep the limbs out of the center. As the tree becomes older pruning is one of the biggest jobs of orchard operation, but fortunately you have all winter to do it. Our method has been to climb all over the tree and thin out the small branches wherever they become thick and keep out sunlight. My idea of a properly pruned apple tree is one that will permit sunlight to reach every apple on the tree. By judicious use of the pruning shears you can greatly reduce the amount of work required for thinning; and by preventing the setting of an over-abundance of fruit spurs you can, to some extent, encourage annual bearing.

Proper pruning of a tree greatly simplifies spraying. It is almost impossible to thoroughly spray a tree that you cannot see through. Head back the long limbs, especially on such varieties as Stayman that break very easily; keep the weight from getting too far from the center of the tree. I also feel that when trees get so high that you cannot reach the apples from a twenty-foot ladder, it is best to head them back, both from the standpoint of economy in picking the fruit as well as doing effective spraying.

We have found the past year or two that we have the most defective apples in the tops of our trees, where we should have our best fruit, due apparently to the fact that we have not been getting enough spray to the tops. We are planning to lower our tops and raise our spray guns.

Disposing of the brush is quite a problem after the pruning of an old orchard. Our method of doing this is to make a sheet iron box the size of a large wagon bed and mount it on a low truck. The brush is thrown into this box where it will burn as fast as two men can gather it. In an old orchard

where the trees are not far apart it should be done before the leaves come out as there is danger of burning them.

**Fertilization.** This is a problem that each has to solve for himself to get the best results. Young trees on strong land do not require much stimulation, but on thin, sandy soil nitrogen is essential. In my opinion a bearing tree should make an annual growth of eight to twelve inches and I would use enough nitrate to produce that amount of growth. I would rather have a tree a little undernourished than overnourished. A tree that has had too much nitrogen will not produce well finished fruit. The fruit is sure to be dull in color, soft in texture and will not keep in storage. We apply our nitrate by hand, using four to six pounds per tree on trees past twenty years old, keeping away from the trunk eight feet and going three or four feet beyond the spread of the branches. We have trees on rich soil, fifteen year old, that have never had any fertilizer and that are making more growth than trees on thin land that have been regularly fertilized.

**Thinning.** The past few years this is becoming more generally recognized as one of the important operations, especially as the trees grow older and are inclined to set more fruit than they can properly mature. While some of the European markets are still paying good prices for small apples, I think we will always have plenty of small apples to supply these markets even though we thin to six inches. Apples will usually take on more color if they are thinned. It gives you an opportunity to get rid of your defective fruit and at picking time you are pretty sure to have just as many bushels of larger and more perfect apples than you would if you did not do any thinning. Thinning also greatly facilitates spraying as it is much easier to thoroughly spray a tree of apples that is properly spaced than one where the apples are hanging one against another. Thinning should be done as soon as possible after the apples have set, and no doubt many of us prolong the operation too long. It does require quite a lot of work and it is pretty hard to do it in a few weeks. I think thinning is more important for the dessert apples, such as Grimes, Stayman and Delicious that are marketed mostly in this country, than for varieties that are mostly exported, such as Yorks, Winesaps and Bens.

**Mr. Shoener:** I was always afraid to burn brush in the orchard but you say it can be burned without injury if burned in the winter?

**Mr. Nicodemus:** Our trees are planted 20 by 40. Some places they are getting pretty close. In the winter time the brush doesn't burn so fast and it doesn't make so much heat. We have never had any injury from winter burning. As soon as the leaves come out we have to stop.

**Mr. Vogel.** Has anybody ever tried the Bell Brush Picker or used it?

**President Funk:** I have been using it for a number of years and it is very satisfactory.

**Mr. Vogel:** What kind of a tractor are you using on it?

**President Funk:** A Fordson.

**Mr. Nicodemus:** How far can you push it?

**President Funk:** Quite a distance.

**Mr. Vogel:** The reason I ask is that I was in touch with the Bell Company in New Jersey to get a brush picker for the Celtrac and they did not recommend it for the Cletrac. I can't use a Fordson in my orchards and I was just wondering if there is anybody who could tell me how to connect that brush picker with the Cletrac tractor.

**Mr. Louck:** Do you like the sod or cultivated orchard?

**Mr. Nicodemus:** Our orchards are practically all blue grass sod. That is, after they get ten to fifteen years old.

**Question:** In thinning fruit, how early can you begin and how long can you continue?

**Mr. Nicodemus:** I should start as soon as the fruit has set, usually some time in June, and aim to finish by the middle of July, at latest.

**Mr. Musselman:** What do you do about mice?

**Mr. Nicodemus:** Some years that is quite a problem. We pasture some of our orchards, turning stock in after the apples are harvested. That is not always practical, however. We poison a lot of mice. The formula we use is one and one-eighth ounces of strychnine, a cup of glycerine, a cup of baking soda and one cup of starch. Prepare the starch as for washing. Take a cup of starch and pour a gallon of boiling water over it and then dissolve the strychnine in the water with the soda, pour in the glycerine, shake it well and then pour over a bushel of wheat. This is the formula that the Virginia Experiment Station recommends and we like it better than anything we have used.

**Mr. Hayes:** I have some Greening trees 15 years old and good size. I used from 8 to 10 pounds nitrate of soda a year. I have complaints of the Greenings getting soft in storage. Is that because I am using too much nitrate?

**Mr. Nicodemus:** I would say that would have a lot to do with it. Apples get soft and punky when they are over-stimulated.

**Mr. Weinberger:** I would like to ask Mr. Nicodemus what sod he prefers?

**Mr. Nicodemus:** Bluegrass. You have to use a little more nitrate, but I think it is cheaper than to cultivate and use cover crops. I believe you get higher colored fruit.

**Question:** Do you cut the grass?

**Mr. Nicodemus:** It doesn't require much cutting.

**President Funk:** At this time I would like to appoint the Auditing Committee—Mr. Dickenscheid, Mr. Runk and Mr. Reiter.

The question has been asked about the Bell Brush Picker. I have used it for three years and I would hate to try to get along in an orchard without one. It fastens right on to the front of the tractor and you can clean up the brush just as far as the man can drive the tractor. I usually have a man follow after the pruner to throw the brush out into the middle of the rows and then when the ground dries up in the spring we simply send the tractor through. It is shaped like four fingers on your hand and those fingers work under the brush and gather it together and drop it wherever you want to burn it. It takes no time at all to unload and little time to load. It is a wonderful tool and doesn't cost very much; something that every orchard man should have, I believe.

**Mr. Vogel:** What does it do when you get to a gutter in the orchard?

**President Funk:** If you can get over it with a tractor, harrow or disc, you can get over it with the brush picker.

Mr. Nicodemus has given us the point of view of one of the largest growers in Pennsylvania and now we are going to have another side of this apple growing problem. Mr. Smedley does not grow as many apples as Mr. Nicodemus, but I believe he has taken more prizes at our state show in Harrisburg than any other man in the organization.

### DEVELOPING A PERSONAL MARKET

SAMUEL L. SMEDLEY, Jr., Newtown Square

Whether ones location is near a local market, or whether a wayside stand has been developed or it is necessary to ship a long distance either by motor truck or freight car, the paramount point to be borne in mind is the importance of having good fruit to sell. I shall not go into the detail of growing the fruit as this is not essentially a part of my subject. There are a few points in the growing of apples, however, that are well to remember—thorough pruning, spraying, fertilizing, when necessary, cultivation and thinning. Of course spraying and dusting are the most important factors and consequently are ever before us, but I feel that proper pruning and thinning are almost as essential if we are to put a

opened up to the sun and air whether it be pruned on the many fungous diseases are greatly enhanced. Thinning together with proper pruning make an ideal combination for securing a good marketable apple and it is this type of fruit which builds up a personal market.

**Packages.** It is folly, to my mind, to secure special types of containers; even wrapping each individual apple, and plastering the outside of the package with highly colored labels, if the fruit to be sold is not worthy of such treatment. In other words do not pack ordinary fruit in an unusual package in the hope of fooling the purchaser. There are many types of packages, most of which are familiar to us and I would not want to say just which is the best suited to our individual needs; however, the best way to determine the package to use is to adopt the one which our buyer demands. In case of shipping to a wholesaler or commission man I think it well worth while to consult him that we may find out what type to use in order that our fruit will reach him in the best of condition. At one time a great deal of fruit was shipped to the Philadelphia market in hampers; now the tendency is to use the round bushel baskets of one type or another and I feel sure that a straight sided bushel basket will be used to an even greater degree as time goes on, for they have the advantage of dovetailing together when packed into a freight car or motor truck; also they can stand for greater vertical strain because of their upright staves. We need, then, a strong, sturdy basket that will protect our fruit, that may be easily and tightly packed in car or truck and that will reach its destination in first class condition.

For a very special trade where extra fancy fruit is to be packed the corrugated paste-board container with divisions for each apple may be used. These packages are much more expensive than the wooden basket and unless the fruit is extra fancy and your private trade warrants it, I do not feel that the grower is justified in using such. Too much thought cannot be placed upon the package we are to use. At best it is one of the most expensive items in fruit growing. It is mostly used but once and when there are thousands necessary to accommodate each year's crop a few cents saved on each may soon amount into costly dollars.

**Packing.** With the fruit carefully grown and the right type of containers selected our next job is to get this fruit harvested and packed correctly. Apples should be handled as nearly like eggs as possible. A number one apple can easily be forced into a lower and cheaper grade by being bruised through careless handling. If picked a little green apples are often bruised as they are pulled from the trees, they are sometimes allowed to fall as they are put into the picking bag or

basket, causing injury; the bags are often struck against the rungs of the ladder and even a further chance for damage is when the apples are put into the orchard crates or baskets. These are all places for the grower to watch for the care of his fruit as it is in the freedom from bruises and blemishes which enables that fruit to be kept for a greater period and sold for a higher price.

Packing is essentially an important factor in acquiring and maintaining a market. Many packages upon reaching their destination would never be recognized by the grower if his name were not stamped upon them. Apples which seem to be in perfect condition when they leave the packing house in the fall may hardly be identified the following March or April and this may be due largely to the manner in which they were packed. In order to have apples hold up well in shipment and storage they must be carefully selected and tightly packed. Let me emphasize the **tightly**, for sound apples packed with a slight bulge to the basket will have a much better chance of coming through the season in good shape than those packed loosely and with only slight care as to their condition.

I believe in making the basket as attractive as possible without undue expense. In using the covered bushel basket the finished package will look much neater if the lid is fastened down with hooks for the purpose. A few baskets with the lids knocked off and the apples lost will soon pay for the hooks and the time it takes to apply them. A little shredded oil paper sprinkled through the basket will not only add color to the apples but will also prevent scalding to a large extent.

One would think it would be needless to say that the face of the package should fairly represent the entire basket, and more and more growers are packing this way but there are still others who do not realize the importance of this. A little inspection trip through any of our large wholesale markets will readily make this point understood. The grade should be plainly marked on the lid and the packing kept strictly to this mark. Some means of identification should be stenciled on the lid which can be easily recognized by the purchaser. This may be the growers name or the name of the farm whichever is used, the mark should be easily seen. This feature will aid greatly in selling the fruit when that particular brand becomes known in the market. It is also one of the best and cheapest forms of advertising. What better compliment could be paid a grower than to know that his fruit can be sold in a closed package without inspection by the buyer?

**Market Preference.** Another point to be considered in developing a personal market is to consider the market demands rather than one's personal opinion as to varieties. We hear of great acreages being pulled out by western growers

because the varieties have ceased to be in demand. We too, in many cases, are growing too many varieties. Some of these varieties practically sell themselves while it takes all the effort at our command to move the others. It would be better to find out, if possible, the varieties most in demand in one's locality, provided such are known to do well, and grow them. In case we have established orchards, it will often pay to tear out the boarder trees and plant those with known merit. With our farm storages we are in a better position to prolong the season of the standard varieties which will enable us to do away with the poorer ones. On the other hand, however, I have seen perfectly good fall apples held over into the winter much too long not only for their own good but also that of the grower.

Along with good varieties we should also have our fruit sized to meet the demand. For store trade certain sizes sell better than others depending upon the demand of the individual store and it is well to have enough fruit of a certain size that this trade can be supplied for as long a period as possible. It is important that this trade be supplied with the class of fruit best suited for its needs as it will often pay a premium to be satisfied. For a wholesale trade the best selling size is a 3 or a 3 $\frac{1}{4}$ -inch apple and it should be our aim to grow as many of these as possible. This season I was much impressed by the fact that in the Philadelphia market one commission man had difficulty in selling extra large Romes. They were of very good quality but they were too large to be an economical buy even for restaurant or store trade.

**Retail Sales.** So much for the wholesale trade. There is also another manner of the disposition of fruit which may be developed to such an extent that the whole crop can thus be moved. This is the home or farm market. This manner of selling has many points in its favor although there are some disadvantages as well. Fruit to be sold at home should be just as carefully graded and sized as that which is packed for shipment. A person driving out to the farm is just as much entitled to a graded article, if desired, as a store keeper who goes to a commission man for his fruit. On the other hand store keepers and hucksters are taking more and more fruit in bulk and unsized. They find it to their advantage to come right to the farm for it, because the grower can afford to sell cheaper as he has none of the expense of packing, of the containers nor of delivery. Poorer grades of apples can also be moved in this manner as the buyer can see exactly what he is buying and will not feel that he has been cheated as may be the case if the fruit is faced and is in a closed container. The individual buyer also likes to drive out to the farm and get his apples—and this is one of the best forms of selling that can be developed. The apples are sold for cash in this case and it is

surprising how a satisfied customer will spread the news about your apples. This, too, is good advertising and is well worth cultivating.

Where there is a storage on the farm definite orders may be taken in the fall for delivery during the season, thus providing a supply of fruit over a longer period than would be possible if these same apples were stored in the individuals cellar where they might be exposed to furnace heat and other unfavorable conditions. If we are on the lookout to give the purchaser a fresher and better article at all times it will not be long before we are amply repaid for any extra effort we may put forth. An ideal situation would be, where there is enough demand, to put all second grade apples into by-products such as apple butter, dried apples, cider, jelly, etc., which would leave nothing but number one apples to sell fresh. This is a situation, I dare say, for which we are all striving but few have actually attained.

Along with the development of the farm or wayside market comes the problem of Sunday selling. Many feel that this is the most profitable day of the week and it doubtless is so, for there are by far more motorists on the highways this day than on the other six. However, the trade will soon come to appreciate one's point of view if the shop is closed on Sunday and will find it possible to call some other time. It is well to notify the public where there are signs on the highways directing people to the orchard that the farm is closed on Sunday if such be the case, and then there will be no need to dissappoint people who perhaps have come many miles to buy fruit.

In conclusion, then, let us make up our minds that no matter how we sell our apples that they will be packed as we ourselves would like to buy them and then we will be assured of a ready market for our products.

**Question:** What results have been gotten from the McIntosh in southern Pennsylvania.

**Mr. Smedley:** In the southeastern corner of Pennsylvania the McIntosh does not prove satisfactory. We get good quality but they drop before they get sufficient color. I wouldn't advise anybody in our section to grow McIntosh.

**Member:** If you were a couple of hundred feet above sea level in the mountains, might that not be a different proposition?

**Mr. Smedley:** In the northern sections of Pennsylvania McIntosh can be grown very well.

**Mr. Shank:** I think we should congratulate Mr. Smedley on his stand against Sunday Selling.

**President Funk:** Mr. Smedley has been very successful in

his end of the state. He happens to be a competitor of mine and I know that he is producing some very fine fruit.

Mr. W. S. Campfield, Secretary of the Virginia State Horticultural Society, will present the subject of "Freight Rate Discrimination."

### FREIGHT RATE DISCRIMINATION

W. S. CAMPFIELD, Staunton, Va.

I bring to you greetings of the Virginia Society and our sincere good wishes for a successful season. We wish you neither a feast nor a famine, but rather one of those years of moderate crops with the larger profits which the apple industry so richly deserves.

About six months ago I was advised that our freight rates were entirely out of line. I investigated and called a meeting of representatives of the states of Pennsylvania, Maryland, West Virginia and Virginia at Winchester in November. We discussed the situation and received considerable information from two rate attorneys, one of whom is the attorney for the State Corporation Commission of Virginia. We found that there is an alarming handicap under which Virginia, West Virginia and Maryland are working as compared with our competitors in western New York and the Pacific Northwest.

I am going to give you three or four outstanding cases. I am not sure that the rate situation that prevails in Virginia, West Virginia and Maryland prevails in Pennsylvania. I think it does,

Rochester in the central part of the western New York district is three miles closer to St. Louis, Mo., than is Staunton, Va. But the Rochester growers can ship apples in carlots to St. Louis for 25 cents per barrel less than Staunton growers.

Staunton to Savannah, Ga., is approximately 300 miles less distance than Rochester to Savannah, but the rate is 2.8 cents more than Rochester's rate.

Winchester to Greensboro, N. C., is 309 miles less than the distance from Rochester to Greensboro, but the rate is only 5.6 cents per barrel less from Winchester.

Charlottesville is 4 miles farther from New York City than Rochester, but the rate is 19.2 per barrel more.

Cumberland, Md., is 173 miles from Baltimore, the metropolis of its own state, and its rate per hundred is 30 cents; while Rochester, N. Y., is 364 miles, or more than twice the distance, but the rate to Baltimore is only 27.5 cents per hundred, a difference in favor of Rochester of 2.5 cents per barrel.

The rate from Rochester to Philadelphia is 28.5 which will give you a basis for figuring whether your rate is out of line with the territory to the south.

When you come to figure the difference between the sum of money paid for freight from the territory to the south as against western New York, it becomes staggering. A carload of 200 barrels of apples from Staunton to St. Louis would approximate \$40.00 more than the Staunton grower has to pay than the western New York Grower. This is not a handicap in dollars and cents alone. We are now passing through a period of high production as a result of the heavy planting of 1905 to 1912. There is now taking place an enormous reduction of apple acreage, a survival of the fittest. In determining which shall be the apple orchards of tomorrow we are placed under a handicap as compared to western New York and the Pacific Coast; the selection is going to be more severe in Virginia, Maryland and West Virginia than it is in western New York. In other words, our acreage is going to be reduced to a greater extent than otherwise if we have to continue to bear the handicap of a good many cents per barrel difference in freight rate.

For one dollar of freight they can ship their apples into a greater market area than we can from the states to the south. As I say, I think this includes parts of Pennsylvania.

We have been advised by our attorney recently that situations have developed that make it necessary for us to get into this rate case immediately and actively. The Pacific Northwest has a flat rate of \$1.50 per hundred from the Pacific Northwest to all states between Maine and Florida. The Arnold Fruit Company of Florida has filed application for a hearing before the Interstate Commerce Commission asking for reduced rates from Virginia and, I think, Maryland and West Virginia to the Florida peninsula. It may develop that this complaint is rather loosely drawn and our attorney advises us that it is absolutely imperative that we get in there and institute proceeding on a stronger and a wider basis to include not only Florida but all the southern states to protect our future rights. We may join with the Arnold Company. We may possibly get them to withdraw their case and join with us, but at any rate we must protect our rights.

One of the leading rate attorneys of Washington has led me to believe that we can reasonably hope for a rate reduction of twenty to thirty-five dollars per car into southern territories due to the fact that the Hoke Smith Act of Congress has practically instructed the Interstate Commerce Commission to reduce freight rates on farm products to a minimum. In two recent cases the Interstate Commerce Commission has indicated that it may follow to the letter the Hoke Smith Resolution, one being the sugar case. Sugar had been on the same basis as apples, practically. Now you can ship sugar for 18 cents just as far as you can apples for 30 cents. This leads us to think there are good prospects for rate reduction.

The other is the California deciduous case, in which they have reduced the freight rate very low. Now is the psychological moment to go before the Interstate Commerce Commission with a case in which we request lower rates on apples, a farm product that is or can be shown to be a basic industry in the areas which we are discussing.

We have called a meeting of the Board of Directors of the Virginia State Horticultural Society for next January 26th at Richmond, Va., at which meeting we have requested West Virginia, Maryland and Pennsylvania to send delegates. Our board is going to take definite action. It is going to take a lot of money and time and effort. We hope you will have a representative there. I believe that this is one of the most vital questions that will come before the fruit growers in many a day. If we are going to keep in competition with other districts we must have an adjustment of our freight rates in line with theirs.

**Harry Miller of Paw Paw, W. Va.:** I am a dirt farmer and fruit grower and for that reason I am interested in this rate case. Freight is a fixed overhead which every one of us has to pay. When this overhead is too high, it comes back on the producer; he is the one who pay it, not the consumer. You quote a buyer on apples from Chambersburg and the first thing he does is take down his rate book and say, "The rate is so much from Chambersburg, so much from Winchester. It is ten cents less from Rochester for the same grade of apples." You know what he does? He says, "I will buy where I can get the same goods for the least money." He comes back at you and says, "Your rate is so much. If you reduce the price by ten or fifteen cents a barrel, you can get the sale. If you don't, I will give it to the other man." That is what is done in thousands of cases.

The apple business in this section, from Harrisburg to Staunton, Va., as far west as Cumberland, as far east as the coast, is becoming a basic industry. We cannot afford to have it injured by discrimination in freight rates. The railroads, of course, aren't going to lower the rates if somebody doesn't say something about it. We must take care of our own interests.

The present rate of freight does this artificial thing, which I am sure was never intended in the Interstate Commerce Commission Act when it was first formulated in the McKinley Administration. There was an effort to adjust the freight rates relative to the geographical location of the product. It does exactly the opposite. For instance, Mr. Campfield told you that Rochester has rates that are a good deal lower than Winchester and Winchester is already half way down South; lower than Martinsburg, West Virginia, and lower than Cham-

bersburg, Penna.; and yet these are nearly half way down South. This arbitrarily moves production up to the Canadian line without any of the corresponding advantages. If we could pull our trees up and move them there, we would have big cities like Buffalo to sell in. We would have a local market. But this arbitrarily moves us there without giving us any of the advantages. We are still down in Virginia and West Virginia to sell our fruit; we still have to pay excess freight rates. It is a deadweight overhead.

The money spent to secure readjustment of freight rates is not a gift. It is simply an investment in our business. Every other line of business in the United States is investing the same way. Our friends from the Pacific Coast recently got a reduction of 13 cents a hundred from California on deciduous fruits. How? They went down to Washington and got after the people until they succeeded.

A couple of years ago I was a delegate to a meeting of the Horticultural Board in Washington, on the Mediterranean fruit fly. When I got there I was the only delegate from West Virginia. There was one from New York and two from Florida and that was all from the east. When the western delegation blew in they had forty or fifty growers, five or six Congressmen and three or four Senators. They got the results and we people in the east were simply asleep. We can have our markets taken away from us by discriminating freight rates if we don't attend to our business.

**W. S. Campfield:** It is thought that to prosecute a case of that sort properly before the Interstate Commerce Commission would cost \$7,500, maybe \$8,000. This wouldn't be a large sum, if it is covered by four states.

We would like to have Pennsylvania join Maryland, Virginia and West Virginia to prosecute this task together. There is strength in numbers in Washington and there is strength in unity. If we go down there with a united front, we can get results.

We want to invite you down into the Shenandoah Valley and West Virginia on your trip next summer. We want to show you some good old Virginia hospitality. We would be glad to see you all and we think we can show you a good time and some good orchards.

**President Funk:** Mr. Campfield and Mr. Miller have presented this matter very well and it is now up to us to decide what we want to do about it. There isn't any question but what something should be done.

**S. W. Fletcher:** The State of Pennsylvania has a community of interest with our sister states in the solution of this problem. It is true that over 80 per cent of our apples are

sold from trucks in local markets and do not go on railroad cars, yet we have a large apple growing district in southern Pennsylvania that is vitally interested in this problem, and scattered wholesale plantings elsewhere. It seems that the least we can do would be to give our support to this project by having a representative of the Association attend the meeting called at Richmond. I move that the President, or a delegate appointed by him, shall attend this meeting and that the Board of Directors of this Association shall consider in what way, if any, the financial participation of the fruit growers of Pennsylvania shall be secured.

The motion was seconded.

The question was called for and the motion was carried.

(R. T. Criswell, of Chambersburg, was appointed by President Funk to represent the Association at the Richmond meeting. It was decided by the Board of Directors that funds should be raised by private subscriptions from interested growers and shippers.)

**President Funk:** I am going to ask Mr. Rees to speak on Apples for Health. Mr. Rees is President of the American Pomological Society.

#### THE "APPLES FOR HEALTH" CAMPAIGN

R. W. REES, Rochester, N. Y.

I have never been officially connected with Apples for Health but have followed its work closely from the beginning. I am sure that if we never had a larger crop in the United States than the one we had in 1927, there wouldn't be much use to talk about advertising. However, in 1926 we did have more apples than could be profitably marketed under our present distribution system. With growing competition from other fruits and vegetables and the increased competition which Mr. Campfield spoke of as coming from the orchards planted from 1905 to 1912, we are going to continue to have for a number of years in any season when climatic conditions are exceptionally favorable, more apples than can be profitably marketed under our system.

With this idea in mind the American Pomological Society called a meeting in Chicago a year and a half ago to organize Apples for Health, a national organization, to study the situation and work out some feasible plan for a national advertising campaign. I am not going to talk advertising—I haven't the time—but I want to call attention to three types of advertising that have developed. We are all familiar with the corporation type of advertising such as the automobile industry or the Eastman kodak industry, where a single corporation advertises a standardized product. The corporation pays the advertising

expense and receives the remuneration resulting therefrom. Then you have the cooperative type of advertising, illustrated by Sunkist oranges and Blue Diamond brand walnuts, in which a group of growers put a standardized commodity on the market and advertise a standardized product.

A new type of advertising has come along, and that is group advertising of non-standardized products. You have that, for instance, in the National Florists Association, with their five or six million dollar campaign, "Say it With Flowers." A group of men who are competitors in business unite in boosting the sale of their product which is not standardized. You have the same thing in the paint industry, in the laundrymen's association advertising campaign which is now on, and a number of others which I might mention. Such a type of advertising is the only one which could fit the apple industry, an advertising campaign to increase the consumption of apples; backed by growers from different competing sections and backed by people who are not putting up an absolutely standardized product.

It has proven successful in these lines which I have just mentioned. During the past year and a half the Association has spent most of its time in working up a national interest in the subject. The last two times I have been on the Pacific Coast I have had occasion to talk with a number of leaders there and I find there is a most favorable feeling there toward it. They are organized in a way to make it possible for them to come across substantially in a campaign like this.

It is proposed to put on a four million dollar campaign extending over a period of four years, a million dollars a year. That sounds like a lot of money, but it is less money than one state spends each year in advertising the citrus industry. An active campaign will be put on in the near future for membership and for raising funds for this campaign. I believe that you can well afford to give the matter your careful consideration when it is put up to you, and think it over well before you say no.

### WEDNESDAY AFTERNOON

JANUARY 18th, 1928

The Second Session convened at 2:00 p. m., the President, Mr. Sheldon Funk, presiding.

**President Funk:** The first subject for discussion this afternoon will be the "Developments in Oriental Fruit Moth Control." There is no insect that has caused as much concern among the fruit growers of Pennsylvania as the Oriental fruit moth. Dr. Alvah Peterson of the U. S. Department of Agriculture, who will now address us, is an authority on this subject.

### THE PRESENT STATUS OF THE ORIENTAL PEACH MOTH

ALVAH PETERSON, Entomologist, Bureau of Entomology,  
U. S. Dept. of Agriculture

I welcome an opportunity to talk with fruit growers about their insect problems yet I approach the subject of the oriental peach moth with hesitancy because it is probably the most difficult insect problem on peaches that any entomologist or fruit grower has been up against. At one time I thought the peach tree borer was the most serious insect situation on peach that an entomologist ever faced. After working continuously for seven years on the peach tree borer we finally found a most valuable control in the use of paradichlorobenzene. It may be of interest to know that experiments for the control of the peach tree borer extended over 100 years. If this also holds for the oriental peach moth the next hundred years will be the hardest for you as fruit growers.

The Oriental peach moth has been in this country about ten years and up to date we have no insecticide or cultural practice which we can recommend as a complete panacea. Probably some of you are wondering why I consented to give an answer to one of your most important problems. The chief reason why I agreed to give this talk is the fact that as a fruit grower I would want to know the status of this insect pest so I could decide for myself what course to pursue in the immediate future in respect to increasing or decreasing my fruit production. In thinking over the best method of presenting the facts I decided to present the problem from the view point of an investigator. In other words I want you to assume for the period of this discussion that you are an entomologist and trying to solve this problem for the many growers that are constantly requesting from you a satisfactory control measure. The life of an entomologist is far from rosy. A few growers I have known seem to think that an entomologist has a soft snap and is endowed with supernatural power. I can assure you that an entomologist's job is not easy and he is no different than other human beings. He may have acquired knowledge and experience which growers do not have, yet his mental calibre is no greater than that of many growers I have known, consequently, do not expect him to perform miracles. In turn, as an entomologist, I have great respect for careful observations and experiences of fruit growers. Such information is often of decided value in reaching a solution to an insect problem.

Now that you have taken on an entomologist complex, let us look into the problem of the oriental peach moth. I am going to assume that you are acquainted with the injury produced by the oriental peach moth. For those in the audience

not familiar with the work of this pest I will show some lantern slides later on which will illustrate some of the points we will discuss.

As an entomologist we go into a peach orchard and see for the first time injured peach twigs. Immediately we try to find out the name of the insect causing the damage. This we do by rearing the insect to the adult stage and submitting it to specialists for determination. After we learn what insect is causing the damage we start a careful study of the life history and habits of the pest. Such a study will give us the number of generations per season, the time of appearance, the manner of passing the winter and the habits of each individual stage. We learn that there are four stages in the life cycle; egg, larva (or worm stage), pupa (in cocoons) and adult (moth). The larva is the stage in the development of the insect that does the damage. In the course of these fundamental studies we endeavor to find those points in the life history and habits of the insect which man may attack and control or reduce the pest to a point that it is no longer destructive. We will not go into the details of these studies so we will discuss at once the possibilities of control revealed in these studies.

We will consider insecticidal and cultural control from the view point of each individual stage, the egg, larva, cocoon and moth.

**Eggs:** The following points in respect to killing an egg when on the tree or a larva as it hatches from an egg are essential and should be kept in mind. In the first place the eggs on peach trees are found on the underside of the foliage and usually on the new growth. This makes it difficult to coat them with a spray. Again eggs during warm weather hatch in 3 to 5 days and in cool weather 5 to 10 days. Furthermore unhatched eggs may be found on the foliage during the entire spring and summer in varying numbers. These facts show at once that many applications of the insecticide are needed if the insect is to be controlled by killing eggs with a contact spray. Entomologists have demonstrated that contact sprays will kill eggs. Nicotine or white oil emulsions will kill a large number of eggs, or larvae that have just hatched from eggs, yet the number of applications needed and the thoroughness of the job required make any spray recommendation for killing eggs very expensive and impractical even though the material used is almost as cheap as water. All told it seems to me that the only possibility open for the use of an ovicide is the development of a cheap contact spray which can be incorporated into the regular spray or dust schedule. This will kill the eggs present on the tree at the time of application and thus would help to reduce the infestation but it would not take care of eggs deposited and hatching in between sprays or late in the season when all spraying and dusting has ceased.

A considerable amount of work has been done with nicotine and oil sprays for killing the eggs. Neither of these products has been able to bring about a cheap, effective or practical control. All the information to date points to the conclusion that the future development of a satisfactory control of the oriental peach moth by killing the egg is not very hopeful.

**Larva:** The second stage in the life cycle of the insect is the larva or worm stage. This is the stage that does the damage. It also keeps us awake at night trying to figure out ways to kill the rascal. It is probable that most of you are already acquainted with the peculiar feeding habit of this critter which has proven to be a life saver for the insect. Before a worm enters any plant tissue, twig or fruit, it spins a light silken web about its body and then proceeds to gouge out pieces of plant tissue with its mouth parts and sets these to one side without consuming them. When the head and thoracic portion of its body are submerged in the plant tissue, feeding commences. This habit immediately prohibits the use of an arsenical coating on the outside of the twig or fruit for such will not be consumed. I have rolled peaches in powdered arsenate of lead and placed on them half-grown larvae. Many of the larvae entered the coated fruit and were not killed.

The peculiar feeding habit of this insect challenges the ingenuity of all entomologists and fruit growers. How are we going to get around it and what can we do to make the larvae consume poisoned tissue? To date this challenge still stands unanswered. We know that a few of the oriental peach moth larvae are killed by arsenate of lead but the percentage is insignificant. We still have to find a satisfactory stomach poison. For the sake of argument let us assume we have found a satisfactory stomach poison. This alone will not settle the difficulties that face us. Some of these are the maintenance and application of a coating of a stomach poison on twigs and fruit. During the early part of a season the larvae enter the growing terminals. On young trees growth is very rapid, at times almost an inch a day and commonly two or three inches per week. Since a larva enters the terminal end of a growing twig we see at once the impossibility of maintaining a coat. On fruit we are also up against a difficult situation. About the time peaches are nearly full grown the newly hatched larvae go directly to the fruit. Many of these larvae enter fruit through the short green stem or through the skin in the deep depression about the stem. Did you ever try to place a spray or dust in the deep depression about the stem end of an Elberta peach? This is almost an impossible task. Other difficulties could be enumerated concerning the killing of growing larvae. In summarizing the control measures for growing larvae noth-

ing has been found to be satisfactory and the outlook is none too bright.

**Cocoons: (Lava and pupa).** Thus far we have examined the possibilities of finding a control for eggs and larva and we have had no encouragement. Let us now consider the cocoon stage which may be found on the roughened parts of fruit trees or in or on rubbish on the ground. The cocoon serves as a protective cover for the full grown larva and pupa. The insect passes the winter as a full grown larva in a cocoon. If we could destroy the larvae or pupae in the cocoons we might bring about a satisfactory control especially if this is done during the winter season.

We know that cultivation a week or so previous to the emergence of the first adults, which usually occurs at or before blossom time for peaches, will kill all overwintering cocoons found on the ground. This helps to reduce the early infestation.

To date no very effective contact spray has been found which kills summer or overwintering larvae in cocoons. At the present time a large series of preliminary tests are being conducted at Moorestown, N. J., along this line. Some of the chemicals we are using may prove to be effective. We are hopeful concerning the possibilities of developing a cheap and effective dormant spray which can be applied during the dormant season. In another year or two we may be able to report progress. This is more than we said for control measures on the egg or growing larvae.

**Moth:** We have covered the apparent possibilities with three stages in the life cycle of the insect. Only one stage remains and that is the moth. A goodly number of experiments have been conducted with the moths. Undoubtedly most of you have heard considerable about some of these. The control of the moth can be approached from at least two points of view. We might attract them to traps and kill them or we might use repellents and keep them away from peach trees.

Let us consider the field of attractants first. We know that many species of moths come to artificial lights at nights and the oriental peach moth does most of its flying about sunset or shortly thereafter. It would seem logical that we might capture many moths by artificial electric lights, however, such is not the case. One grower in New Jersey installed a \$3,000 electric light equipment in his peach orchard and after two year's experience discarded the same. We checked over his results carefully and found that he caught very few moths. Many more moths were captured in 10c bait pans which we placed in the same orchard where the expensive light traps were located. We also ran a goodly number of colored light tests at the laboratory and obtained some very interesting re-

sults but these have no bearing on control measures so we will not discuss them. So far as light traps are concerned we find they are of little or no value in the control of the oriental peach moth.

The next possibility along the line of attractants is the use of baits. Since I happen to be guilty of starting the work on baits for the oriental peach moth a few years ago I suppose it is up to me to give you my honest opinion concerning their use. I am quite certain that some of you will not agree with me on this subject. We all have a right to believe what we wish so long as we are sincere and can back up our statements with facts. Our information to date on the use of baits for controlling the oriental peach moth under average orchard conditions does not warrant us to recommend their use to a fruit grower. Why? There are many detailed reasons I could enumerate but I will only mention one or two important ones. If you have used baits in your orchard you have undoubtedly caught a goodly number of adults. What proportion of the population in the orchard did you catch? I am inclined to believe that bait pans or pails catch less than ten percent of the moths in the orchard at any given time. We have liberated a goodly number of marked adults in peach orchards where we have had bait pans in every other tree and the recapture has never exceeded ten percent. If this is a true story, then it alone is argument enough for me against the use of bait pans. We hope to have much more reliable information on this matter in another season.

I could elaborate on many undesirable features in the use of bait traps but this will be unnecessary for I am sure you have had this information presented to you before this. All our tests with bait pans in these orchards and those of other entomologists make me believe that we still have a long way to go before we find a satisfactory bait and trap which may be used as a control for the oriental peach moth.

The remaining possibility of insecticidal control from the view point of the moth is the use of repellents. We do not know much about this subject at present, however, we do know that certain chemicals will repel the female moth and keep her from depositing eggs on foliage coated with the respective products. To date we have not given these a thorough test under orchard conditions, consequently we cannot report on them. It may be several years before we find, or again we may never discover a product that will prove to be practical.

**Parasites:** The foregoing discussion summarizes the control measures for the oriental peach moth problem from an insecticidal view point. If I should stop at this point most of you would go home and probably pull out your orchards. I

believe this would be a rash thing to do. Personally I am not completely discouraged about the outlook because one very hopeful situation exists which may prove to be remarkable help within a few years.

The thing I have in mind is the parasite situation. This has a bright outlook at present. As you know it often happens that when things look the darkest we are nearest the point of relief. Man has often been confronted with serious insect outbreaks and before he is able to find a solution for the problem nature comes along and solves it for him. There is good evidence to show that this is taking place in some localities with the oriental peach moth.

I have been watching and studying oriental peach moth infestations in New Jersey ever since the insect made its appearance about ten years ago. We find that the insect is most serious about the second year after it is found in a new orchard. From then on it has gradually become less severe. Of course there have been fluctuations in the infestation. This past season in many orchards in southern New Jersey the fruit injury was less than ten percent on any variety. This is a marked reduction over previous years when infestations ran between 35 to 75 percent. In general it can be said that in orchards where the pest has been present for five years or longer the parasites usually do very effective work and reduce the infestation greatly. We already know of forty or more species of insects that attack the egg, larva or cocoon of the oriental peach moth. This is many more species than we know for the codling moth. Two or three of these are very important, one attacks the egg and the others attack the larvae, especially when they are in the twigs. Last year in Burlington county, New Jersey, a large percentage of young twigs in young and bearing orchards were infested with oriental peach moth larvae early in the season. If all of these had developed into moths the fruit would have been extremely wormy. As it was 75 to 90 percent were attacked by a small wasp like insect, *Macrocentrus anylivora*, and most of the oriental peach moths turned into parasites which in turn attacked new larva. As a consequence at harvest time there were very few oriental peach moths present in the orchard.

Undoubtedly there will be considerable fluctuation in the effectiveness of parasites from year to year yet the present tendency indicates that parasites will be extremely useful most every season in reducing infestations where infestations have been established for several years. Undoubtedly the safe species of parasite will not be universally effective. In fact we already know that this is the case. One species, *Glypta*, is known to be abundant in the northern part of New

Jersey and central Pennsylvania while *Macrocentrus* is present in large numbers in southern New Jersey, Maryland, Delaware, and elsewhere.

#### DISCUSSION ON ORIENTAL PEACH MOTH

**Question:** What are some of the repellents you are using?

**Dr. Peterson:** They are not obtainable in quantity in the market. We are not prepared to make any statements as to whether they could be used by a grower or not.

**Harry Miller, of W. Va.:** What measures can we take to see that we don't get it out of nurseries? Could we trim off the moth infested limbs before they leave the nurseries?

**Dr. Peterson:** The chance of coming from nursery stock is not very great. Your nursery stock is examined quite thoroughly by competent inspectors. The young trees are extremely smooth and there is not much rough bark where we can find cocoons. I have yet to see more than one or two cocoons on nursery trees and I have examined thousands of trees. Most of the infestation is coming from fruit shipped into a community. If we examine carefully the different infestations throughout the United States, we find that most of them start around small towns. This means that fruit has been shipped into those towns from territories which are infested. The housewife or the merchant found the wormy peaches, discarded them, threw them out into the garbage and the insect emerged and attacked the peach trees in the backyard. That is where we find the new infestations all over the United States. In Georgia, it was first found in the backyard, not in commercial plantings.

Rarely would you find it on twigs, but if I got nursery trees that had a good many rough spots on them I would want to destroy the prunings.

**R. T. Criswell:** Have you abandoned nicotine?

**Dr. Peterson:** I tried to point out the difficulties that we are up against in killing the egg and I said to develop a control along that line we would have to have a very cheap insecticide. I think that would exclude nicotine.

**Mr. Mitchell:** Wouldn't it be possible to kill the moths by the use of gas in some such manner as they used it in the army against human beings?

**Dr. Peterson:** The idea has been tried out to a limited extent by using nicotine gas and some others, but with little promise. The moths are in the orchard continuously all season; the emergence of the spring brood alone covers a period of about 9 weeks, coming out every day for 9 weeks, and the moth isn't out over 24 hours before it starts to put down eggs.

That would mean an application of this gas about every 48 hours for several weeks.

**Question:** How long does the moth live?

**Dr. Peterson:** An average of ten days to two weeks.

**Mr. Mitchell:** Wouldn't you eventually get them all?

**Dr. Peterson:** You would get them all but in the meantime they have put down most of their eggs. If I put the material on today, we will say, the moth comes out tomorrow, starts to deposit eggs the next day and deposits most of its eggs in nine days and by the time I come around in ten days I kill the moth but the moth has put down its eggs and the infestation is there.

**Question:** When do those eggs hatch out?

**Dr. Peterson:** In three to five days. The incubation period of the egg is three to five days, but the complete life cycle from egg to new adult would be thirty days to six weeks. If they came out all at once, we would have a chance.

**Question:** How general is the peach moth distributed over the United States?

**Dr. Peterson:** The insect is now found, I would say without much hesitation, in practically every peach producing state east of the Mississippi River and in one or two states west of it. Possibly it does not occur in Michigan but I know it occurs in most every other state east of the Mississippi River. It is getting bad in some places. The only place where I know that it hasn't proven a serious pest is in Fort Valley, Ga. The reason for that is because there is no fruit but the peach there. The peaches are all picked early in the season and the insect doesn't have anything to develop on later in the season. Here you have apples, late peaches, quinces and other fruits and the insect builds up a large overwintering supply which gives it a good start in the spring.

**Question:** Is there any information that would lead us to discriminate in regard to the variety of peaches we plant as to time of ripening, etc.

**Dr. Peterson:** A few years ago I would have said yes, but I don't know as I would say that now. We find in New Jersey, where I have been now for several years, that the late variety infestations, varieties after Elberta, are not much heavier than with Elberta. We had Krummels and Iron Mountains this year and Fox Seedling and one or two others in which infestations ran between five and ten percent. In other words, parasitism seems to be just as effective with the late varieties as with Elberta.

**Member:** We have 100 percent infestation on Iron Mountain and comparatively none on Elberta.

**Question:** What would be the result if a man would destroy the entire crop of peaches?

**Dr. Peterson:** We have an interesting situation which developed very similar to that in New Jersey. There is a man who had an isolated orchard north of Trenton which was completely killed by a freeze about three years ago. At that time he had what we considered a moderate to heavy infestation. The freeze cleaned him out, so he had only a half dozen baskets of fruit in his entire orchard of probably 50 acres. The next year his infestation was extremely low and hasn't built up very much since. Probably parasites are helping to keep it down. I would say the destruction of fruit in an orchard would be of no value unless that orchard was isolated from all others by several miles.

**Mr. Stearns:** I used nicotine sulphate to control the Oriental moth in the egg stage in Virginia over a period of six years, and for three years in New Jersey. The trouble with nicotine spray is the close margin between cost and profit. The average of all the work we did in those years showed that the increase was 15 per cent of the crop after we paid for the material. It is a very easy thing to demonstrate to a fruit grower how to kill aphids with nicotine. It is a very difficult thing to demonstrate that he has killed the eggs of Oriental moth with nicotine. I can only say if I were a fruit grower I would apply nicotine sprays if I had a heavy infestation of the Oriental moth.

**Question:** Will lead do any good on apples?

**Dr. Peterson:** No, I have rolled apples and peaches in arsenate of lead until they were perfectly white. Put your Oriental moth larvae on and they will eat and thrive.

**Question:** You don't know how far the parasites are distributed?

**Dr. Peterson:** Two years ago the insect did not occur in Ohio. Mr. Stearns now reports to me that parasitism is already quite high in some orchards in Ohio. Whether parasites went along with the infestation or not is pretty hard to say. Apparently it follows up pretty closely on the heels of the new infestation.

**W. S. Campfield:** What is the scale of migration of the insect?

**Dr. Peterson:** It is carried by wind. Just how far, we don't know. We know that moths will travel a half mile to a mile, at least, going from one side of an orchard to another or from one orchard to another. It is possible that they go even further.

**President Funk:** At this time we will have our Treasurer's report.

## REPORT OF THE TREASURER

EDWIN W. THOMAS, Treasurer

### RECEIPTS

Cash Balance January 1, 1927.....		\$ 219.60
1-26-1927, From Porter R. Taylor.....		2.00
1-26 " " Robt. E. Atkinson, annual dues.....		212.80
1-26 " " Robt. E. Atkinson, for receipt book.....		3.00
1-26 " " Porter R. Taylor, apple adv.....		10.00
2-21 " " Robt. E. Atkinson, adv. in program.....		74.00
2-21 " " Robt. E. Atkinson, annual dues.....		48.00
2-21 " " Geo. H. Elbel, Rossiter, Pa., annual dues.....		2.00
2-26 " " Robt. E. Atkinson, adv. program.....		10.00
2-26 " " Robt. E. Atkinson, annual dues.....		54.00
3-12 " " Interest on \$100 Liberty Bond.....		2.12
4-30 " " Interest on \$500 Liberty Bond.....		10.62
5-14 " " Trexler Farms, apple adv.....		3.75
5-14 " " Interest on \$200 Liberty Bond.....		4.26
5-28 " " D. Maurice Wertz, refund on premium.....		11.00
6- 2 " " Robt. E. Atkinson, annual dues.....		2.00
6- 2 " " Robt. E. Atkinson, advertising acct.....		66.00
6- 2 " " R. D. Anthony, annual dues.....		116.00
6- 7 " " R. D. Anthony, annual dues.....		42.00
9- 3 " " Porter R. Taylor, adv.....		15.00
9-22 " " Lehigh Co. Hort. Soc., annual dues.....		29.00
9-29 " " Robt. E. Atkinson, annual dues.....		98.00
9-29 " " Erie Co. Hort. Soc., annual dues.....		34.00
10- 1 " " Interest on 100 Liberty Bond.....		2.13
10-22 " " Porter R. Taylor, peach adv.....		138.01
10-29 " " Interest on \$500 Liberty Bond.....		10.63
10-31 " " Lehigh Co. Hort. Soc., annual dues.....		4.00
11- 1 " " R. D. Anthony, annual dues.....		62.76
11- 5 " " R. D. Anthony, annual dues.....		10.00
11-12 " " A. L. Haeker, Allentown, annual dues.....		2.00
11-19 " " Interest on \$200 Liberty Bond.....		4.24
11-19 " " 200 Liberty Bond, paid off.....		200.00
11-30 " " R. D. Anthony, annual dues.....		7.00
12- 3 " " R. D. Anthony, annual dues.....		11.00
12- 3 " " State Hill Fruit Farm, adv.....		25.25
1-14-1928 " " R. D. Anthony, annual dues.....		5.00
		\$1,551.17

### DISBURSEMENTS

1-24-1927, To Platt, Youngman & Co., Treas. Bond.....		\$ 2.50
1-24 " " J. Horace McFarland Co.....		20.00
2- 8 " " Torsch & Franz Badge Co.....		15.17
2- 8 " " Nungesser Printing Co.....		311.10
2- 8 " " M. C. Burritt, Hilton, N. Y.....		50.20
2- 8 " " H. B. Tukey, Hudson, N. Y.....		41.89
2-14 " " Nungesser Printing Co.....		.70
2-23 " " Lester Lewis Walsh.....		113.15
2-26 " " C. H. Connors, New Brunswick, N. J.....		52.81
8- 6 " " R. D. Anthony.....		4.28
8- 6 " " Nittany Printing & Publishing Co.....		4.50
8-31 " " J. Horace McFarland Co.....		5.00
10-21 " " New York Packer.....		168.75
11-22 " " The Telegraph Printing Co.....		9.50
12-23 " " Nungesser Printing Co.....		461.91
1-11-1928 " " F. P. Ristine & Co., two \$100 bonds.....		202.90
1-18 " " To cash in Wayne Title & Trust Co.....		86.81
		\$1,551.17

## REPORT OF THE AUDITING COMMITTEE

January 18, 1928

We the undersigned auditors duly appointed, have examined the accounts, bills, vouchers, etc., of Edwin W. Thomas, Treas., of the Penna. State Horticultural Association and have found the same to be correct and the receipts and balances to be as follows:

Cash balance from 1928.....		\$ 219.60
Receipts during 1927 including one Liberty Bond		
of \$200 matured.....	1 331.57	\$1,551.17
Cash balance on hand Jan. 1, 1928.....		\$ 86.81
Expenditures during year 1927, including two \$100		
Mortgage Bonds, \$202.90.....	1,464.36	\$1,551.17
Liberty Bonds on hand.....		\$ 600.00
2 \$100 Mortgage Bonds.....	200.00	
Bank Balance .....		86.81

Auditors { J. A. RUNK  
              F. S. DICKENSHED  
              F. G. REITER

**E. W. Thomas:** With this report I ask to be relieved of further responsibility. You elected me to this position more than a quarter of a century ago. I desire to express to you my appreciation of your confidence in electing me Treasurer of the State Horticultural Association of Pennsylvania for more than twenty-five consecutive years.

I also want to sound a little word of caution. There is some disposition to make this organization too much of a commercial affair. It should undoubtedly be strictly as educational.

(The Association later expressed its appreciation of the long and efficient service of Mr Thomas, in the report of the Committee on Resolutions, Sec.)

On motion, the report of the Treasurer was accepted.

**J. A. Runk:** The auditors notice that the funds available in 1926 were \$2,432, and that this past year were only \$1,500. The committee would like to call your attention to the fact that during the past year our resources were decreased to the extent of \$900. If that should continue for two or three years more we will go bankrupt.

It was voted, upon motion duly seconded, that the report of the auditors be accepted.

**President Funk:** I wish to appoint two committees: Resolutions Committee—F. H. Fassett, Chairman, W. W. Livingood and F. N. Fagan; Nominating Committee—F. G. Reiter, Chairman, D. M. Wertz and J. A. Runk.

The members of this Association who were on the summer tour were much impressed with the hospitality shown us by Dr. McCue, who is Director of the Delaware Agricultural Experi-

ment Station. We are delighted to have Dr. McCue address us this afternoon.

### DELAWARE'S POSITION IN THE APPLE INDUSTRY

C. A. McCUE, Director Delaware Experiment Station

Delaware is the second smallest state in the Union yet in certain farm products she has to be reckoned with on the large produce markets of the East. She produces enough sweet potatoes to wreck the sweet potato market. She is an important factor in the egg market, the cantaloupe market, and the peach market, and one might almost say that she is the main source of supply for the early apple market at certain seasons. Delaware is small. Her land area is only 2,370 square miles or 1,257,600 acres at low tide. She has about 10,000 farms with a farm population of 44,000 people. She has a little over a million apple trees, or about an average of 500 apple trees per square mile for the entire state, which is a record.

If we go into the situation a little more thoroughly we will find that the majority of these million trees are quite compactly concentrated in two areas. The larger one occupies about 10 to 15 miles square in the center of the state with Wyoming as the principal shipping point. Another area is found in the southwestern part of the state with Bridgeville as the shipping point. There are a few good sized commercial orchards outside these two areas; but they can practically be counted on the fingers of one hand. Commercially speaking the apple industry of Delaware occupies a comparatively small area of the state. An area 20 miles square would probably hold the entire commercial plantings of the state.

**Varieties.** The principal commercial varieties grown are Early Ripe, Yellow Transparent, Williams, Crimson Beauty, a few Duchess and Fourth of July as early varieties. There are few mid-season varieties grown on a commercial scale. For late varieties, in time of ripening, we first start with Grimes Golden, Jonathan, Delicious, Stayman, Paragon, Rome, Nero, York Imperial and Winesap. Outside of the varieties just named, which comprise the bulk of the commercial planting, we can find a few Red Astrachan, English Red Streak, Summer Rambo, Fanny, Kink David, Northwestern Greening, and Lilly of Kent. The varieties that are being recommended for planting or top working are Yellow Transparent, Williams, Crimson Beauty, Grimes, Jonathan, Stayman, Rome, and York, with the further recommendation that under certain conditions, as to soil, that Paragon, Delicious or Starking, and Winesap be used.

You will note that we have dropped out of our recommendations such varieties as Early Ripe, Fourth of July, Red Astrachan, Duchess, Nero and Paragon, which are now grown

to greater or less extent. These varieties have been dropped for various reasons such as, self sterility, non producers, late bearing, poor quality, etc. The trend in varieties at the present time is toward fewer varieties and in general toward those that have a favorable standing on the wholesale markets, and which can be produced economically in the apple districts of the state. Market competition is also a deciding factor in the production of a number of varieties. For the past 10 or 15 years there has been a decided trend toward the early varieties, not because we cannot grow winter varieties, but because in the early varieties there is less marketing competition than with late sorts.

You will note from the list of varieties grown and recommended that there is a gap between the early summer varieties and the fall varieties. During the month of August any varieties that Delaware might put on the market come into competition with early apples from the North and the mountain sections of the East. Also many of our growers are also growers of peaches and the peach crop is being harvested during August, thus making a serious labor conflict if both apples and peaches were ripening during that month. Again the early crop comes off when prices are highest, while late apples are harvested at a time when prices are lowest and must be stored. Grimes and Jonathan are not often stored, but sold as soon as possible after picking, as experience has shown that taking storage costs, and price into consideration, there is on the average little to be gained by storing these varieties. These two varieties are of high quality and except in years of heavy production, like the year 1926, they bring profitable returns. There is also a general feeling that these two varieties are a distinct asset in the orchard for pollination purposes with such varieties as Stayman, Paragon and Winesap.

**Index Number of Apple Prices by Months.** Referring again to prices, and the statement that we sell our apples when prices are high, attention is called to the Index number of monthly apple prices for Delaware. Taking July as 100 they run as follows: July 100, August 95, September 81, October 76, November 82 and December 95. We have not worked out the index price for January, February or March, but doubtless the January and February indexes will run over 100. Thus discounting storage, freight and insurance charges, the index number will probably approximate that for July.

As regards distribution of production between early and late varieties our information is not complete. We have a record of carload shipments but not of truck shipments, except for 1924. Truck shipments are an extremely important factor in the marketing of apples from Delaware. I should judge that the truck shipments account for quite a considerable percentage of Delaware's apple crop.

The average yearly total carload lot shipments from the state for the 5-year period 1922-1926 was approximately 1744 cars. Of these 962 or 55% were shipped during July; 120 cars or about 7% during August, which gives a relative production of 62 to 38 in favor of early apples. That is, for the 5-year period 62% of the carload shipments made were early apples and 38% late apples. These figures, while correct only insofar as carload shipments are concerned, will give one a fairly clear picture as to the relative importance of the early and late apple crop in the state.

The figures for carload shipments for 1927 are incomplete, however, the shipments prior to July 31st were 673 cars, with 207 cars for August. The season was late in 1927 and under normal conditions most likely one-half of these 207 cars would have been shipped in July.

It is possible that a few cars of late apples coming out of storage were included in the number of cars shipped before August 1st, but the number would be so small that they can for all practical purposes be disregarded.

I have previously spoken of truck shipments. In 1924, the only year for which we have reliable figures, there were approximately 50 cars shipped by truck and 1355 cars by rail, of the rail shipments 850 cars were early apples. In the same year there were manufactured in the state 15,000 cases of No. 10 cans of apples; 5,000 cases of No. 10 cans of apple butter; 18,000 cases of No. 2½ cans of apple butter; 2,000 cases of No. 2 cans of apples; and 80,000 gallons of cider. These figures on canned apples, apple butter, and cider will give some idea of the apple by-products business in Delaware.

I think that you grasp the fact that a high percentage of the apple production has to do with early apples. The early varieties are principally Yellow Transparent, and Williams. In some of the years for which figures were cited a large amount of early apples have not picked on account of low prices near the end of the early apple season.

**Has Delaware Overdone the Early Apple Business?** Many of our growers feel that she has. Others say that if certain unprofitable varieties like Early Ripe were eliminated we could well handle the marketing of the crop. Early Ripe is a biennial bearer and self sterile. Years when it comes with a full crop, the amount produced tends to depress the price of Yellow Transparent, and ruins the market. It is doubtful if any further great increase in acreage of early apples will occur. Rather the growers are turning their thoughts more to late varieties. I am expecting a normal increase in acreage of late varieties, and possible decrease in acreage of earlies, due to cutting down of unprofitable early varieties.

**How Are Delaware Apples Handled?** All of the early crop is handled in hampers or bushel baskets. For the past year or two the use of the bushel basket or bushel tub increased greatly and probably 80 to 90% of the early varieties are handled in this way. Also during the past few years the use of the barrel has been decreasing in handling the late crop. More and more the bushel basket is being used, both for quick sale and for storage. Only a few of the larger growers still use the barrel to any great extent and even they are now using the bushel basket for the early winter varieties such as Jonathan and Grimes. One might say that the box is not used at all. A few growers sometimes pack a few boxes of fancy grades, but the practice appears to be on the decrease.

The by-products business in canning, apple butter, cider, etc., is on the increase. I have given you the figures for 1924. Since that time the amount of by-products has probably increased.

Our troubles from a growing standpoint are primarily three. 1st—Cost of production. 2nd—Scab control. 3rd—Codling moth and Oriental peach moth. I have linked codling moth with Oriental peach moth as it is difficult to separate the two problems.

Some of our high costs of production have been cultivation and fertilization. Some effort is being made to lower growing costs by the utilization of permanent crops of sweet clover and alfalfa in the orchards. Some growers have been unusually successful with sweet clover but the practice of growing alfalfa in the orchard as a permanent crop is still an experiment.

Scab control is of paramount importance on some varieties such as Yellow Transparent, but on the whole our growers are handling the problem successfully by spraying. Codling moth control, however, is another story. For several years past in a large number of our orchards second brood codling moth has caused enormous losses on late varieties. In some orchards the per centage of cull fruit has run upward toward 90%. The moth has not been a serious factor in the production of early varieties, but there is a growing feeling that neglect of codling moth sprays on early apples has contributed largely to the losses experienced on late varieties.

**Distribution of Delaware Apples.** I take it that you will be interested in where our apples go, that is, what is the distribution of the crop. Our records are not complete as we only have the point of destination of carload lots to those cities upon which the Federal Government makes a market report. The cities east of the Mississippi upon which we have reports numbered 34 in 1926. In that year Delaware apples went to 30 of these cities. In 1925 Delaware shipped apples to all of the 20 cities reported upon. In 1924, 20 cities reported,

we sent apples to 13 of them; and in 1923 we shipped apples to 13 out of 20 reporting. We do not have figures as yet for the 1927 crop.

The 4 cities reporting in 1926 to which we did not ship, namely, Atlanta, Cincinnati, Indianapolis, and New Orleans, had received shipments in previous years. The point farthest west to which we ship is Milwaukee. The farthest north in the U. S. is Portland, Maine; farthest south, Tampa, Florida; and New Orleans, La. The main points for heavy receipt of Delaware apples based on an average of over 10 cars received per year are: Boston, Buffalo, N. Y.; Philadelphia, Pittsburgh, and Providence, R. I. The average yearly carload shipment to Boston for the 4 years 1923-26 was 141 cars; to Detroit, 91 cars; to New York, 139 cars; to Pittsburgh, 122 cars; and Philadelphia, 204 cars. It is quite likely that with the exception of Philadelphia, all or the majority of these cars represent early apples. The Cincinnati situation is interesting. In 1923 we shipped 14 cars; in 1924, none; in 1925, 32 cars; and in 1926, none. The shipments to this market strongly suggest a correlation with the size of the early apple crop in Southern Illinois, Kentucky and Tennessee.

The records which we have fall far short of accounting for all cars shipped in any one year. In 1923, 38% are unaccounted for; in 1924, 44%; in 1925, 43%; and in 1926, 41%. We might with a great deal of confidence say that of the carloads of apples sent from Delaware each year only about 60% go to cities of record. Where does the other 40% go? A great deal of them go into Pennsylvania, cities like Scranton, Wilkes Barre, Hazleton, Harrisburg, Altoona and Williamsport get their share. We also know that in times past, heavy shipments have gone to Toronto, Montreal and Quebec. A few are exported, but not many. Probably every city in the East of over 25,000 inhabitants consumes Delaware apples in some form or other during the year.

One thing noted in distribution that interests me greatly is the fact that large quantities of Delaware apples are shipped into the apple belts of New York and New England. For example in 1926 Buffalo took 69 cars; Rochester, 7 cars; and Syracuse, 11 cars. Seventy-seven cars of Delaware apples went into the heart of the apple belt of Western New York. In the same year Boston took 124 cars; Springfield 32 cars; Worcester 4; Hartford 18; Bridgeport 5; and Providence 29. A total of 212 cars for New England, south of Maine. Needless to say these were all early apples. The moral is, ship your apples where they have a cultivated appetite for apples and ship them at a time they cannot get them at home. The best apple market is where apples are grown.

**Competition.** Every man in business is wise if he learns all he can about his competitors, their product, their methods of production, their markets and above all the time they are in the market. This holds as true for the apple grower as for the manufacturer of radio panels, or women's dresses. As stated before the competition area for Delaware's early apples is much smaller than the competition area for late apples. Late apples from Delaware come into competition with all the apple producing areas of the United States. Early apples have a very much smaller area of production competition. We have seen that the bulk of Delaware shipments of early apples comes in July. Hence, in early apple competition we are concerned only with those areas which ship apples in July.

Of all apples shipped in carload lots, in the United States during July for the past 4 years Delaware's share varies from 24% to 39% of the total with an average of 31.5%. Thus we can confidently say that about 1/3 of all apples shipped to market during July comes from Delaware orchards. This is an important fact as we have already seen that the price index is 100 for July.

The next question to settle is where does the other 2/3 come from and does it compete in the same markets. A glance at the shipping points for July convinces us that some late apples are still coming to market as for example New York in 1927 shipped 13 cars, in previous years Oregon has shipped a few cars as has also Pennsylvania, while the State of Washington has averaged about 53 cars in July for the past 4 years. Obviously the bulk of the shipments from Washington, Oregon, and New York are hold over late apples and do not come into direct competition with the early crop as the fruit is largely put to a different use.

A glance at the statistics shows us that Delaware's chief competitors for the July market are California, which averages nearly 40% of the July shipments, and Southern Illinois with an average yearly production of about 17.5% of the early crop. Thus we see that three states, Delaware California, and Illinois furnish about 88% of all apples shipped during July, and if we were able to definitely identify and eliminate storage apples shipped during July we would still have a higher percentage from 3 states. The Eastern Shore of Maryland averages about 108 cars per year, but for all practical purposes, the Eastern Shore of Maryland can be considered a unit with the Delaware producing area. Outside of the states already mentioned the chief competing production areas are New Jersey, Virginia, West Virginia, Arkansas, Indiana, Georgia, and Ohio. Plantings are increasing in Tennessee and Kentucky.

**The Outlook.** One of the great early apple consuming and distribution points is Chicago. Delaware does not enter heav-

ily into the Chicago market, averaging only about 17½ cars per year. California, Illinois and Indiana, do use the Chicago market. Delaware does not ship to St. Louis. St. Louis adjoins the Illinois producing district and probably is a large marketing center for Illinois apples. St. Louis also probably absorbs some Kentucky, Tennessee, and Arkansas apples. Thus we can see that a considerable portion of our marketing competition disappears at once. Delaware's natural market for early apples is to the North and East, including such midwestern cities as Pittsburgh, Cleveland, and Detroit. As long as our competitors from South of the Ohio, and West of the Alleghanies, keep out of the Eastern markets we have little to fear from them with the exception of California. There is, however, a large and mainly undeveloped district to the south of us in the Virginias, Carolinas and mountain sections of Georgia and East Tennessee, that can cause Delaware real trouble in the future.

Delaware has quite materially improved the quality of her pack during the past year and will continue to do so. This is a necessary step; as competition increases, and competition is bound to increase, the best markets will be dominated by that district that was first in them with a quality pack up to or exceeding U. S. Standard of Grades and Inspection. If we can reach such a status in the large Eastern and Northern markets before our competitors do, we have but little to fear for the future of the industry, providing that we will be satisfied to hold our producing acreage practically stable at its present figures.

At this point Dr. J. S. Rittenhouse, the Vice President, took the Chair.

**Question:** How about the Japanese beetle?

**Dr. McCue:** Fortunately we are not bothered with them in the truck section. They are only in the northern part of the state and they have not been spreading rapidly. They are not present in any quantities to cause serious injury.

#### **RESULTS OBTAINED FROM THE USE OF DIFFERENT OILS IN THE CONTROL OF EUROPEAN RED MITE AND OTHER INSECTS**

G. F. McLEOD, State College

When I say oils I am talking of oil, the active ingredient. When I say oil sprays I am talking of oils as they are ready to be applied to trees.

There is confusion about "viscosity," "flash points," and other terms. Density, or the specific gravity of the oil means whether it is a thick or thin oil. It distinguishes between lubricating oils and kerosene or volatile oils. The density seems

to have an effect upon the killing power of the oil. Volatility means going off into the air or changing into gaseous form; evaporating. Volatile oils generally are ineffective against egg masses and scale insects. The slowly evaporating oil (which in most cases is a lubricating type) is better, in that it persists as a film. Viscosity, or pourability is the ability of the material to run through a given aperture in a given amount of time. An oil may be very slow to pour and yet volatile. The varying characters of oils seems to affect their value for killing bugs.

Then there is another phase, the danger of injury to the plant. The characters that identify an oil with regard to its injury to the plant seem to be largely centered in a process known as sulfonation. Sulfonation means the refinement of oils with sulfuric acid or liquid sulfur dioxide so as to remove cracked oils, so called aromatics. These cracked oils and aromatics are more liable to injure plant tissue than are the heavier oils. The more highly sulfonized the oil is the safer it will be for us to use. The flashpoint of an oil is the temperature at which an oil gives off a combustible mixture, which will ignite. This could be used for detecting blended oils, where they mix a lubricating or non-volatile oil with an oil of the volatile type. They might lower the flashpoint by adding the other oil.

**Oil Emulsions and Miscible Oils Compared.** So much for the oil itself, the active ingredient. Oil emulsions and miscible oils are the product ready to apply to the plant. There are three elements in an oil emulsion—water, an emulsifier and oil. The water is the carrier or vehicle in which the oil, the killing agent, rides; and it is wrapped in a package which we call an emulsion. Water is the most generally accessible carrier. The emulsifier is most commonly a soap of some kind. Casein, glue, Bordeaux mixture, and various fats, vegetable oils, and alkali soaps, are also used.

What is the difference between an oil emulsion and a miscible oil? The oil emulsion is usually a little lower in oil content; it has less of the actual killing agent. It is therefore, lower in price. As a rule it is less stable when fixed with varying water supplies, dirt in the spray tank, and lime sulphur and other chemicals that may enter. The miscible oil is generally higher in oil content, hence higher in price, and is more stable.

**The Way Oils Kill Bugs.** The volatile oils usually pass through the body or through the eggs and dissolve or coagulate the tissues. The non-volatile or lubricating oils kill chiefly by actual suffocation of the insects, shutting off their air supply, exactly as would happen to us if we jumped into a tank of oil and sunk our heads.

Oils were used for killing bugs as early as 1763. Kerosene was used on plants almost as soon as it was for illumination purposes. The recent interest in oil sprays is due to the tremendous increase in European red mite and the resulting damage in Pennsylvania orchards. There have been isolated cases of growers who have used oil sprays for many years in an attempt to control San Jose scale, especially where the scale infestation has been very heavy.

**Insects Controlled by Oil Sprays.** There has been reported in a number of state and Federal publications the increased efficiency of oil sprays over lime sulfur in controlling San Jose scale. It is now generally accepted by research men in entomology that oil sprays will kill a heavy infestation of San Jose scale better than lime sulphur. There are many other scales for which oil sprays are successful. In some of the central counties of Pennsylvania we have successfully controlled the globular scale of the peach and have not injured the trees. There is an orchard in Northumberland County that was practically ruined by the globular scale until sprayed with a miscible oil and is now in a healthy condition.

The adult pear psylla, an insect about which we know very little in Pennsylvania, is killed by three percent oil spray. Tree hoppers and other insects which slit the bark and deposit their eggs are killed by a three percent oil spray. Leaf rollers have been killed in the Northwest and somewhat in New York state. We get some kill of leaf roller in this state with the heavy oil emulsion, but we will have to use more oil if we are going to get at the leaf roller problem. The results from the Northwest indicates that an 8 percent oil spray is necessary for the control of leaf rollers by killing their eggs. Some research workers and fruit growers claim a good control of aphids on apples with oil sprays, yet if I were the owner of an orchard I would still keep nicotine on hand for aphids. Dr. Frost, at Arendtsville has reported killing red bug eggs in a delayed dormant spray with oil. Oils have recently come into slight use as spreaders and stickers. That is a new development and is not to be considered in a practical way by the fruit growers as yet.

**Limitations and Difficulties in Using Oil Sprays.** Oil is not a fungicide in any sense, but many of the oils recently developed will mix with fungicidal materials such as lime sulphur, Bordeaux and soluble sulphur. There is still some danger of injury to plants. Even with our improved commercial oils we can not disregard the careful handling of oil sprays. The highly volatile oils are not usually as dangerous as the other forms but they cost so high that they are not used largely.

The weather limits our ability to apply an oil spray. Hot weather and low humidity seem to be very dangerous. Some

defoliation has been reported. In the dormant season we have the danger of freezing. Generally weak trees will be injured more quickly by oil sprays than will healthy trees. The most severe injury is defoliation. When you get defoliation you know you have done something, particularly if it occurs in July. Last year we found some dead twigs, and fruit spurs turned brown and got soft and mealy. That was direct oil injury. We could almost trace where the oil had stopped running on those twigs. You will also get sometimes in oil sprayed orchards an early drop of the fruit. A very common injury in the colder parts of the state is a delay in the starting of the buds, sometimes as much as ten days. Sometimes the fruit on the trees sprayed with oil is more slow in coming to full maturity as to color and finish.

What is the place for the oil spray? It is not to replace any other spray material. The place of the oil spray in our Pennsylvania spray schedule is for the control of the European red mite and San Jose scale. There it stops. In those counties which receive our spray service we tie the oil spray in so as to get the maximum benefit of the oil on aphid eggs. We wait until the last moment in the hope that most of those aphid eggs will crack and allow the oil to get in. Nature can't read our spray calendar and nature alone determines when those eggs will crack and the aphids come out. But our first consideration is to put the oil on with safety for the fruit tree and our main purpose in putting it on is to kill red spider and San Jose scale.

**Life History of Red Mite.** The European red mite was first reported from this state by Dr. Frost in 1919. It was probably here for a long while before but we had confused it with other mites very much like it. It is now generally distributed over the eastern fruit growing regions of the United States. It winters over as tiny eggs, about the size of a grain of pepper, on the twigs and branches of the trees. Those winter eggs hatch in the spring about the time of the pink spray. In the year 1918 the first eggs hatched, Dr. Frost says, on April 22nd. In 1921 the first eggs hatched on March 31st. In 1922 they hatched on April 28th. Last year the first eggs that I saw hatch were in Lehigh County on April 28th. There are eight or nine generations a year in Pennsylvania. A hot, dry spell favors their development and their numbers increase tremendously. Cool, rainy weather after they have hatched retard development.

This mite reduces the vitality of a tree by withdrawing the green coloring matter, called chlorophyl, out of the leaf; this is the only source that the tree has for manufacturing food to store in its fruit buds, for maturing its fruit and for making growth. Injured trees will defoliate much earlier than trees

that have been protected. In some examinations made last year I found an average of twenty eggs per spur in the spring. We counted 5,000 leaves with mites on them and the average, on May 13th, early in the year, was 15 mites on a leaf.

This reduced vitality is shown in the smaller size of the buds. The growth of the trees is shortened or they become spindly. This year we had distinct evidence bear me out that the color and finish of the fruit as well as the size of the fruit is distinctly damaged by this mite.

Red mite may be found in practically every orchard in the state, both apple and peach. I inspected fifty orchards in eight counties of southeastern Pennsylvania, at harvest this fall, and in 94 per cent of those orchards the eggs were on the fruit. When they are on the fruit they are certainly thick on the twigs and branches.

To summarize, oil sprays are complex, variable chemical combinations. Use them carefully. Oils are not a substitute for lime sulfur. The demonstrations show that a three percent oil spray applied as an early delayed dormant is the best procedure for red spider. It must be followed by four to five summer applications of liquid lime sulfur if you would clean up entirely. Oil alone is not a complete control method for red mite. All trees in an orchard must be sprayed or the spread will come over from a check tree. Dust is not an efficient control for the red mite. Summer oil sprays are not yet recommended for general use in Pennsylvania orchards.

### WEDNESDAY EVENING

JANUARY 18, 1928

The Banquet Session convened at 8:00 p. m., at Pythian Hall, the President, Mr. Sheldon Funk, presiding.

**President Funk:** It gives me pleasure to introduce to you the President of the American Pomological Society. A number of years ago he published an apple orchard survey of North America, one of the most valuable surveys that has ever been gotten out. At the present time Mr. Rees is connected with the New York Central Railroad in the Agricultural Relations Service.

### THE OUTLOOK FOR APPLE GROWING

R. W. REES, Rochester, N. Y.

I want to congratulate you on the wonderful fruit exhibit you have this year. I think it is especially commendable considering the climatic conditions which we were up against in growing the 1927 crop.

**Early History.** Let us look back for a minute at the early history of the American fruit industry, beginning with its de-

velopment around the small settlements in the early days, when it was pretty largely a matter of producing fruit for home use or at most for the local market within ox cart or wagon haul. In those days there was very little need for standardization of grade or package, as you had a direct grower-consumer deal in which the consumer saw what he bought and bought on appearance rather than on specified types. With the development of transportation that whole condition changed. With the development of rapid transportation, and particularly the refrigerator car, centers of production have tended to go farther and farther away from centers of consumption, as we see at the present time in the largely developed fruit and vegetable districts of the Northwest.

Another thing which has had an effect has been the development of cold storage, making it possible to carry the apple crop throughout the entire year. As Dr. McCue pointed out in his talk, Delaware's early apples have to meet the competition of cold storage apples from other sections during the month of July. So we have a twelve-month apple crop due to cold storage, a condition which did not exist in the early days.

**Competition from Vegetables.** I think we all realize that the apple industry in the east faces two principal sources of competition; one from other fruits and vegetables, and the other competition with other apple-growing districts. In regard to competition with other fruits and vegetables the development has been rapid. Most of you can remember when, in the rural districts at least, the apple was practically the only winter fruit. We thought of the apple as the primary fruit food throughout the summer and winter, up until early spring. That condition has changed pretty largely. Look at the citrus industry. Today you can go into a grocery store in any village or hamlet throughout the United States and buy citrus fruit every day of the year. Our banana consumption has jumped to where it now amounts to 18 pounds of bananas for every man, woman and child in the United States. We have a real competition from these two fruits.

Then we have competition from lettuce, celery, spinach, cabbage, which in all centers of consumption are on the market every day of the year and are doing much to balance the diet, which was formerly done by the consumption of apples. These industries have grown up on a large scale, in large districts, and I believe that we can expect them to continue and produce fully as much as the market wants.

Then we have strawberries coming in to compete with apples throughout the cold storage period. We have cherries from California to compete with the late storage apples and with early summer varieties. The cantaloupe has taken a very

important place. All these industries are holding up well as far as acreage is concerned and they will keep on planting as long as these crops can be grown at a profit.

**Competition from Other Fruits.** Some of the other fruits are particularly important as competing with our summer and early fall varieties. The grape industry has had the most phenomenal growth of any during the last seven or eight years. California was shipping about thirty-five or thirty-seven thousand cars of grapes previous to 1920. Now it is up around seventy-five thousand cars a year. Last September I was in Fresno, California, when they moved 4,400 cars of grapes out of that district in three days. When grapes move at that rate, 4,400 cars, 44 straight trainloads of 100 cars each, out of one district in three days, it means competition.

The juice industry, of course, has had the biggest increase there. Previous to 1915 there were no juice grapes shipped out of California; now the movement amounts to about 50,000 cars a year. Just how directly this affects the apple industry is hard to say. Juice grapes undoubtedly replace a considerable amount of apple juice if we take the figures on beverage cider manufacture as an indication.

Peaches, apricots, prunes and plums and a number of other fruits are all being produced to a saturation point; when the various commercial districts all hit with a crop it is pretty difficult to realize a profit for the average grower, and the acreage is sufficient for some time.

Pears are showing the most phenomenal growth of any fruit at the present time. This is almost entirely on the Pacific Coast. The Pacific Coast produces 95 percent of the canned pears of the United States. They have a sufficient acreage at the present time to absolutely kill the eastern Bartlett pear market for fresh fruit and they will send all the fresh pears east that the market will stand. California dries about five million pounds of pears, largely for the Scandinavian markets, and will continue to can pears at a heavy rate.

As to what our competition from pears is going to be, I believe it is conservative to say that California, which produces 200,000 tons of Bartlett pears at the present time, has an acreage capable of producing 400,000 tons in 1935 or thereabouts, practically doubling the production of that one variety. As you go farther up the coast you find that the acreage of Bartletts has increased considerably, but in the Rogue River Valley the tendency has been to go more heavily into winter varieties. We are going to have a considerable increase in Bose, Anjou, and those varieties which come on for the winter markets. As you go on north into Hood River, Yakima and Wenatchee, for the last few years it has been the general plan, particularly in Hood River and Yakima, wherever an apple

tree is taken out to put in a pear tree. There is a marked tendency towards pears throughout those districts.

Summing up the competing fresh fruits and vegetable situation, during the last five years those fruits and vegetables which compete directly with the apple have increased about 35 per cent in volume. The preceding five years they increased 50 percent in volume. To what extent we can increase the appetite of the American public for apples, under these conditions, is a question.

**Competition from Canned Goods.** Today I ate lunch in a very good restaurant in Harrisburg and ordered fruit cocktail. That fruit cocktail was made up of canned pineapples from Hawaii, canned peaches and canned pears from California, and canned cherries from Oregon. You will find that in a large percentage of the medium-priced restaurants, at least, that they are using an increasing amount of canned fruits and vegetables, first, because the increased overhead of space rental for fresh fruits is high; second, the largest chain restaurants, which have gone almost entirely to canned goods, say they can't get the uniformity in fresh fruits and vegetables that they can get with canned goods. They don't have to have a buyer now because they can go to the telephone and 'phone down for so many cases of this, that and the other and then know that it will come all right. They don't have to have a man in the market long before daylight to make selections.

Pineapples have only been canned a comparatively few years. Fifteen years ago canned pineapples were almost unknown; today there are a little over eight million cases a year in the pack. On peaches, pears and apricots, in the last ten years there has been an increase of 175 per cent in the pack. The apple industry is meeting tremendous competition from canned goods. With the increased use of canned goods in restaurants, and increasing population in apartments, we will see that competition continue and expand.

**The Competition from the Northwest.** The situation doesn't look nearly as bad when we consider that during the last 15 years there has been a very rapid decrease in the total number of apple trees in the United States, dropping off fully a third. This has come about to a considerable degree, through the decline of the general farm and home orchards, and large acreages through some of the central states where, due to climatic conditions, crops were very irregular. But this reduction has not yet been reflected in the commercial crop of the United States, because our orchards today are in the hands of better growers than ever before, men who are making a better study of their problems and who are getting a higher yield per tree and a higher yield per acre than we have ever

had before in the history of the apple industry. That has kept up our production. I believe that I am safe in saying that within the next few years, in any year when climatic conditions are such that the Pacific Northwest, the Shenandoah-Cumberland and Western New York districts all come in with a heavy crop (and when climatic conditions are right for those three sections they are right for the rest of the country) we are going to have more apples than the market will take at a profit especially if we market the whole apple crop instead of leaving the culls at home.

The apple planting in the Pacific Northwest has been very light for a number of years. Thousands of acres were planted which never should have been planted; hundreds of men engaged in the business who didn't have the business capacity or the capital to stay in the business. Practically all of that is now a thing of the past. They are out of business and their orchards are off the map. We still have a big apple industry in the Northwest amounting to more than 40 percent of the total commercial apple industry of the country. A lot of that acreage is good; some is not so good. In all the districts they feel that they have reached their maximum production because their trees were planted too close together, about 18 or 20 feet, and have already come together. So they have a maximum bearing surface and it is now a case of thinning out, which will hold down yields per acre for some time. The trend has been to reduce rather than increase the acreage there. Hood River Valley, 15 years ago, was considered the center of the apple production on the Pacific Coast. Last September when I drove over that valley it was a most disappointing sight. The tendency there is going to be for a constantly declining acreage. Wenatchee will continue to produce a lot of apples. Only two varieties will show increased production. Delicious is undoubtedly going to increase heavily and they grow a good Delicious in the Northwest in spite of the fact that some people say they haven't any flavor. They grow the kind that the markets want and you are going to have keen competition from them. They grow a good export Winesap and a good domestic Winesap and they are going to continue to produce a lot of Winesaps for the storage market. On Jonathan and Rome, the two other most important varieties, the trend certainly will be downward in production.

**Competition from the Central States.** Coming across to the Central territory, I think that we need not look for any material increase in winter varieties. The big Ozark district, which is almost entirely a Ben Davis district, is not planting sufficiently to keep up their production of Ben Davis; but the early apple belt, extending from the Ozarks through Illinois, Indiana, across to Jersey and Delaware, is going to continue to increase somewhat. Districts to the north are going to de-

crease very rapidly in the production of early apples. Southwestern Michigan in the last two years has cut down a really large acreage of Duchess and some Wealthy, because they couldn't meet the competition of higher colored fruit coming in just ahead of their crops.

We are going to see, in the early apple industry, just what happened in the peach industry. There was a time when Western New York, the eastern district of Pennsylvania, southwestern Michigan and northern Ohio produced a lot of early varieties of peaches. Go through that territory now and you find hardly anything commercially but Elberta. The development of the southern peach field drove out all early varieties of peaches that far north. The development of an early apple industry in the latitude I have just mentioned will put out the early apple industry through the north, with the exception of local markets.

It is not necessary for me to say very much about conditions in the Shenandoah-Cumberland Valley. That territory has a potential possibility for a considerably increased production, if we take the age of their orchards into consideration. We know that some of those orchards are in rather poor shape and in poor hands but we know there is a big acreage of good commercial orchards well located in the hands of good producers and that they are going to continue to produce apples; you are going to have to meet them in domestic markets and in the export trade in increasing amount, I believe.

**Competition from the East.** Western New York, which gives you quite a bit of competition by shipping into this state, has gone through as hard a period of depression during the last four years as any section in the United States. For four years they have hit crops when everybody else did, with low prices, and they have failed on the years when there were good prices. However, the industry is not dead, by a whole lot. Apple trees live to a good old age in western New York and it costs a lot of money to cut them down and they are not going to be cut down very fast. I don't believe that we are going to see the decrease from that territory which some people have hoped for, because it is an old-established industry, with orchards that stand up under more neglect than they will in most other parts of the country, and they are going to stay.

New England has increased its production more rapidly than any other section in the United States. In the last 15 years there has not been a big increase as we talk about it in thousands of acres, but a big increase on a percentage basis, in the number of good young orchards that are being developed by men who love the orchard industry. They are growing mighty good fruit. I think that I can say without prejudice that the state of Massachusetts has made more progress in

perfecting their grading and packages than any other state in the United States during the last six or seven years. They have increased the quality of their product materially during that time by increasing the acreage of McIntosh and Gravenstein.

We have a very interesting example of what good quality means if we take the Boston market as an example. A few years ago, during the forepart of the winter you could go to any fruit stand or to any fancy grocer in Boston and you would find every one of them carrying western Jonathan and western boxed Delicious. You would probably find five percent of the better stores that were carrying some local grown fruit. The fruit dealers complained about local stock because it wouldn't pyramid well—they were not sized even enough to do that. But with the development of a better pack in Massachusetts they gradually edged into that Boston market until at the present time you will find 100 percent carrying New England grown McIntosh during its season and you will find a pretty big percentage that are not carrying any western boxed stock at all. Carlot shipments of apples from the west have dropped off something like 300 percent in the Boston market during the season of local fruit. They have won back their local market by growing quality varieties, and standardizing their pack.

Then they got to producing a little more than the local market would take and they have shown that they can expand. New York City has become a McIntosh market, supplied pretty largely from New England and the Hudson Valley of New York state. I bring this up as pointing out the importance of building up a local market with local fruit of quality production and quality pack.

I understand that about 80 percent of your apples in Pennsylvania move to local markets in less than carlot, mostly by truck. I believe that you are now coming into an era that is more favorable; that the trend of a few years ago, when centers of production were going away from centers of consumption; is drifting the other way. With the increased competition in the cost of producing fruits and with high transportation charges, there is a tendency for production to come back and develop around centers of consumption. Your good roads have extended that area very materially. There is no doubt but that the most prosperous fruit sections, in the last five years the ones who have stood competition best, are those which have catered largely to nearby markets. I wish to congratulate you on your fortunate situation in this respect and to wish you well in your efforts to build up a better quality product, to grade and pack it more attractively and deliver it to your consumers on a more business-like basis.

Following Mr. Rees, Senator Orlando Harrison of Berlin, Md., W. S. Campfield of Staunton, Va., and several others, were called upon and contributed to the enjoyment of the evening.

#### THURSDAY MORNING

JANUARY 19, 1928

The Session convened at 9:30 A. M., the President, Mr. Sheldon Funk, presiding.

**President Funk:** The Secretary tells me he has no minutes. We had the Treasurer's report yesterday. We are ready to elect officers for the coming year. I will call for the report of the Nominating Committee.

**F. G. Reiter:** For President we place in nomination the name of Sheldon W. Funk; for Vice President, J. S. Rittenhouse; for Secretary, S. W. Fletcher; for Treasurer, C. B. Snyder. I move the adoption of the report and the election of these nominees.

**President Funk:** Are there any other nominations?

There being none, the motion was seconded and carried.

There is an amendment to the Constitution to bring before the meeting. In order to amend the Constitution it is necessary to have the amendment signed by ten members of the Society and have this in the hands of the Secretary at least 90 days before the annual meeting. This has been done. We will ask the Secretary to read it.

**R. E. Atkinson:** The proposed amendment increases the annual dues from \$2.00 to \$2.50 and provides that members of county societies shall pay to us \$1.50 instead of \$1.00.

**Mr. Shoener:** May it not have the tendency to reduce the membership and bring less in the treasury than we now have?

**Mr. Anderson:** It meets with my approval. If we can get our report out on time I would be very glad to pay annual dues of three or four dollars.

**G. W. Melcher:** If a member drops out for the sake of fifty cents additional, it would be a good riddance.

**W. E. Grove:** The New York State Horticultural Society charges three dollars and meets behind closed doors.

**Mr. Haines:** I think we should raise it to five dollars.

**President Funk:** If we had fifty cents extra, with eight hundred members, it would give us \$400 more and we could put that into the program and strengthen it. I believe the members of the organization deserve that.

We cannot account for the fact that certain members did not receive their reports.

**R. E. Atkinson:** The lists were sent to Harrisburg, to the Printing Company, with orders to send a copy to every mem-

ber. They wrote that copies had been sent to every member on the lists submitted and sent me the remaining copies, about thirty-six. Since that time those copies have been exhausted. I think something went wrong at the printing office or in the mail. I am confident that the lists were sent in good order.

**S. H. Wertz:** I understood the committee yesterday reported that we have gone in the hole pretty close to \$900 last year. I can't see how fifty cents per member is going to get you anywhere. I therefore move that the dues be \$3.00 instead of \$2.50. Even that will hardly give us an even break figuring the \$900 deficit and the fact that the proceedings were very late this year.

**J. A. Runk:** I second Mr. Wertz's motion. Let us have a little reserve in the treasury. I compared the treasurer's report of last year with this year and find that we dropped back \$900. We didn't, as Mr. Wertz put it, go in the hole \$900, but our resources did lapse \$900. Suppose that continues for two or three years more, what will we get?

Another situation that is absurd and will come back to plague us in the near future is the fact that our annual report for last year is already exhausted and there are demands coming in from libraries and from scientific associations for copies. The Secretary will have to write back and say that the Pennsylvania Association doesn't have money enough to print those reports.

**President Funk:** We still have some bonds that we have been holding as a reserve fund and we have not been willing to dip into that unless it is absolutely necessary. We didn't go in the hole \$900; our receipts were \$900 less. The principal reason for the drop in membership was that everybody was so discouraged with their apple prices last year they didn't have any money.

**Member:** In Luzerne County we have forty to fifty members. I don't know a member who received his report this year. A number missed the year before.

**S. B. Monosmith:** Membership is not reported to the Secretary. There are quite a number of our county society members who have never been reported.

**W. A. Haines:** Is there anything in our by-laws to prevent us from taking advertisements for our yearbook?

**R. E. Atkinson:** That would affect the second-class postage rate. We didn't print a regular program this year because it involved a certain amount of risk. Last year our program cost us a bit more than our advertisements brought in.

**S. H. Wertz:** I move that the proposed amendment that was read be changed so that the annual dues shall be three dol-

lars and the corresponding change made in the other article, the Secretary of the local association remitting \$2.00 instead of \$1.00 for each county society member.

The motion was seconded and carried.

**S. W. Fletcher:** It may be possible to get the proceedings in the hands of the members within a month or six weeks after the meeting, providing we do not have to wait for the county lists. The importance of getting the proceedings out promptly justifies us in printing the membership lists of the preceding year, if necessary, rather than wait, as has been done, for new lists each year.

**F. G. Reiter:** I move that the amendment to the Constitution, as amended, be adopted.

The motion was seconded and carried.

**President Funk:** The amendment does not go into effect until next year. Many of the members have already paid their dues for 1928.

## REPORT OF THE FRUIT COMMITTEE

H. L. SHANK

Our old friend, J. F. Jones, of Lancaster County, has gone. He was a great asset to the fruit business and one of the best nurserymen I ever knew. I shall not forget, as a young man, attending this Society and the cordial welcome that was shown me by men like Dean Watts and E. W. Thomas and a number of others who have gone. Let us pay attention to the young men coming into our Society and make them feel at home.

The Fruit Committee recommends reduced planting to Pennsylvania fruit growers. We also recommend general support of the Apples for Health campaign.

Last summer many of us got into trouble with peaches. We had a lot of soft peaches on our hands overnight. We would like to ask State College and the colleges of Maryland, Virginia, Delaware and New Jersey if there has ever been any experiments on peaches, in regard to fertilizing them to produce a peach that will stand up a little better in transit and not fall down as soon as it leaves the tree. A broker in Delaware told me of the trouble he had with nitrated peaches, but peaches which had been fertilized with dissolved bone and potash, gave no trouble. Brown rot isn't the entire trouble in transit. It would mean an enormous saving to the fruit growers of Pennsylvania if we could get away from this soft stuff.

We also urge our growers to use the county or state spray service with the reservation that you must be the master of your orchard. Personally, had I used the state spray program last year I don't believe I would have had any apples to sell.

We were all through spraying when the program came to our place and I am positive our trees would have never got protection had we gone strictly on that program. They can't make a blanket program. But we urge you to use it as much as possible. I would be glad to know if anything has been done along the line of fertilizing for hardening of the texture of the fruit.

**President Funk:** I would like to introduce Dean Watts, who has a very pleasing duty to perform.

#### **PRESENTATION OF THE GABRIEL HIESTER CUP** By DEAN R. L. WATTS

In presenting this loving cup to the exhibitor who has scored the largest number of points in the Fruit Division of the State Farm Products Show of 1927, it is desirable to give a brief biographical sketch of the distinguished horticulturist, Gabriel Hiester, in whose memory it is presented.

Gabriel Hiester was born at "Estherton" near Harrisburg, Pennsylvania, April 28, 1850, and died at his home near that city, January 18, 1912. His father, Augustus Otto Hiester, was a prominent citizen and an influential Trustee of The Pennsylvania State College.

In 1868, at the age of 18, Gabriel Hiester was graduated from Penn State. In 1891 he was elected a Trustee and served in that capacity until his death in 1912. No member of the Board did more for the advancement of agriculture, especially horticulture, and, in recognition of valuable service rendered, the fruit farm of the College has been named in his honor. He was elected President of the State Horticulture Association in 1905 and was serving his eighth term at the time of his death. He was Vice-President of the Association from 1902 to 1904, and a member of the State Board of Agriculture from 1881 until his death.

Mr. Hiester was widely known as an unusually successful horticulturist. He produced fruits and vegetables on a large scale for the markets of central Pennsylvania and frequently attended Farmers' Institutes and horticultural meetings in this and other states where he gave his hearers the benefit of his many years of experience as a grower of choice products. He was a man of sterling qualities, being broad-minded, unselfish, and thoroughly devoted to all interests which concern the welfare of mankind.

The highest tribute to Mr. Hiester is paid by his daughter, Mrs. Sara H. Faulkner, who, in a recent letter, wrote as follows:

"Father's two strongest characteristics and the ones that were evident in all he did were his perfect unselfishness and honesty. He never thought of his own comfort or of his own

pleasure. His time and energy were always given gladly to others, especially to those interested in the subject to which he devoted his life. He was especially interested in young men. I doubt if any one knows the number who came to him for advice and help. His example as well as his words must have been an inspiration to them. His honesty was simply a part of him. He couldn't have done a dishonorable thing. One can't even imagine it.

"I think father's absolute goodness was what drew people to him and inspired their confidence. They were always sure of him. After all, it seems to me it is just that, his absolute goodness, that made his life so well worth while. If those who come after him could learn that lesson from him, to put into everything they do honesty, unselfishness, and kindness, it would be the greatest tribute that could be paid to him."

Mr. Samuel L. Smedley, Jr., you are highly honored in being the recipient of this beautiful loving cup, presented in memory of one who was held in such high esteem as a man and as a devoted, unselfish, public servant who worked unceasingly for the welfare of Pennsylvania horticulture and for the promotion of better agricultural conditions throughout the Commonwealth. I congratulate you, Mr. Smedley, upon your signal success as a grower and exhibitor of choice fruit.

#### **OUR COMPETITORS IN THE PACIFIC NORTHWEST** S. W. FLETCHER, State College

Pennsylvania is a part of the great Allegheny Apple Belt, which stretches from the New York state line through the Virginias and the Carolinas into north Georgia and east Tennessee. This region is destined to be the apple bin of the country. Our chief competitors are western New York and the Pacific Northwest, mainly the state of Washington. During the past seven years, which have been lean years for the apple industry, these three regions have been engaged in a fierce struggle for supremacy, and even for existence. The casualties have been heavy, all along the line of battle. It is too early to predict the outcome with any degree of certainty, but I am here to report the results of my observations in the Pacific Northwest, during the past summer. These are, or ought to be, distinctly encouraging to the harassed apple growers of the east.

Very few of our western competitors have made money during the past seven years. Many of them are in serious financial straits. Orchard values have slumped badly, but still are high, as compared with the East—higher than is justified. There has been a considerable reduction in the acreage of bearing orchards and a marked falling off in new planting. The evidence points strongly toward a gradually diminishing competition from this source. Mr. R. W. Rees, a most capable

observer, estimates a reduction of ten percent, or 5,000 cars, by 1935. I would place the figure considerably higher. With the exception of the Yakima and Wenatchee Valleys, which are the leading centers of production, practically all the apple districts of the Pacific states are going back, and some are already down and out.

**Hood River.** I was amazed at the change in the Hood River Valley. When I was there last, twenty years ago, Hood River was at the pinnacle of its fame. Hood River apples and Hood River methods of culture were held up as the ideal toward which the rest of the pomological world might strive but hardly hope to attain. Hood River apples brought \$3.50 a box f. o. b. shipping point, and Hood River orchards sold for \$1,500 to \$3,500 an acre. It was a veritable pomological Aladdin's lamp. Now the once famous apple orchards are passing out rapidly. Many of those that are left are sick. The whole Valley looks unkempt and dejected, as compared with its spruce appearance twenty years ago. I say this with regret and sympathy, not with competitive exultation.

The factors that have contributed to the downfall of Hood River apple growing, aside from the prevailing low prices of recent years, which all districts have shared alike, are winter injury and the perennial canker. In 1919 the temperature dropped to thirty degrees below zero, and again to twenty-six below last December, when the trees were not yet fully dormant. The bark of thousands of trees was killed at the crown and in the crotches. Top-working on a hardy stock, such as Arkansas Black, has been recommended. Following winter injury comes an insidious disease, the perennial canker, for which no practical method of control is known. The Hood River apple industry has had a hard blow from which it is not likely to recover in a generation, if ever. The Valley probably will come back as a fruit district, but it is likely to be in pears, strawberries and other soft fruits rather than in apples.

I visited some of the other apple districts of the Northwest and found most of them on the down grade, aside from Yakima and Wenatchee. The Spokane Valley and the Bitter Root, once centers of great expectations, are practically out of the picture now. The same is true to a greater or less extent of the Willamette Valley, and the Walla Walla, Lewistown, White Salmon, Rogue River and Okanogan districts. Many of these orchards were planted during the boom years, without carefully considering soil, climate and water supply. The once aspiring apple districts of Colorado, Idaho and Montana are making very little noise and still less money. I visited the Watsonville and Sebastopol districts of California and found nothing for us to worry about there, except that there will be a heavy increase in Sebastopol Gravensteins, which

Eastern growers of early apples will need to watch. Although California produces about forty percent of the fruit, of all kinds, raised in the United States, the apple is not likely to be one of her head-liners. In fact, California does not produce enough apples for home consumption.

**Yakima.** The only apple districts in the Pacific States that will continue to give us stiff competition are the Yakima and Wenatchee Valleys. Their orchards look thrifty, and the growers are alert and determined. They are in the business to stay, though their pocketbooks are flat, except for a slight bulge, where the proceeds of the 1927 crop have been stored. Yakima, however, is gradually shifting from apples to pears, peaches, apricots and other soft fruits, especially pears. At present seventy percent of the 50,000 acres of fruit in the Valley is apples, ten percent pears and ten percent peaches. The drift toward the pear is quite pronounced here, as it is throughout the Pacific States. There is going to be over-production of pears within the next ten years.

There is a fair proportion of new planting in Yakima. The census of 1925 found 1,553,450 bearing apple trees and 330,372 young trees, a total of 1,884,022 trees as compared with 2,050,181 trees in 1918. Enough bearing apple trees were pulled out last year to reduce the output by 1000 cars. These were mostly unprofitable varieties, and fillers, but some were orchards on unfavorable sites. This type of shrinkage has been going on for several years. There has been practically no orchards of standard varieties on favorable sites that have been pulled out, notwithstanding reports in the East to the contrary.

The Yakima Valley was visited by a disastrous freeze of 19 degrees last fall, on September 24th and September 25th. It caught thousands of bushels of apples on the trees. It also caught thousands of young trees, still growing lustily, and snuffed them out; bearing trees were not injured. I saw many orchards, mainly pears, one to three years planted, that were ruined, especially orchards on low ground. Coming after several lean years, this has had a very depressing effect. The general discouragement over the apple situation is reflected in orchard values, which have slumped from \$1,000—\$1,800 an acre to \$500—\$600 an acre. Few orchards are changing hands, however, except in exchange for town property—there are no buyers.

The Yakima Valley fruit industry impressed me as a somewhat crippled but still vigorous and forward looking enterprise. The orchards are owned by keen, energetic business men who are not likely to throw up their hands and say all is lost at the first stroke of misfortune. This Valley will continue to give us the kind of competition we need in order to sharpen

our wits. Nevertheless the trend toward pears and soft fruits is unmistakable, and there will be a decline of at least fifteen percent in apple production during the next ten years.

**Wenatchee.** This is, indeed, "The Apple Capital," as the local Chamber of Commerce proudly claims. Out of this narrow valley come 16,000 cars of apples in a normal year, or approximately fifteen percent of the commercial apple crop of the United States. Unlike the Yakima Valley, Wenatchee grows apples almost exclusively. Ninety-five percent of the Valley now under irrigation is in orchard; it is difficult, if not impossible to buy unplanted land. This restricts the outlook for extension of apple growing, although a project for putting water on higher land now is being considered. There are 29,587 acres of orchard in Wenatchee proper (Chelan County) and 40,182 acres in the district, which includes parts of Grant and Douglass Counties. Wenatchee alone had 1,194,647 apple trees in 1925, a decline of six percent in five years. This reduction is due almost wholly to the elimination of poor varieties and the removal of fillers; a few marginal orchards, on poor sites, have been pulled out. The younger plantings now coming into bearing will offset this loss. There is small prospect of a reduced production during the next decade, but there will be little if any increase.

The "average" Wenatchee grower has not made any money for several years. Some have lost their orchards, on foreclosure; many others have had to be helped financially. The best growers, however, have made a moderate profit. These are the men who have been able to get yields of 400-500 packed boxes an acre, or better. When appearing before the Interstate Commerce Commission in an effort to get freight rates reduced, Wenatchee growers present figures which prove beyond peradventure that they are in a desperate plight and must have immediate relief. Nevertheless, it is observed that the 500 box an acre growers are banking money, and that the price of Wenatchee orchards has not declined to any extent. Few, if any, can be bought for less than \$1,000 an acre and many not less than \$2,500 an acre. To an Eastern man these seem like inflated values, yet I was assured that good orchards pay high interest on these valuations, as a ten-year average, hence I find it hard to weep over the sad plight of our Wenatchee competitors.

One of the chief difficulties is the large number of five to ten acre orchards. These may have been all right in 1918, when apple growing was a bonanza enterprise, but they are not an economic unit in 1927.

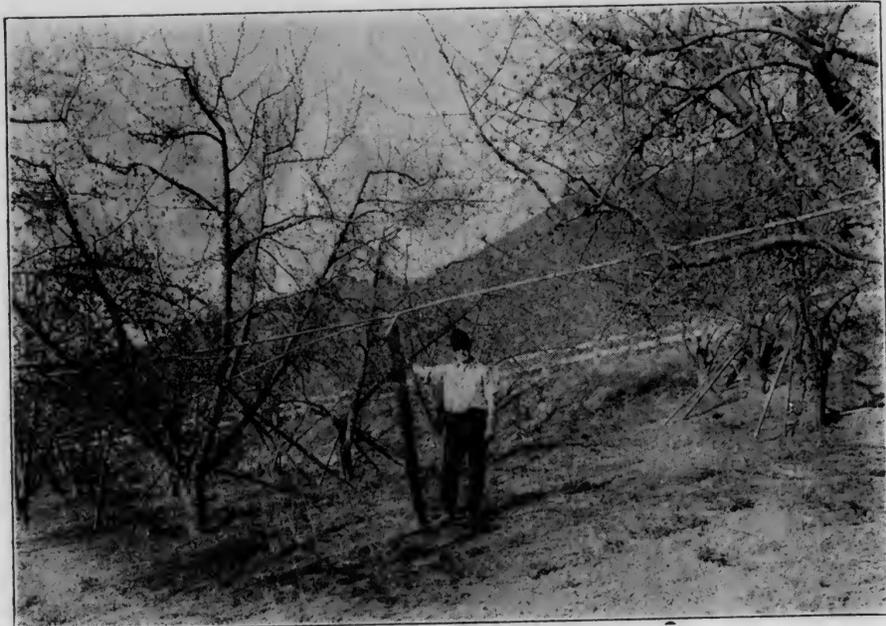
**Yields and Grades.** With a transportation charge of 87½ cents a box, and a cost of production almost double what it is in the Allegheny Region, it is evident that the only Washing-

ton orchards that have paid during the past seven years are those that have produced heavy crops of high grade fruit. The average production in the Yakima Valley during this period has been 200 boxes an acre; in the Wenatchee Valley, 271 boxes. The best orchards, however, have produced 400 to 600 boxes, and a very few 1,000 boxes. In a recent conference Wenatchee growers decided, "Orchards with an average yield of less than 400 boxes an acres have small opportunity for profit." This is a somewhat higher yield than is commonly secured in the East, with rare exceptions. The average yield in Western New York and the Allegheny Region, over a term of years, is around 200 bushels; a few growers double and even treble this.

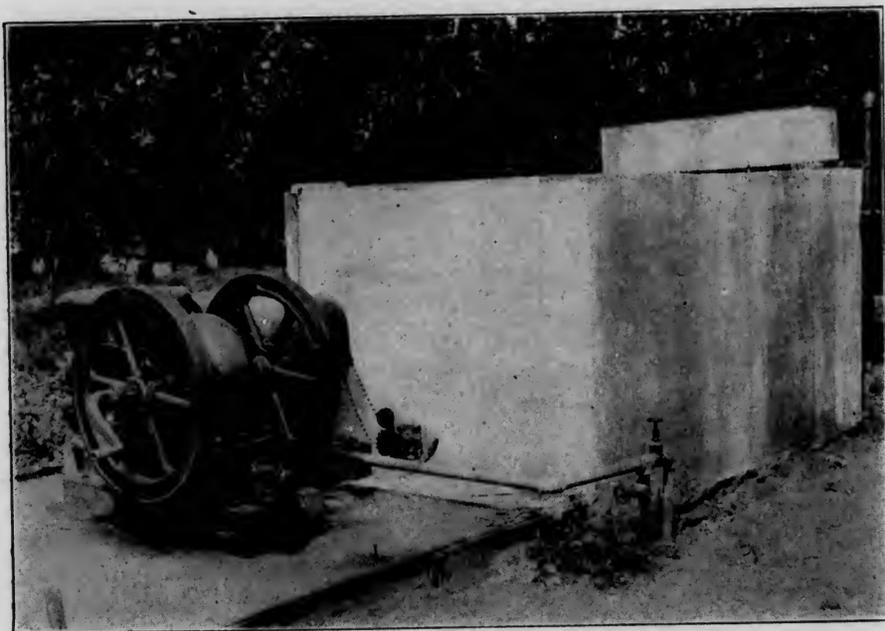
Eastern growers need to remind themselves constantly that heavy production is as essential to success as high grade fruit. This depends as much on location, especially whether the trees escape frost injury and bear regularly, as on cultural skill. I was impressed with the advantages of Wenatchee and Yakima in this respect. There has not been a crop failure in fourteen years; Wenatchee never has less than fifty percent of a crop and rarely less than seventy percent. The use of heaters has been abandoned, except in low spots. This factor of crop dependability is one of the greatest assets of these districts.

Twenty-five years ago Eastern growers marvelled when told that Hood River secured crops that were 95 percent extra fancy. These were produced on young trees in a virgin orchard country. Today, as a result of too close planting and increasing difficulty with pests, the grade is far lower. The average in Wenatchee is fifty percent extra fancy, thirty percent fancy and twenty percent C grade and culls. The best growers reduce the C grade and culls to less than ten percent. This is only a slightly higher percentage of salable fruit than is commonly secured in the East. In our own district the average is about fifty-six percent U. S. No. 1, twenty-eight percent U. S. No. 2, and sixteen percent culls. Our U. S. No. 1, however, by no means equals the extra fancy grade of the West.

**Orchard Crowding.** It seems strange that our Western competitors, with all the sad experience of the East before them, should have set most of their apple orchards twice too close. The common planting distance was sixteen to twenty-four feet apart, or seventy-six to one hundred trees an acre. At twelve to fifteen years of age these orchards are crowded, and the percentage of off-color C grade fruit mounts steadily. A large percentage of the older orchards in the Northwest are so crowded that it is impossible to secure best results. There is perpetual twilight beneath the trees, many of which are permanently ruined in shape. Many growers are failing to attack this problem vigorously. The removal of diagonal rows seems



ORCHARD SPRAY PIPE LINE, WENATCHEE



STATIONARY SPRAY PLANT, WENATCHEE  
(Photographs from D. F. Fisher, Bureau of Plant Industry, U. S. D. A., Wenatchee)

to be the best solution, but some trim up the fillers harder each year, until only one or two upright branches are left when they are finally pulled out. A thinned orchard falls off sharply in yield per acre but usually gets back to its former production by the third or fourth season.

Because apple trees under irrigation in the Northwest begin to bear early some Eastern growers have surmised that they will be short lived. There appears to be no basis whatever for this conclusion. There are sixty-year old trees in these two Valleys that are still bearing heavily; and many thirty-year old orchards that show no sign of diminished vigor. In Western New York the Spy and Baldwin do not reach full productiveness until thirty-five years old, if the trees have space enough. Possibly this is true in irrigated districts also. The newer plantings are spaced thirty to thirty-two feet apart.

**Varieties.** Our competitors in the Northwest can teach us a lesson on the choice of varieties. We grow too many sorts, and keep too many trees that do not pay their way. In the Yakima and Wenatchee Valleys only three varieties have paid in recent years, the Delicious, Winesap and Rome. The other two leading sorts, Yellow Newtown and Jonathan, have not been profitable. Thrifty, bearing orchards of Stayman, Jonathan, Grimes, Yellow Newtown and other sorts have been pulled out because they have not paid. This takes courage. Other varieties now being discarded are Arkansas Black, Wagener, Gano, Ben Davis, Stayman, and Spitzenburg. We need more of this kind of courage here.

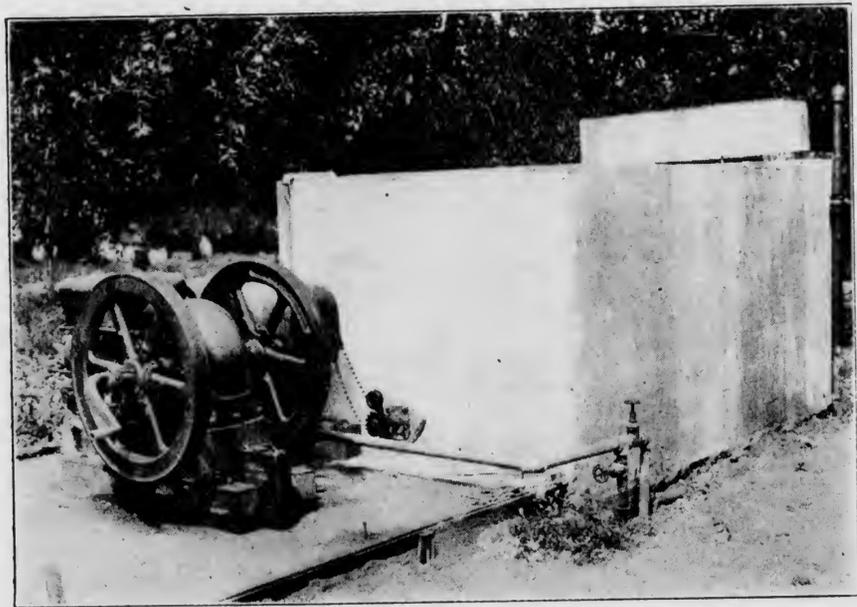
Delicious is rapidly advancing in favor; there are 332,725 Delicious trees in Wenatchee as compared with 358,794 Winesap trees. The new planting is practically all of these two varieties, with just enough other sorts to serve as pollinizers, usually less than ten percent. In Yakima, the 1925 census showed that 152,099 of the young trees are Delicious and 84,485 Winesap. Rarely does it pay to top work trees that are over ten years old, since young trees come into bearing so early.

We need to cull the unprofitable varieties from eastern orchards just as much as to cull the unprofitable individuals from our flocks and herds. Therein is another argument for farm bookkeeping. The axe should be laid at the roots of many a lusty apple tree now standing in the commercial orchards of the East.

**Alfalfa and Fertility.** The soil management methods now in favor are in sharp contrast with those that formerly prevailed. Until 1915 practically all the orchards were clean tilled, with little if any cover-cropping. Then the rosette, and other evidence of depletion of organic matter in the soil began to appear. Between 1917 and 1922 many orchards fell off



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sharply in vigor and productiveness. Now, practically all the bearing apple orchards in the Northwest are in a permanent sod of alfalfa, or sweet clover—chiefly alfalfa. It was found that annual tillage, with late summer and fall cover crops, as practiced in the East, would not provide enough organic matter. The orchards are furrow irrigated every seven to fourteen days throughout the summer, thus supplying enough moisture for both the apples and the soil improving crops. The alfalfa is not cut, but may be dragged down before harvest, if not sufficiently tramped down in spraying. The stand seldom needs to be renewed. I saw fifteen year old alfalfa sods that were still in perfect condition. The sod may be disced lightly in the spring, to work the alfalfa stems into the soil.

Apples in alfalfa rarely respond to any fertilizer treatment whatever, but nitrogen is applied occasionally on the lighter soils. The luxuriant growth, dark green foliage and heavy production of Yakima and Wenatchee trees in alfalfa and sweet clover are not surpassed by the best sod orchards in the East that are heavily nitrated. It is a striking demonstration of the importance of maintaining the organic content of the soil. In the East, we have laid too much stress on the use of nitrate and too little on the maintenance of organic matter through the growth of leguminous crops. Our alfalfa may need frequent re-seeding, and must be cut several times a season to mulch the soil, since we do not irrigate; but even with these handicaps this is an excellent way to reduce the fertilizer bill.

**Stationary Spray Plants.** Washington apple growers are obliged to spray six to nine times a season, because of overlapping broods of codling moth. There is no scab or other fungous disease in this rainless summer climate. Dusting has not met with favor. I was impressed with the extreme thoroughness of the spraying; they use a higher pressure than we do—400 pounds is considered essential—and apply more liquid per tree.

Throughout the Pacific States the stationary spray plant is rapidly replacing the portable sprayer. It was first used in 1908, in a flooded pear orchard by the Sacramento River, California. Fifteen hundred of 2,500 apple growers in Wenatchee have installed this system, in orchards ranging in size from five to two hundred acres. Last year, 325 stationary systems were installed in the Valley, and only eighteen portable outfits sold. A tank commonly holding 1,000 gallons, sometimes more, is placed near the middle of the orchard, or in the most convenient location. It is usually of concrete, and is equipped with an agitator. Adjacent to it is the pump, usually four cylinder, and the power, commonly an electric motor; gas engine power is satisfactory but more trouble. These are mounted on a concrete base. The motor should be  $7\frac{1}{2}$  H. P., developing

400 to 500 pounds pressure at the pump. This central plant is preferably, but not necessarily, housed.

From the tank, pipes are run to all parts of the orchard. The main is commonly one-inch wrought iron, galvanized inside and out, sometimes three-quarter inch; the laterals are three-fourths inch, sometimes half-inch. The laterals are run along every third or fourth row of trees, so that it will not be necessary to use over seventy-five to 125 feet of hose. The pipe lines may be laid below ground or on the surface, but in practically all of the recent installations they are run through the tops of the trees, ten or twelve feet above the ground, being supported by boards and by wires hung from serew-eyes attached to the branches. The system may be either return or dead end, commonly the latter because it is much cheaper. There are gate valves at the take off of all laterals and hose connections every 125 to 200 feet.

The cost of installing a stationary spray plant is somewhat higher than the first cost of a portable sprayer, but the difference is more than offset by a lower operating cost, chiefly because of economy of labor. It can be installed in a twenty-five acre orchard for about \$1,500. The saving in labor, according to Washington growers, is one-third to one-half. Other advantages claimed are a lower depreciation, since the system is said to be good for at least fifteen years; convenience on soft or hilly ground; and no bruising of fruit with the spray wagon.....The possible disadvantages, aside from the higher initial cost, are the complete dependence on one plant, and the loss of some spray material left in the pipes. This loss, however, is almost negligible. There is no settling of spray material in the pipes; it is kept in suspension by the velocity of its movement. One man can handle the spraying of a twenty acre orchard, alone.

I am convinced that the stationary spray system will gradually supersede the portable outfit in the East, as well as in the West. Some growers combine the two methods by connecting the pipe system with the portable sprayer, which is installed, temporarily, at the spray shed, and may be detached for spraying outlying portions of the orchard.

**Spray Residue.** The rainless summers of these valleys and the late sprays that are necessary for the control of codling moth, make a spray residue problem that has the growers greatly worried. The apples usually have at least .01 of a grain of arsenious oxide per pound of fruit, the limit set by the federal government, and frequently up to .08 grams. The losses in 1926, from condemned fruit, or fruit which had to be re-conditioned at destination were quite heavy. The dry wiping machines, which were used last year, improved the appearance of the apples, but hurt their storage value and removed only one-third to one-half of the spray residue. Ma-

chines for spraying the apples with a one percent hydrochloric acid wash are now being tried. This removes the spray residue, but may cause a browning or scald, especially at the calyx end. Last year some growers lost over fifteen percent of their apples so treated. It is evident that the crux of the matter is to dry the apples thoroughly and quickly after they have been through the bath. No machine has yet appeared that does this. The treatment of apples for spray residue is expensive, it costs about five cents a bushel. This is just another item added to an already high cost of production, and another point on which Eastern growers have a distinct advantage.

Whatever may be the disadvantages of Washington competitors in certain respects, they have no handicap in the matter of skill and initiative in the handling and marketing of their fruit. As a competitive group, we are far behind them in this respect. The pressure test is being used very largely as a means of determining the best time to pick each variety. The apples are graded, packed and put into storage the day they are picked. The culls are almost a dead loss; we have a distinct advantage in this respect. Cooperation would seem to be essential, but human nature is as frail there as here, and there is much dissension. Less than seventy percent of Washington fruit is pooled. A Northwest Master Cooperative, patterned somewhat after the citrus organization of California, has been projected, but the jealousies of competing districts has prevented its consummation.

The test of an industry is its ability to meet competition by putting a superior article on the market at a low cost. When this test is applied to the apple districts of the Northwest it reveals their greatest weakness—a high cost of production—due largely to high land values, pest control, irrigation, thinning and heavy packing expense. A fair statement of the average cost of producing Winesap apples during the past five years is: when the yield averages 250 boxes an acre, \$1.98; when 300 boxes an acre, \$1.16; when 500 boxes an acre, \$.91. The average f. o. b. price of extra fancy Winesaps during the same period has been \$1.29. This shows no profit for the average grower, and only a fair profit for the exceptional grower. It accounts for the general depression which exists throughout the Northwest, except in some quarters at Wenatchee, and even there I suspect they are whistling to keep up their courage.

**The Outlook.** I returned from the Pacific Coast feeling much encouraged over the outlook. The peak of competition from that source has been passed. It is a matter of common knowledge that our other great competitor, western New York, has slumped very badly the last few years. There is a brighter prospect for the Appalachian apple growers who have not lost heart during this unprecedented series of lean years, and who

have favorable locations. For we must not shut our eyes to the fact that the apple district of which we are a part has not escaped unscathed. Many orchards have been neglected, and thousands of trees, once promising, have ceased to be a factor in the market. Nor can we forget that during the boom days of twelve to twenty years ago many orchards were planted on sites that are unsuitable, especially as regards freedom from frost. These inevitably must pass out. I hazard the opinion that there will be a shrinkage of at least twenty percent from these causes in the Appalachian district. We shall need, also, to press much harder than heretofore the standardization of grades and cooperative marketing; and I feel assured it will be necessary to meet box competition by the use of a smaller package than the barrel. The recent drift toward bushel basket and box packing in the East, in barrel territory, is an unmistakable sign that the East is not going to resign the box trade to the West. The man who has a location that insures regular crops, and who brings cultural and business skill to bear upon his problems, may well take heart. There are better days ahead.

**J. S. Rittenhouse:** Do they leave those pipes up all the year round or only during the spring season?

**S. W. Fletcher:** All the year. There are three methods of handling the pipes—below ground, which has been abandoned; laying on top of the ground, and above ground in the tree tops. The latter is best.

**Question:** Do they pick more than once out there?

**S. W. Fletcher:** They commonly make two or more pickings.

**Question:** As I understand it, their practice is not to cut the alfalfa in the orchard.

**S. W. Fletcher:** It is left to fall down. Under our conditions we should cut it, two or three times a year. They can supply all the moisture they need by irrigation. We should cut it and get the mulching effect on the ground.

**H. W. Miller:** How much nitrate of soda are they using?

**S. W. Fletcher:** Very little. If an orchards has been put in alfalfa very little if any fertilizer is needed except on the thinner soils. The fertilizer bill in the Northwest is very much smaller than it is in the East.

**H. W. Miller:** Did I understand you to say they were discarding the underground pipe system?

**S. W. Fletcher:** Because it is an added expense. Better to have it above ground where you can get at it in case of any difficulty.

**H. W. Miller:** We find in West Virginia that laying the pipe on top of the ground is very satisfactory. I have a thou-

sand acres under pipe. It is more economical than portable sprayers. It doesn't make any difference what the weather is, you don't have to pull sprayers over the ground. Another great factor in pipe systems is that the gun man sprays ten hours a day. He doesn't have anything to do but to change from one connection to the other. We found with the portable sprayer it took twenty minutes to go in and load up and twenty minutes to come out and twenty minutes to spray that material out. In other words, we lost two-thirds of the time. In this way a man with the gun sprays material ten hours a day.

**J. S. Rittenhouse:** I would like to ask what they do to prevent the freezing of those pipes that are left out all winter? How do they drain them over uneven ground. Is it necessary to draw off the solution during the night to prevent settling?

**H. W. Miller:** Some people take up the laterals; some don't. In every little sink we have a tap in the bottom of the pipe. You go over the system and open those taps in the fall and it drains itself. Some people stop fifteen minutes early in the evening and flush out the system with cold water. That is a very good way. That will clear out any sediment, but we have had very little trouble with sediment with a 400-pound pressure.

We have found it best to use inch and a half mains, take off from them with an inch and reduce to three-quarters and then to half-inch according to length of line. The advantage of taking off with an inch is that you can feed up more against the gun. We find if we have two guns on a side line with three-quarters of an inch pipe, if you haven't plenty of material you won't feed them both.

#### DISCUSSION ON SCAB CONTROL

DR. E. L. NIXON, State College

**Question:** How much does the period of spore discharge vary in a neighborhood according to slope?

**Dr. Nixon:** Nothing at all. It is moisture, not elevation or slope. Slope is the thing that determines advancement or retarding of the blossom. I would like to talk on the passing of the spray calendar. The spray calendar is antiquated. It has been the basis of spraying for scab control in the past. The condition of the tree has absolutely nothing to do with the condition of that fungus.

**Question:** How about the effect of certain local rains?

**Dr. Nixon:** A local rain won't make the scab spores shoot. A thunderstorm won't shoot any.

**Question:** How long a period does it take to shoot them?

**Dr. Nixon:** Overnight. Half a day and night will shoot them out.

**Question:** How long do you have to spray after that?

**Dr. Nixon:** Forty-eight hours.

**Question:** The whole orchard?

**Dr. Nixon:** Yes.

**H. W. Miller:** Did I understand you to say that you wait until these spores shoot before spraying?

**Dr. Nixon:** We give you the information when they are ready to shoot.

**Mr. Miller:** You would like to have the spray on when the spores begin to shoot?

**Dr. Nixon:** Forty-eight hours before they shoot.

**Mr. Miller:** You give us forty-eight hours start, do you?

**Dr. Nixon:** More than that. We give you the information immediately when the asco-spores are ready to discharge. Then it is a case of forecasting the weather conditions. If you see that you can wait three or four days, all right, but a day or two before the rain starts, you should begin to spray and you go on through the rain, if necessary.

**Mr. Miller:** How can you get any virtue out of spraying material when it is raining? You dilute it too much.

**Dr. Nixon:** Another tradition.

**Member:** I have sprayed in the rain and have had the best results I ever obtained in my life.

**Dr. Nixon:** Because you hit it at a time when the scab spores were discharging.

**Mr. Miller:** When we have sprayed with the rain sometimes we have missed it. You say that elevation makes no difference in the time of discharge?

**Dr. Nixon:** No. Last year it was raining all over the state, day after day. The discharge of scab spores took place on the same day in Cumberland County that it did in Luzerne County and yet it was full blossoming time in the Cumberland Valley and early pink time in Luzerne.

**Mr. Shank:** Why isn't it possible to put a protection on those trees before the rain so that when it comes you can sit in your house and feel that your trees are protected?

**Dr. Nixon:** It was a nice sunny week, and the trees were approaching the pink stage—that is what you mean? And then all at once it rains like blazes for about four days. You sit in the house and fan yourself. That saves you a lot of trouble but it makes you sort out a lot of scabby apples.

**Mr. Shank:** We want you to give us a spray that will give us protection without thundering around in the rain.

**Dr. Nixon:** An apple leaf in three days' time has grown enough new surface so that it is susceptible to scab spores. An apple leaf will double in three days' time in a warm growing period. You put on the protection three days early, then it rains for three days; meanwhile the leaves have doubled in size, and we sit back in the house saying, "Well, I finished it." The scab spores are smaller than the microscopic particles of dust that we have here in this room and they shoot into the air and settle down. Here is a leaf that had a perfectly good coating of spray three or four days before, but it happens that the spores fell where there isn't anything. There it lies; it germinates and we say, "I don't have to spray in the rain."

The longest period of apple scab infection that we ever had occurred in Pennsylvania this year. The latest discharge of spores ever known in this state took place this year. Most of our protective sprays put on this year came altogether before the scab spore discharge took place.

**Mr. Anderson:** What power microscope is required and how much training will be necessary?

**Dr. Nixon:** A 200-power microscope will show these things up in beautiful shape. It could be done in two laboratory sessions. Come up to the laboratory this spring. We will put on a laboratory school in scab spore discharge. Bring a pocketfull of diseased leaves. We will test these out and find out exactly what condition those asco-spores are in. We will have some there to shoot so you can see this.

**Question:** I understood those asco-spores showed up weak in the early part of the season and you predicted there would not be a very heavy discharge from them.

**Dr. Nixon:** Yes, they developed very rapidly and if at the blossoming time it had turned off dry, there wouldn't have been enough scab in Pennsylvania to have gotten a laboratory specimen; that is just what happened the year before. If you have a dry spring, perfectly dry, it doesn't make any difference whether you spray the orchards for scab.

Dr. Peet of Wisconsin made this discovery; that in controlling scab with dust you have 19 hours that the dust is effective; in the control of apple scab with spray, you have 48 hours. Some men have had success dusting, occasionally, when there isn't much scab.

**President Funk:** On the **Executive Committee** I will appoint: R. D. Anthony, R. E. Atkinson and Samuel Smedley. **Legislative Committee:** C. J. Tyson, F. S. Fenstermacher, Dr. W. A. Haines. **Exhibition:** R. S. Snyder, Paul Thayer, W. D. Baldersberger. **Game Laws:** J. A. Runk, W. A. Haines, R. T. Criswell. **Advertising:** D. M. James, R. J. Gillan and F. G. Reiter. **True to Name Trees:** F. N. Fagan, F. M. Trimble and

H. G. Baugher. **General Fruit Committee:** F. S. Dickenshied, W. E. Grove and C. M. Sheppard.

I would like to have the General Fruit Committee bring in a very short list of varieties that they consider best adapted to the different sections of Pennsylvania and present it at our meeting next January.

**Membership Committee:** R. D. Anthony, F. N. Fagan, R. E. Atkinson, H. S. Nolt and Arthur Linville. **Agricultural Council:** C. J. Tyson, H. M. Anderson and Sheldon W. Funk. As a delegate to the meeting at Richmond, concerning rate classification, I appoint R. T. Criswell. He has arranged to go and the Secretary of Agriculture will appoint a man from the Bureau of Markets.

## HOW THE STATE BUREAU OF PLANT INDUSTRY SERVES THE FRUIT-GROWER

R. H. BELL, Director, Bureau of Plant Industry

The work of the Bureau of Plant Industry of the State Department of Agriculture has to do chiefly with the enforcement of laws designed to furnish protection to the agriculture of the state against insect pests and diseases of plants; to regulate the quality of agricultural seeds; to create sentiment for the control of noxious weeds; to conduct the state apiary inspection service; and to secure information for general dissemination, through surveys and studies of injurious insects and diseases. In addition, this Bureau is called on for much general advice and information regarding the matters just mentioned as well as others such as the control and eradication of pests, weed control, seed analysis, and the quality and source of insecticides.

**Nursery Inspection.** Not all of these are of special concern to fruit growers, however. They will be more interested in such features as the nursery and other inspection services, and peach yellows eradication work. We have a very definite and exacting law in Pennsylvania requiring that all nurseries shall be visited regularly by state inspectors and the owner be permitted to sell only after his property is found to be free from insect and disease pests. Also all agents, dealers and outside nurserymen are obliged to establish the fact that their goods have passed official inspection wherever grown before a license to sell is issued. At present this work involves the inspection of approximately 400 nurseries in Pennsylvania with 4,500 acres of stock to be examined. I wish to state at this point also that, with very few exception, we have received the heartiest cooperation from the nurserymen throughout the state. They appear to appreciate that it is not only reason-

able to expect that the buyers of nursery stock are entitled to such protection, but that it is also a real service to the nurserymen both individually and collectively in the maintenance of their business on a profitable basis.

A report of this work is issued annually giving a complete list of all our nurserymen who have complied with requirements, together with the acreage and kind of stock grown in each case. We feel it quite proper and fair to state in this connection that Pennsylvania nurseries, as a whole, are dependable sources of such stock as they grow. In fact we consider them a more satisfactory source than some more distant establishments for the reason that they have more at stake in catering to our people, are nearer home and therefore easier to get in touch with, in addition to having any advantage there may be in the acclimatization of stock.

Fruit growers should remember that all nurserymen are required to attach a copy of their certificate to every shipment of stock sent out. Also all salesmen, agents or others selling nursery stock are required to secure and carry an agent's certificate bearing a copy of the certificate of the party for whom they are selling. Thus the buyer is able to determine whether they are operating within the requirements of the Act.

**Peach Yellows Eradication.** Peach yellows eradication is of much interest to our fruit growers. Formerly this was one of the most dreaded diseases in our peach growing districts. In 1921, when the eradication work started, the orchards examined showed almost 5% of the trees infested. Since that time, there has been a gradual decrease until this year when the most extensive examination ever made revealed only .23%. This work to date has involved the examination of over 4,000,000 trees of which number 59,000 were marked as being diseased. Every section of the peach growing area of the state has been included in this work. There are some sections, however, where yellows have not so far been a serious menace and other sections that appear to have escaped. We hope that in the future many of the commercial growers who have been getting the service may be able to carry on alone so as to release inspectors for more thorough work in sections where to date less work has been done. Contact with all growers previously visited will be maintained, however, so as to have a constant check on any tendency for a new outbreak of the disease. Excellent cooperation has been received from all growers and we believe the service has been appreciated and of much value to our fruit industry.

**Insecticide Control.** The insecticide control work in which the Bureau of Plant Industry cooperates with the Bureau of Foods and Chemistry represents a greater service to the grower

than he may appreciate. The characteristics of a good tree are fairly apparent to the trained eye, but the real quality of a spray material can only be determined by chemical analysis and actual trial in the field, garden or orchard. Unscrupulous manufacturers have at time (though at present, we believe, less frequently) taken advantage of this fact and by skillful sales methods have sold the farmer much worthless or misrepresented material. It is the purpose of this work to keep a constant check on the sale of all insecticides through registration by the Bureau of Foods and Chemistry and field tests by the Bureau of Plant Industry as a prerequisite for registration of each and every brand. The manufacturer or seller of any insecticide is liable and can be prosecuted and fined for misbranding or otherwise misrepresenting his wares. Reports of this work are published at frequent intervals and always valuable to the grower who may desire them. It is unfortunate, however, to note that now and then growers or local dealers report to the Department that they have been deceived by agents selling various concoctions for the killing of all sorts of bugs, beetles and diseases. Some of these remind one of Aesops and other fabulous stories of the age of "giants" and "ogres." Sometimes these materials have been registered because so far as the label, formal directions and chemical content are concerned they met all requirements for registration. The trouble has usually resulted from claims of salesmen which cannot be readily established yet are sufficiently convincing to secure sales. These cases usually come to us after the damage has been done, notwithstanding the fact that there is abundant information easily accessible to the grower. The sad part of it often is that there are some who are more inclined to take the word of a skillful salesman than that of someone who really knows. If in doubt about such matters, get in touch with the Department of Agriculture at Harrisburg.

Along with these field tests some attention is given to trials of new materials in the control of insects for which no satisfactory remedy has yet been devised. The Oriental fruit moth and rose chafer are examples of such trials.

**Cedar Rust.** Cedar rust of apples is no longer a serious problem with Pennsylvania fruit growers. Infection occurs, however, practically every year to some extent in our commercial fruit area and since control always involves the removal of cedars from surrounding properties, the State Department of Agriculture is called on to take the necessary regulatory steps where conditions warrant it. This project constitutes a fine example of cooperation on the part of property owners in behalf of community improvement work. In many instances the presence of cedars is an asset rather than a liability to their owner, yet in every instance so far the necessary

adjustment has been made without serious complications. The Department aims to continue this service where conditions justify attention.

**Japanese Beetle.** The Japanese beetle work which the Department is doing is perhaps fairly well understood because of its newness and the intensity of operations the last few years. It may not be fully appreciated by our fruit growers and agricultural people generally that this work has a very decided interstate aspect necessitating the closest cooperation between the states directly affected and the Federal government. This feature has an important bearing in the methods used in carrying on this work. It is not only a matter of directly protecting Pennsylvania from the ravages of this pest but also of satisfying other states that everything possible is being done to prevent long distance spread through shipments from the infested territory. This is the important means of preventing very objectionable restrictions being placed on shipment of produce from Pennsylvania. This is an indirect benefit particularly to fruit growers which may sometimes be overlooked. No one familiar with the habits of insects, and particularly one so active as the Japanese beetle, believes that the ultimate spread of this pest can be prevented. It is hoped and believed, however, that the spread can and is being held up until our research people can devise control and other measures which will enable us to live with it as we are with other pests. In fact substantial progress has already been made along this line and ample information is available to those who desire it.

#### THURSDAY AFTERNOON

JANUARY 19, 1928

**President Funk:** We will have the report of the Resolutions Committee.

#### REPORT OF RESOLUTIONS COMMITTEE

1. WHEREAS, the Federal-State Shipping Point Inspection of fruits has become of considerable importance in Pennsylvania and of assistance to carlot shippers in packing and in marketing their fruit and whereas the curtailing of this work would be detrimental to the best interests of the fruit industry of the Commonwealth, be it

RESOLVED: That the State Horticultural Association of Pennsylvania strongly endorses the continuance of this work and that the Association ask the Secretary of Agriculture to take whatever steps necessary to see that the work is sufficiently financed during the 1929 season by having the funds revolve through the hands of some disinterested party (such as the State Association of Markets) in case there are insufficient

funds available from the State Department of Agriculture; and be it further resolved that a committee of the Association be appointed to wait on the Secretary of Agriculture and present this action to him in person.

2. That the Association give our retiring treasurer, Mr. E. W. Thomas a unanimous vote of thanks for his faithful services during the past twenty-five years; we feel a real loss in his retirement as treasurer.

3. That this Association is in full sympathy with the "Apples for Health" movement and we urge our members to support it.

4. That the Association has sustained a great loss in the death of two of its oldest members, J. F. Jones of Lancaster County, and Howard Chase of Philadelphia, and that our secretary convey to the bereaved families the sympathies of the Association.

5. That the Secretary be instructed to express the thanks of the Association to the State Department of Agriculture for its many courtesies during the 1928 meeting.

6. That the Association is opposed to a crop reporting system wherein future prices as well as present size and condition of crop are predicted. The Association feels that a crop report on present condition and size of the crop alone, is satisfactory.

F. H. FASSETT,  
F. N. FAGAN,  
W. W. LIVINGOOD,  
Committee

**President Funk:** If Mr. Stewart, who is now in charge of the Bureau of Markets, has anything to say we would be glad to hear from him.

**Mr. Stewart:** Since the revolving fund has been taken away from us the more work we do the more we go in the hole. We haven't the money to carry it on. The fees for inspection, you know, depend wholly upon the size of crop and condition of crop, not only fruit and vegetables, but also poultry. We have to know how many inspectors we need as early as July, so that these men can be signed up. We usually hire these men from the Federal government. They are men who have been doing work in Florida and working their way up this way. We have got to get in our bids for these men early.

This year there weren't as many cars inspected as we thought there would be, yet we had to hire these men and we laid them off just as soon as we could. When we had a revolving fund it didn't make any difference how many men we took on as long as it was self-supporting. But this year all the fees that came in from inspection had to be turned into the state treasury and we had to pay these men from the

general appropriations for the Bureau. It makes it very hard for us to estimate how many men we will need and how much appropriation will be required, because we have to make our budget two years in advance.

We are supposed to spend not more than 40 per cent of our budget the first biennium, leaving the remainder for the second year. This year we used up more than our allotment simply because we didn't come anywhere near estimating the expense it would be to carry on this inspection work.

The poultry work doubled this year. It increased from 53,000 birds to 100,000 birds. Next year we have requests indicating that it will be over 200,000 birds. We wouldn't care if we could use the fees from those inspection, but we can't.

We are trying to get by this year until we get our next appropriation. We would like to handle all the fruit and vegetable inspection that is requested, but unless something is done, somebody will have to suffer. We will not be able to take on enough inspectors to handle this work satisfactorily if we have to pay them from our appropriation. We haven't the money to do it.

**H. C. Brinton:** May I amend that resolution to this effect: that a committee present the resolution to the Secretary of Agriculture personally.

**F. N. Fagan:** We will incorporate it in the resolution.

**J. A. Runk** I move the report be adopted as amended.

The motion was seconded and carried.

#### **"INFLUENCE OF THE RINGING OF FRUIT TREES ON FRUIT PRODUCTION"**

**F. N. FAGAN**

The ringing of fruit trees is not new. It has been practiced for at least 200 years. There is one industry over 150 years old that is based entirely on the ringing of plants to cause them to set fruit. We do not see many currants on the market any more, but the dried currant, which is a small seedless grape, was secured by ringing the plant. The horticulturists of Greece still practice this method of causing the plants to fruit.

This morning we heard Dr. Fletcher tell us about the crowded conditions of orchards in the Pacific Northwest. There probably isn't a grower here but who has some crowding in his orchard. We attack this problem from the point of view of the filler tree. Apple orchards have been planted in Pennsylvania and other states using filler trees, with the idea of taking them out when they start to interfere with the permanent trees. We didn't always take them out, did we? At the college we have twenty acres of apples planted 20 by 20,

one permanent to three fillers. They are Baldwin, Stayman, Rome Beauty and McIntosh, five acres of each, planted solid with the same varieties used as fillers. The trees were planted in the spring of 1917. In 1922 we knew that the Baldwin, McIntosh and Stayman trees had reached a size where, if they didn't hurry up and bear, we would never get any benefit from them.

We had these filler trees as a liability; we now hope to retain them as an asset. An old method of girdling was to drive nails all around. Hanging horse shoes on the limbs and weighting them down would make them bear. A mouse or a rabbit girdles a tree in the winter and it will die if you don't bridge the injury. But there is a time when you can girdle a tree and not kill it.

**Girdling Experiments.** In 1922 we started girdling. In 1924 we girdled eighteen trees of each variety. They bore heavily the next year. In 1925 a member of our Association entered the orchard and saw these trees. He said, "I pulled out 2,700 fillers last year that never paid me a penny; I never had a crop on them."

The crop on 18 girdled McIntosh trees yielded in 1925 4 bushels to the tree. These had been girdled in the summer of 1924. The rest of the trees in the McIntosh block did not bear quite a bushel of apples to the tree. The girdled Staymans yielded four bushels to the tree. The rest of the 540 didn't quite average a bushel to the tree. The Baldwins, we knew, were very slow coming into bearing. We girdled 110 of them. We picked 103 bushels from those, and 10 bushels off the rest of the 540 trees. So we made those Baldwins bear. There was really no particular reason why we should girdle the Romes because they had not begun to crowd. The Rome is a slow grower. They averaged two bushels to the tree and the ungirdled trees only about a quarter of a bushel. The Baldwin is naturally an alternate bearer but in 1927 we got nearly .89 of a bushel from girdled trees, heavily cut back; .60 of a bushel from the larger permanent trees. It is past the experimental stage.

Suppose you kill a tree by girdling? I would be willing to kill a few trees in 1922 and have the rest give me four bushels to the tree in the fall of 1925. But it isn't necessary to kill trees in girdling, or even to injure them if it is done right. I do not hesitate to advise girdling for filler trees.

What about permanent trees that are around 12 years old and not bearing; is girdling advisable? It will make them bear. How much injury it is going to develop later on I can't tell you. We have girdled the same trees this year for the third time; we have lost about 24 trees on 14 acres, and these mostly weak trees on rocky land. Never girdle weak trees.

**Question:** How wide do you make that girdle?

**Mr. Fagan:** We have been doing it about a quarter of an inch, but we now merely cut through the bark, to the wood, without removing a ring of bark at all. There is then no danger of injury to the tree, and the girdling effect is just as pronounced.

**Question:** When do you do it?

**Mr. Fagan:** When the tree is growing most rapidly; about July first, with us.

**Question:** Do you protect the wound?

**Mr. Fagan:** It isn't necessary.

**Question:** Do you cut a fresh place each year?

**Mr. Fagan:** Yes.

**President Funk:** A good many of you remember Mr. Gorby, the Executive Secretary of "Apples for Health," who addressed us last year. We are fortunate in having him again this year.

### APPLES FOR HEALTH CAMPAIGN

G. W. GORBY, Chicago

The recipe for growing old gracefully is to keep limber, loving and a little looney. I guarantee that this will work out. I am not going to tell you how to keep limber because anybody who breezes up into an apple tree will learn that. I am not going to tell you how to keep loving, because most of you know that already, but I want you to be a little looney about Apples for Health.

I know of an apple orchard in New Jersey not very far from Englishtown, run by a man named Carr, containing 144 acres. He cleared this year \$50,000. The year before, with a much larger crop, he cleared only \$40,000. The difference between last year and this year is what I am talking about. If Apples for Health does what it is intended to do, it will stabilize the price of apples.

I want you apple growers to get into the habit of subscribing towards Apples for Health, which is your advertising item, just the same as you pay for your spray, your fertilizer or your pruning. I want you to become business men instead of gamblers. Apple growers have been inveterate gamblers for years. It is just as necessary for you to become market conscious as it is for you to see that the tree and fruit are well developed. Your job is not done until the apple is in the hand of satisfied consumers. Get away from the hazardous game of apples growing without thought of what the apples are going to bring or where they are going. The up to date hardware merchant puts on his budget so much for advertising. The apple grower must come to that if he is to be a business man.

On the train this morning I picked up a menu. This train runs straight through the great apple state of Pennsylvania. I was glad to see an apple on the menu—fifteen cents. But there was a whole page on the banana—the history of the banana, and its good properties. Then somebody handed me a paper and I found a full page on the delicious banana and its desserts. That is what they are doing to the apple industry of Pennsylvania. Apples for Health ought to have that page, and tell the people what a good thing the apple is. We are going to have it if you will support us. We are going to chase the orange and the banana and all the competitors of the apple back where they belong and put king apple on top.

You are going to have an application blank to take home and then send in your membership check direct to headquarters in Chicago. We are not trying to get a half cent a bushel assessment right now. We are trying to build up as big a membership as we can and 200,000 apple growers of America at five dollars each would make \$1,000,000.

Apples for Health is an outgrowth of the American Pomological Society. It was founded in September, 1926, so it is only a little over a year old. In that time we have established a truly national organization. For the first time in history a man stands before you representing apple growers in every apple-growing district of the United States. Apples for Health is the national voice of the apple-growing industry.

There are forty-seven different associations similar to our own that have carried on national advertising campaigns for their product. Many of them are foods. The average advertising campaign runs from two to seven years, to get results.

We want your membership; but five dollars isn't a start to what you ought to do. You ought to go out in your neighborhood and convert these people who do not understand what it is all about, remembering that the apple has year by year been crowded farther and farther back off the American citizen's table, giving place to the more highly advertised fruits.

We have a definite advertising plan. We have employed the Millis Advertising Company, who are getting ready to put on a fund-raising campaign. Many are interested in it besides growers; manufacturers of spray materials, machinery, fertilizer, paper that the Northwestern grower uses to wrap around his apples; box, barrel, basket, paper box and carton manufacturers—you would be surprised at the number of people that are interested in the success of this movement. I received a letter recently from a lithographer in San Francisco telling me he would line up the entire Pacific Coast in the lithographic line back of this movement.

We have the best thing to advertise in the world—the apple.

**Other Advertising Results.** I expect to speak in Boston tomorrow before the Nation League of Commission Merchants. The Secretary of that organization, Mr. Roberts, made an investigation of thirteen national advertising campaigns, four of them being fruit campaigns. In those thirteen national campaigns he found that the average was five years in length and the sales increase for the commodities was 249 percent. It isn't a gamble, it is an investment. Every grower here in the State of Pennsylvania will do well to put down his membership fee as one of the first items of his 1928 budget.

The orange growers have raised the total sales of their product from twelve million per year to over seventy-two millions per year in a little more than fifteen years. That is a testimonial to their advertising. The first year they spent \$250. The next year they spent \$10,000 and they have never spent as little as that in any year since.

The pineapple is perhaps the best example of what advertising can do to promote an industry. This was a cooperative movement of the Hawaiian pineapple growers. They resolved to stop shipping raw pineapples and to get the people hungry for canned pineapple. So successful have they been that in ten years they have reduced the annual consumption of raw pineapples from 700,000 crates to 26,000 crates and have increased the canned pineapple consumption from 400,000 cases annually to more than 5,000,000 annually. That is a most remarkable example of the power of advertising.

We want the strongest man you have in Pennsylvania fruit growing to go on that Executive Board so that Pennsylvania may have a voice on it. It will take from three to five years to put on the campaign. It will take money. The membership fee alone will not put it over unless we have general support. Finally, it will take education to teach the people to eat more apples. If we do it in three years we will have accomplished a great service. When the American people eat more apples they will be a healthier and a happier people.

(The Executive office of Apples for Health is 510 South Wabash Avenue, Chicago, Ill.)

#### **REPORT OF COMMITTEE ON DEER DAMAGE**

**J. A. RUNK, Huntingdon**

There has been a committee working for several years trying to make some progress in preventing deer injury, or getting the damage as low as possible, and to establish a policy for the future. The Game Commission is pursuing the policy of trying to make Pennsylvania a big game refuge in a state which has as large agricultural and horticultural interests as Pennsylvania. We have made some progress, but we haven't accomplished what we started out to do.

We called one public hearing at Harrisburg after the meeting last year. About 100 growers were present. We drew up a bill providing for the same increase in hunters' license fees as the bill that was passed last year, stating in that bill that the increase in funds should be used to pay damages. Here is what happened: Mr. John Phillips, who was at one time President of the Game Commission, had the ear of the Governor and he persuaded Governor Fisher and those who were near him that the deer were running out of food back in the forests and that they needed more game refuges, and more game protection. His bill was introduced in the Senate at the same time that our bill was introduced in the House. They had more influence and the Sportsmen's Association was backing them and they were able to push their bill through. Dr. Haines sponsored our bill, but we saw that we would be licked so we withdrew our bill and allowed the other bill to ride through. I was informed the other day by the man in charge of that work in the Game Department that this will provide something like \$375,000 a year to be invested in new game refuges. This is just what we do not want. Since we withdrew our bill that leaves us free to come into the next session of the Legislature and continue the fight on whatever plan is decided upon at that time.

All this work must be done through the Agricultural Council. We don't go in as free lances, like we used to.

**Can Kill Deer Damaging Farm Property.** One thing has been accomplished. We have secured decisions from three Judges in three different Circuit Courts of the state, that the constitution will not conflict with you if you kill deer that are doing damage to your property. We passed that word along and this year there have been hundreds of deer killed all over the state by fruit growers and farmers and there hasn't been a single arrest or conviction, nor will there be. Incidentally, it might be of interest to know that there were approximately 15,000 deer killed in Pennsylvania the past season, which is twice as many as the year preceding.

We made a canvass last year. Thirty-seven counties reported serious damage. We made that survey through the Bureau of Statistics, who very kindly donated their service. We sent out over 3,000 letters. We got back 646 reports. When this was tabulated, 211 reported damage and that damage approximated \$100,000. I have them listed by counties. It shows three main centers of damage.

**The State Importing Game.** The Commission has been spending a lot of money to import game. Until two years ago they were importing deer and elk, in direct contravention to our interests. We have brought about the cessation of that. The Game Commission has pledged our committee and has

gone on record as saying that it would not import any more deer or elk into the state. Here is what was spent in the last two years on this importation:

Deer, \$1,996; elk, \$1,000; ring-necked pheasant, \$32,000, including eggs. In 1925-26, for ring-necked pheasants \$41,000. Here is the point I would right with regard to ring-necked pheasants. They are not a gamebird; they don't do well and they don't afford any tremendous amount of sport after they are imported. Here is another item. \$65,000 in 1924-1925 for hare and rabbits introduced: Is 1925-1926, \$56,000. In the two years 1924 to 1926, for ring-necked pheasants and rabbits alone, \$126,000. I say they had better take that money and use it to solve the problem that is already confronting them instead of sending outside the state for rabbits.

The committee for next year will work through the Agricultural Council and will concentrate on damages. We don't believe payment for damage is a solution of the problem. A controlled open season is the solution.

**Deer Fencing.** Since I have the longest deer fence in the state perhaps I was asked to make this report. The work started in 1925. The law then provided for a fifty-fifty basis of fencing. It wasn't satisfactory because the state dictated prices, labor and everything. In 1925 we got through a bill providing for an alternate plan of fencing whereby the state furnished the wire and staples and the property owner erected the fence.

In 1925 there was only \$1,562 used out of an appropriation of \$10,000 per annum. In 1926, just as soon as the alternate plan was put into effect, there was \$9,792 used, and there were some thirty odd orchards and truck patches fenced, with a total of 6,674 rods of fence erected. From June 1st, 1926, to June 1st, 1927, there were 5,971 rods of fence constructed and \$8,531 of the \$10,000 used. In other words, we left approximately \$1,500 of that money in the treasury in the year 1926 and 1927. When you leave money in the treasury it lapses back into the Game Commission funds and we don't get any benefit from it. Mr. Conklin assures me that in the last three years they have not turned down a single application. To date, this year, there have been 2,937 rods of fence built at a cost of \$4,374 and there are a number of applications pending, showing that pretty close to the \$10,000 will be used this year. Approximately 100 orchards now are fenced.

We are going to keep hammering away on fencing. We don't consider fencing the final or fundamental solution of this problem at all, but when you have \$200,000 invested in an orchard and the deer come in and destroy any where from \$5,000 to \$15,000 annually, you want some protection and the fence gives it. I advise every fruit grower who is suffering injury to build a fence.

**President Funk:** This is one of the best reports we have ever had on this problem. Apparently we have made considerable progress.

### PARCEL POST SHIPPING

R. E. ATKINSON, Wrightstown

Parcel post shipping is a nuisance. It doesn't pay. At the same time I keep on doing it to a limited extent. I use parcel post shipping as a means of holding good trade. If you have a good customer who wants some nice Christmas presents to make to friends, it may be good business to fill the order, whether it pays or not. I have ceased taking orders to be delivered at any certain time, because it means that I have to do the packing. There is nobody else on the place who will pack so the fruit will carry to Galveston, or Florida. I have packed some half bushel paper cartons that are reported to have reached Galveston in splendid condition. I have shipped some to State College, and to New York, that you couldn't tell from baked apples when they arrived. So it is partly a matter of packing and partly a matter of handling.

I have been experimenting with corrugated paper boxes, using 175lb. stock for the half bushel and 200lb. stock for the bushel size. The 175lb. stock for the half bushel is all right but it doesn't carry the bushel size. For bushel shipments I prefer round bottom bushels, ring packed with thin layers of excelsior worked in; then the cover wired on with a rather fine annealed wire such as is used by mechanics for fastening bolts in motor bearings. It is some of those little details that make parcel post shipping a nuisance. If you don't fasten the cover down that way, there is no use shipping. Those things take a lot of time. I charge for this service twenty-five cents a package above the retail price at the farm plus parcel post or express—twenty-five cents for the half bushel and thirty-five cents for the bushel. Formerly I made it fifteen and twenty-five. You can't any more than break even on this charge.

The half bushel carton is just half the dimensions of the bushel box in height. I use the same method of packing as is used for the western box with a little chunk of excelsior set down between each two apples. If that isn't done there is enough shifting in the box during transportation so that they get badly bruised. Since I have used excelsior they carry in perfect condition.

Last year there appeared an advertisement in the Sunday issue of the New York Times, a full page advertisement by a Connecticut farmer advertising apples in pasteboard cartons. I wrote him to inquire how he came out financially on that project. His experience is a caution to any one in trying to build up a direct-to-the-consumer trade, where shipment is nec-

essary. That page ad cost the man \$1,200 and he sold \$1,200 worth of apples; so that he made a present of the apples and had the experience to show for it.

### **REPORT OF ADVERTISING COMMITTEE**

**R. E. ATKINSON**

Because of the short fruit crop there was little interest in the work of the Advertising Committee last year. The shippers of peaches cooperated, as in the previous year, in financing a half-page ad in the Packer, featuring Pennsylvania peaches, just prior to the movement of the crop. The results were apparently very satisfactory. This system indicates the value of collective effort in such advertising, as the cost was approximately 34 cents per car.

No new apple advertising material was prepared because of the lack of interest. However, it was possible to reduce the stocks carried over from the previous year so that at the present time the committee has on hand advertising material to the value of approximately \$50.00, most of which consists of recipe books.

### **THE GOLDEN DELICIOUS IN PENNSYLVANIA**

**PAUL THAYER, State College**

A few years ago, not far from where the original tree of Grimes Golden was found, another yellow apple, evidently a seedling, attracted attention on account of its excellent quality. It somehow came to the attention of an enterprising mid-west nursery firm who are continually on the look-out for some new variety of promise. They adopted it, named it the "Golden Delicious" and started an advertising campaign unequalled unless by that of the Delicious, which was put out by the same firm.

A word about the name may not be out of place. The striking characteristic of the Delicious is its tendency to have five prominent protuberances at the apex or blossom end of the apple. The five points of the Delicious are familiar to persons who cannot identify a single other apple. While the Golden Delicious shows these points to a slight degree, so also do Grimes and other varieties. The Golden Delicious more nearly resembles the Grimes in flavor and texture than any other variety and in fact were we to guess at the parent of the Golden Delicious the Grimes would be the logical choice. It was probably business reasons which led Stark Brothers, after spending thousands of dollars advertising the Delicious, to name their next product "Golden Delicious."

With commendable enterprise Stark Brothers have maintained for several years at the State Farm Products Show a beautiful display of Golden Delicious apples. Few, if any, of

these on display, however, were produced in Pennsylvania. Visitors to the show passed by the few plates of rather mediocre specimens of Pennsylvania grown Golden Delicious in the competitive display to rave over the wonderful Missouri or Idaho grown apples in the Stark booth. These people failed to understand why the college staff was not enthusiastic over this wonderful new variety.

In order to secure a representative display for the 1927 show Stark Brothers were written to and a list of 65 Pennsylvania growers of Golden Delicious was secured. Circular letters to these brought out six plates of rather indifferent fruit. Four of the growers also wrote their comments on the variety. These four growers, located in widely different sections, all voiced their disappointment in this much praised apple.

**Results of Questionnaire.** Last summer a questionnaire was sent out to about 150 growers, to every one in the state whom we had reason to believe had Golden Delicious in bearing. One result of the questionnaire is the exhibit of Pennsylvania grown Golden Delicious on the table in the third floor of the Emerson-Brantingham building. Besides the exhibit, I received more or less detailed information regarding the behavior of the variety from 54 different growers located in 32 different counties.

Forty-three growers described the tree as a good grower while one called it "moderate" and one "slow." From the standpoint of vigor of growth there seems little to be desired.

The Ohio Experiment Station reports that it is an effective pollenizer for most varieties, which is another characteristic worth having.

One Pennsylvania grower reported that Golden Delicious blossoms went through a freeze and set a crop of fruit when other varieties in the same orchard were killed. It has been often observed that some blossoms, as Jonathan, can withstand cold that will destroy the blossoms of other varieties, as Stayman. Blossom hardiness is a desirable characteristic in any variety.

It is also pretty well established that the Golden Delicious comes into bearing early and, for young trees at least, is a heavy bearer. While the range of replies to the question: "At what age does it come into bearing" was from two to ten years, most of the growers gave four or five years as the time necessary to produce fruit. Mr. Weinberger reported the variety as coming into bearing at five years and producing an average of eight bushels per tree at eight years old. He also reported that the set of fruit was so heavy that it required the heaviest of thinning to produce apples such as he has shown in the exhibit.

The one serious charge brought against this variety, and it is a serious one, is its tendency to wilt or shrivel after picking. While the apple is a good keeper so far as decay in storage is concerned it frequently loses its firmness soon after harvest.

**Why the Apple Shrivels.** It may not be out of place to say just a word about transpiration of water from plants and particularly from fruits. We speak of the "circulation of the sap" just as we speak of the "circulation of the blood" but a moment's thought tells us that the tree has no heart pumping the sap throughout it. The tree derives part of its food from the soil in very dilute solution and in order for it to get sufficient food vast quantities of water must be evaporated. For this purpose the twigs and leaves, and even the fruits, are covered with minute breathing pores and the faster the fruit grows the more active are these pores. As the fruit approaches maturity and development slows down these pores become less active and when nature has finished her work she seals the apple with a layer of wax. On some apples, as with the old-fashioned Greasy Pippin, or the Gate apple or sometimes in the case of the Paragon, this wax can be scraped off with the thumb nail, so thick is it. This waxy coating cuts off transpiration and keeps the fruit from wilting. In certain varieties as the russetts, it is almost entirely lacking while in other varieties as mentioned above it is very evident. A clear dry air, as in the Northwest seems to encourage its development while some horticultural practices tend to prevent its formation.

**Effect of Sprays:** Thus it has been found that strong sprays tend to roughen the fruit and prevent the production of this waxy coating. Not only does this increase the tendency to wilting but the russeting seriously injures the appearance and salability of the fruit. In order to see whether there was a correlation between the kind of spray used and the wilting of the fruit the growers were asked the spray they used and the time the fruit wilted. The vast majority reported the use of standard lime sulphur and there seemed to be no correlation between the kind of spray used and the time of wilting. In fact, of the three who reported the apples as keeping firm after February two were users of lime-sulphur. However, this evidence is not sufficient justification for anyone sticking to the standard spray and expecting to produce good Golden Delicious.

While there was great variation in the reports of the time wilting occurred the average date given for common storage was not far from the holidays. In spite of lack of confirmatory evidence I would strongly recommend whenever possible the use of a milder spray than lime sulphur on Golden Delicious.

There has been a tendency to pick the Golden Delicious too early. It attains an attractive yellow color early and many growers have been picking it with the Grimes, which is a serious mistake. It was rather striking that the three growers who reported picking "very late" were the three who reported the longest keeping without shriveling. It is evident that in ventilated storages such as we have in the state January first is about as late as we can expect to hold the apple without shrivelling although milder sprays and later picking may be found to extend the time.

Most of the growers reported that it sold about with the standard varieties, probably a little better than Grimes and not quite so high as McIntosh, Delicious and Northern Spy. Two or three spoke of it as a poor seller, due perhaps to the condition of the fruit offered for sale. Practically all who reported sold direct to the consumer. This method of sale permits the seller to bring the good qualities of the product to the attention of the purchaser. There have been few yellow apples which have been able to withstand the handicap of color on the wholesale markets.

We hear of wonderful prices paid for carloads of Golden Delicious. They were not Pennsylvania grown. Whether Pennsylvania-grown Golden Delicious can stand the competition of the red varieties in the city market, you can estimate for yourselves after looking at the display in the Emerson-Brantingham Building.

To recapitulate what we know and what we think about the Golden Delicious:

- 1st. It is a vigorous grower making a shapely strong tree.
- 2nd. It is an early and heavy bearer with a tendency toward annual bearing.
- 3rd. On account of its heavy bearing it must be severely thinned if fruit of good size is to be secured.
- 4th. It is a late bloomer thus escaping untimely frosts.
- 5th. The blossoms are resistant to frost, coming through with a full crop when other varieties are killed.
- 6th. It is an excellent pollenizer, probably the equal of Grimes or McIntosh in this respect.
- 7th. It has excellent dessert quality.
- 8th. It is very easily spray-russetted. This injures its appearance and is conducive to early wilting. This can be largely avoided by careful spraying with mild fungicides.
- 9th. It is badly inclined to wilt. This is a serious fault and is the chief factor limiting its value. This can be overcome to some extent by:
  - (a) The use of mild fungicides.
  - (b) Picking very late.

(c) Storing at once in the best possible storage, taking especial care of the humidity.

(d) Wrapping in oiled paper if necessary.

10th. Unless the above recommendations affect materially its keeping quality its season of usefulness extends but little beyond the holidays.

11th. In marketing it is handicapped in most markets by its color.

12th. Where the above recommendations are followed it bids fair to supplant Grimes as an early season yellow apple of high quality.

### REPORT OF EXHIBITION COMMITTEE

PAUL THAYER, State College, Chairman

Sixty exhibitors, representing twenty-seven counties, had entries in the apple exhibit of the State Farm Products Show this year. Lancaster County received the banner given by the State Horticultural Association to the county winning the largest number of premiums. The banner was won by Franklin County last year.

C. B. Snyder, of Ephrata, won the cup offered by the State Horticultural Association for having the best box of Stayman apples in the show. The Bucks County Horticultural Association won first place in the display of apples by county associations.

S. L. Smedley, Jr., of Newtown Square, Delaware County, was awarded the Gabriel Hiester cup for the largest number of points scored in the apple exhibit. The cup was offered by the State Farm Products Show Commission in memory of the man who had done a great deal for the development of the apple growing industry of the state. He lived at Estherton, near Harrisburg.

The complete list of awards is:

#### CLASS 1, BARRELS

Variety	Exhibitor	County
Delicious	E. E. Kauffman	York
Jonathan	E. E. Kauffman	York
Paragon	H. R. Worthington	Chester
Rome	S. L. Smedley, Jr.	Delaware
Stayman	S. L. Smedley, Jr.	Delaware
"	S. R. Snyder	Lancaster
"	H. R. Worthington	Chester
York	E. E. Kauffman	York

#### CLASS 2, BOXES

Variety	Exhibitor	County
Baldwin	D. Rice	Perry
Stayman	C. B. Snyder	Lancaster
"	D. Rice	Perry
"	S. L. Smedley, Jr.	Delaware
Grimes	C. B. Snyder	Lancaster
"	E. E. Kauffman	York
Smokehouse	J. G. Hoffmaster	York
"	H. R. Worthington	Chester
"	D. Rice	Perry
Rome	S. L. Smedley, Jr.	Delaware
"	E. E. Kauffman	York
"	J. G. Hoffmaster	York
Jonathan	S. L. Smedley, Jr.	Delaware
"	D. Rice	Perry
"	E. E. Kauffman	York
Paragon	H. R. Worthington	Chester
Delicious	E. E. Kauffman	York
McIntosh	Woodbourne Orchards	Susquehanna

#### CLASS 3, BOXES

York	J. G. Hoffmaster	York
Oliver	J. G. Hoffmaster	York
Banana	D. Rice	Perry

#### CLASS 4, ROUND BUSHEL BASKETS

Stayman	S. L. Smedley, Jr.	Delaware
"	Paul Lengel	Schuylkill
"	C. B. Snyder	Lancaster
York	D. K. Sterrett	Cumberland
"	Mt. Breeze Orchard	Franklin
"	J. M. Cameron	Cumberland
Smokehouse	H. R. Worthington	Chester
"	J. G. Hoffmaster	York
"	E. E. Kauffman	York
Jonathan	S. L. Smedley, Jr.	Delaware
"	E. E. Kauffman	York
"	D. Rice	Perry
McIntosh	R. J. Gillan	Franklin
"	Shaffer Brothers	Cameron
"	Woodbourne Orchards	Susquehanna
Paragon	R. J. Gillan	Franklin
"	Gillan Brothers	Franklin
"	H. R. Worthington	Chester
Stark	H. R. Worthington	Chester
Grimes	Guy Hayman	Chester
"	S. L. Smedley, Jr.	Delaware
"	H. R. Worthington	Chester
Rome	S. L. Smedley, Jr.	Delaware
"	Paul Lengel	Schuylkill
"	E. E. Kauffman	York
Northern Spy	L. B. Rusterholtz	Erie
Baldwin	Ray Briggs	Luzerne
Delicious	W. O. Bingham	Franklin

#### CLASS 5, ROUND BUSHEL BASKETS

Nero	H. R. Worthington	Chester
Winesap	S. L. Smedley, Jr.	Delaware
Oliver	Ray Briggs	Luzerne

CLASS 6, BUSHEL HAMPER

Variety	Exhibitor	County
York	D. K. Sterrett	Cumberland
"	H. R. Worthington	Chester
"	E. E. Kauffman	York
Smokehouse	J. G. Hoffmaster	York
"	H. R. Worthington	Chester
"	E. E. Kauffman	York
Stayman	S. L. Smedley, Jr.	Delaware
"	D. Rice	Perry
"	H. R. Worthington	Chester
Jonathan	S. L. Smedley, Jr.	Delaware
"	D. Rice	Perry
Paragon	H. R. Worthington	Chester
Rome	S. L. Smedley, Jr.	Delaware
"	H. R. Worthington	Chester
"	E. E. Kauffman	York
McIntosh	E. E. Kauffman	York
Grimes	S. L. Smedley, Jr.	Delaware

CLASS 7, BUSHEL HAMPER

Variety	Exhibitor	County
Nero	H. R. Worthington	Chester
Banana	D. Rice	Perry
Winesap	S. L. Smedley, Jr.	Delaware

CLASS 8, PLATES

Variety	Exhibitor	County
Delicious	K. L. Storm	Bucks
"	C. B. Snyder	Lancaster
"	W. O. Bingham	Franklin
Grimes	C. B. Snyder	Lancaster
"	Masonic Home Orchard	Lancaster
"	Guy Hayman	Chester
Jonathan	E. E. Kauffman	York
"	Masonic Home Orchard	Lancaster
"	D. Rice	Perry
Smokehouse	S. L. Smedley, Jr.	Delaware
"	H. R. Worthington	Chester
"	D. Rice	Perry
Stayman	C. B. Snyder	Lancaster
"	Masonic Home Orchard	Lancaster
"	S. L. Smedley, Jr.	Delaware
Northern Spy	Woodbourne Orchard	Susquehanna
"	Simon Niebauer	Cambria
"	John Derr	Columbia
York	S. L. Smedley, Jr.	Delaware
"	Taylor Goshorn	Franklin
"	E. E. Kauffman	York
Rome	Guy Hayman	Chester
"	Dickenshied & Weinberger	Lehigh
"	S. L. Smedley, Jr.	Delaware
Baldwin	D. Rice	Perry
"	A. H. Tuscano	Pike
"	C. D. Sandt	Northampton
Winesap	Masonic Home Orchard	Lancaster
"	S. L. Smedley, Jr.	Delaware
"	Guy Hayman	Chester
McIntosh	Shaffer Brothers	Cameron
"	R. J. Gillan	Franklin
"	D. Rice	Perry
Wagener	D. Rice	Perry
"	P. R. Siefert	Northampton
"	William Gombert	Schuylkill
Stark	P. R. Seifert	Northampton

CLASS 8, PLATES—Continued

Variety	Exhibitor	County
"	Mt. Breeze Orchard	Franklin
"	Dickenshied & Weinberger	Lehigh
R. I. Greening	C. D. Sandt	Northampton
"	Ray Briggs	Luzerne

CLASS 9, PLATES

Variety	Exhibitor	County
Paragon	R. J. Gillan	Franklin
"	H. R. Worthington	Chester
"	Guy Hayman	Chester
Dominie	C. B. Snyder	Lancaster
"	D. Rice	Perry
Fallowater	Masonic Home Orchard	Lancaster
"	Ray Briggs	Luzerne
"	D. Rice	Perry
Winter Banana	D. Rice	Perry
"	John Derr	Columbia
"	J. G. Hoffmaster	York
Summer Rambo	C. B. Snyder	Lancaster
"	S. R. Snyder	Lancaster
"	W. O. Bingham	Franklin
Black Gilliflower	D. Rice	Perry
"	Simon Niebauer	Cambria
Hubbardston	D. Rice	Perry
"	Ray Briggs	Luzerne
"	J. G. Hoffmaster	York
Winter Rambo	S. L. Smedley, Jr.	Delaware
"	D. M. Wertz	Franklin
"	D. Rice	Perry
Smith Cider	D. Rice	Perry
"	D. K. Sterrett	Cumberland
Opalescent	J. G. Hoffmaster	York
King	J. G. Hoffmaster	York
"	John Derr	Columbia
"	C. D. Sandt	Northampton
Oliver	Ray Briggs	Luzerne
"	J. G. Hoffmaster	York
Golden Delicious	Dickenshied & Weinberger	Lehigh
"	Guy Hayman	Chester
"	Woodbourne Orchards	Susquehanna
"	C. B. Snyder	Lancaster
N'west'n Greening	C. B. Snyder	Lancaster
"	Taylor Goshorn	Franklin
York Stripe	Taylor Goshorn	Franklin
"	Mt. Breeze Orchard	Franklin
"	D. M. Wertz	Franklin
Paradise	D. Rice	Perry
"	John Derr	Columbia
Esopus	D. Rice	Perry
Wealthy	Shaffer Brothers	Cameron
Pewaukee	Ray Briggs	Luzerne
Nero	H. R. Worthington	Chester
Belleflower	Ray Briggs	Luzerne
"	C. D. Sandt	Northampton
Fall Pippin	C. B. Snyder	Lancaster
"	D. Rice	Perry
"	S. R. Snyder	Lancaster
Ewalt	Ray Briggs	Luzerne
Gravenstein	Ray Briggs	Luzerne
Westfield	Ray Briggs	Luzerne
Ben Davis	Mt. Breeze Orchard	Franklin
Gano	Guy Hayman	Chester
Albermarle	Guy Hayman	Chester

CLASS 10, SIXTEEN APPLES

Variety	Exhibitor	County
Grimes	H. R. Worthington	Chester
"	H. S. Nolt	Lancaster
"	C. B. Snyder	Lancaster
Paragon	H. R. Worthington	Chester
"	Paul Lengel	Schuylkill
"	J. G. Hoffmaster	York
Smokehouse	H. R. Worthington	Chester
"	D. Rice	Perry
"	S. L. Smedley, Jr.	Delaware
Stayman	S. L. Smedley, Jr.	Delaware
"	C. B. Snyder	Lancaster
"	S. R. Snyder	Lancaster
Northern Spy	Simon Niebauer	Cambria
"	Woodbourne Orchards	Susquehanna
York	D. K. Sterrett	Cumberland
"	S. L. Smedley, Jr.	Delaware
"	D. Rice	Perry
Jonathan	S. L. Smedley, Jr.	Delaware
"	D. Rice	Perry
"	Masonic Home Orchard	Lancaster
Baldwin	D. Rice	Perry
"	R. T. Cresswell	Franklin
"	Mt. Breeze Orchard	Franklin
McIntosh	Shaffer Brothers	Cameron
"	Woodbourne Orchards	Susquehanna
Rome	S. L. Smedley, Jr.	Delaware
"	Paul Lengel	Schuylkill
"	W. O. Bingham	Franklin
Delicious	Victor Panovec	Northampton
"	W. O. Bingham	Franklin
"	H. S. Nolt	Lancaster

CLASS 11, SIXTEEN APPLES

Winter Banana	D. Rice	Perry
Golden Delicious	Dickenshied & Weinberger	Lehigh
Nero	H. R. Worthington	Chester

CLASS 12, TRAYS

Grimes	C. B. Snyder	Lancaster
"	S. L. Smedley, Jr.	Delaware
"	H. R. Worthington	Chester
Paragon	H. R. Worthington	Chester
"	C. B. Snyder	Lancaster
Smokehouse	H. R. Worthington	Chester
"	C. B. Snyder	Lancaster
"	E. E. Kauffman	York
Stayman	C. B. Snyder	Lancaster
"	S. L. Smedley, Jr.	Delaware
"	S. R. Snyder	Lancaster
York	D. K. Sterrett	Cumberland
"	S. L. Smedley, Jr.	Delaware
"	H. R. Worthington	Chester
McIntosh	Shaffer Brothers	Cameron
"	Woodbourne Orchards	Susquehanna
"	E. E. Kauffman	York
Stark	H. R. Worthington	Chester
Baldwin	Shaffer Brothers	Cameron
Northern Spy	Shaffer Brothers	Cameron

CLASS 12, TRAYS—Continued

Variety	Exhibitor	County
Delicious	Victor Panovec	Northampton
"	E. E. Kauffman	York
"	Woodbourne Orchards	Susquehanna
Jonathan	E. E. Kauffman	York
"	S. L. Smedley, Jr.	Delaware
Rome	S. L. Smedley, Jr.	Delaware
"	E. E. Kauffman	York

CLASS 13, BEST TRAY

Banana	D. Rice	Perry
Golden Delicious	Dickenshied & Weinberger	Lehigh
Nero	H. R. Worthington	Chester

CLASS 14, FANCY BASKETS

Stayman	S. L. Smedley, Jr.	Delaware
"	C. B. Snyder	Lancaster

CLASS 15, COUNTY ASSOCIATION EXHIBITS

First	Bucks County Horticultural Association
Second	Luzerne County Horticultural Association
Third	Chester-Delaware Horticultural Association

COMMITTEE ON FRUIT TREE IDENTIFICATION

Your committee held one meeting during the past year on August 16 and 17 at West Chester. At this time a nursery tree identification school was held for Pennsylvania fruit tree nurserymen. Through the courtesy of Hoopes Brothers and Thomas Company the committee was able to hold field meetings in their many apple blocks. Eight nurseries were represented and much interest was shown by the nurserymen. The nurserymen expressed a desire to continue the tree variety study in 1928 and your committee expects to hold another school in some Pennsylvania nursery during August 1928.

Two nurseries in the state followed up the culling and certification work of the committee during 1927. The Pennsylvania Nurseries at Girard, had their apple blocks culled and H. G. Baugher had varieties certified under the plan of the Massachusetts Horticultural Society.

In another year the committee expects to have enough interest from the nurserymen to justify the State Horticultural Association in stocking the necessary equipment for certification work.

H. G. BAUGHER,  
F. M. TRIMBLE,  
F. N. FAGAN,  
Chairman

## THE PENNSYLVANIA FRUIT LIST

**Tree Fruits Recommended for Planting in Pennsylvania by the  
State Horticultural Association**  
(As Adopted in January, 1923)

### Apples

Five leading varieties, named in order of importance, for wholesale or car lot plantings in each region:

**Southern Region.** (Adams and adjoining counties) Stayman, York, Grimes, Jonathan, Rome.

**Southeastern Region.** (East of York City and south of North Mountain) Stayman, Smokehouse, Grimes, Rome, Delicious.

**Northeastern Region.** (East of Sunbury and Troy) Baldwin, Northern Spy, Stayman, Rome, McIntosh.

**Western Region.** (West of Greensburg, Kittanning, and Corry) Baldwin, Northern Spy, Rome, Stayman, Stark.

**Central Region.** Stayman, York, Rome, Delicious, Jonathan. (For northern half use varieties of Northeastern Region.)

Leading varieties for local market planting, arranged in order of season of marketing. Chief sorts marked \*\*\*; secondary varieties \*\*; varieties of limited value \*.

Region	S.	S.E.	N. E.	W.	C.
Yellow Transparent	**	**	*	*	*
Oldenburg (Duchess)			*	*	*
Williams	*	**			
Summer Rambo	***	**			
Maiden Blush		*		*	
Wealthy	**	**	**	***	*
McIntosh	*				
Smokehouse	**	***			
Grimes	***	***		*	**
Jonathan	***	***		**	***
Delicious	***	***	**	**	***
R. I. Greening			**		
Wagner		*	*	**	*
Baldwin			***	***	**
Stayman	***	***	***	***	***
Northern Spy			***	**	***
Rome	***	***	***	***	***
Stark	*	**	**	*	*
York	*				*

The following additional varieties, because of their quality, are worthy of a place in the **home planting only**. They are arranged approximately according to seasons of ripening.

Early Harvest, Fanny, Gravenstein, Jefferis, Fall Pippin, Mother, Twenty Ounce, Cortland, Cox Orange, Salome, Tompkins King, King David, Esopus, Tolman Sweet, Red Canada, Golden Russett, Yellow Newtown.

### Peaches

Leading varieties for commercial planting arranged according to season of ripening.

Region	S.	S. E.	N. E.	W.-S. of Erie	W. Erie Shore	C.
Admiral Dewey					*	
Greensboro		*	***	***	*	**
Carman		*		*	**	
Hiley	**	**				
Champion		*	*	*	**	*
Belle of Georgia	***	***	*	*	*	*
Rochester					**	
Hale	***	*		*	*	*
Elberta	***	***	***	***	***	***
Crosby					**	
Fox		**				
Salway	*	**	**	*		**
Smock		*				*
Iron Mountain	*	*	**			

### Pears

The three leading commercial varieties throughout the state are: Bartlett, Seckel and Kieffer. Additional varieties of high quality for **home use** arranged in season of ripening are: Tyson, Clapp Favorite, Bose, Sheldon, Clairgeau, Angouleme (Duchess), Winter Nelis.

### Plums

Commercial plums which may be recommended are, in order of ripening: Red June, Shiro, Burbank, Lombard, Bradshaw, Reine Claude, (Green Gage), Italian Prune, German Prune, Shropshire Damson.

The following are of **high quality** and worthy of trial in the **home plantings** of the state, arranged in order of ripening: Abundance, Tragedy, Hand, Miller, Superb, Pacific, Pearl, Tenant, Washington, Agen, Imperial Epineuse, Jefferson, Golden Drop, Late Mirabelle.

### Cherries

Only three sour cherries are of commercial importance: Early Richmond and Montmorency, both with light juice, and English Morello, with dark juice.

The following sweet cherries are recommended for commercial planting: Yellow Spanish and Napoleon (Royal Ann), for light cherries; Black Tartarian, Schmidt, Lambert, and Windsor, for dark cherries.

In addition to these, the following sweets are worthy of trial for the **home plantation**: Early Purple, Coe, Ida, Elton, Bing, Centennial, Republic.

The following "Duke", or hybrid, cherries should be tried in the **home plantings**: Empress Eugenie, May Duke, Abbess d'Oignies, Nouvelle Royal, and Reine Hortense.

## AFFILIATED COUNTY HORTICULTURAL SOCIETIES

The following County Horticultural Societies are affiliated with the State Horticultural Association, under Article II of the Constitution.

### BERKS COUNTY FRUIT GROWERS ASSOCIATION

Organized 1922

#### OFFICERS—1928

President—**SAMUEL B. RITTENHOUSE**.....Lorane  
 Vice President—**E. GARFIELD EAGELMAN**.....Geigers Mills  
 Sec.-Treas.—**WILLIAM W. LIVINGOOD**.....Robesonia

#### MEMBERS

Adams, Charles S.	.....	Esterly
Angstadt, James B.	.....	Mertztown
Cressman, C. K.	.....	Boyertown
DeLong, Cletus Y.	.....	Mertztown
Eagelman, J. Garfield.	.....	Geigers Mills
Ebling, Aaron	.....	Reading R. 2
Fry, John L.	.....c-o C. K. Whitner Co.,	Reading
Funk, Sheldon	.....	Boyertown
Harnish, James	.....	Sinking Spring
Hershey, H. F.	.....	Hamburg
Hoffman, Frank G.	.....	Mt. Penn
Huyett, Irwin B.	.....	Reading R. 2
Irey, Allen	.....	Boyertown
Kerchner, Harvey T.	.....	Lenhartsville
Ketuer, Jacob B.	.....	Wernersville
Lefever, John	.....	Boyertown
Livingood, William W.	.....	Robesonia
Luigard, George W.	.....	Lenhartsville
Maderia, A. D.	.....	Sinking Spring
Mayer, L. E.	.....	Boyertown
McGowan, Howard	.....	Geigers Mills
Melcher, George W.	.....	Bally
Rick, Charles M.	.....	431 Windsor St., Reading
Rick, John	.....c-o C. K. Whitner Co.,	Reading
Rittenhouse, J. S.	.....	Lorane
Rittenhouse, Samuel B.	.....	Lorane
Rohrer, George H.	.....	Dryville
Shearer, Walter	.....	Vinemont
Sheble, Earl	.....	Hamburg
Shultz, Chester	.....	Barto
Snyder, Fry & Rick	.....	Reading R. 2
Strohecker, Herman A.	.....	Gouglersville
Wertz, Samuel H.	.....	Leesport

## BUCKS COUNTY FRUIT GROWERS ASSOCIATION

Organized 1924

#### OFFICERS—1928

President—**H. G. BENNER**.....Coopersburg  
 1st Vice President—**SAMUEL L. PAXSON**.....Lumberville  
 2nd Vice President—**S. B. Monosmith**.....Weisel  
 Sec.-Treas.—**FRED SATTERTHWAITE**.....Yardley

#### MEMBERS

Amos, William J. & Son.	.....	Warminster
Benner, H. G.	.....	Coopersburg
Crowell, Ralph T.	.....	Buckingham
Fretz, J. Franklin.	.....	Ottsville R. 1
Jamann, John	.....	Reigelsville
Kirshon, Benjamin	.....	Holicong
Monosmith, S. B.	.....	Weisel
Moon, R. Barclay.	.....	Morrisville
Paxson, Samuel	.....	Lumberville R. D.
Pershing, Thed	.....	Pineville
Purmell, D. M.	.....	Farm School
Satterthwaite, Fred	.....	Yardley
Shaffer, Charles N.	.....	Hartsville
Transue, R. E.	.....	Lumberville
Weicksel, Amelia	.....	Perkasie R. D.

## CHESTER-DELAWARE FRUIT GROWERS ASSOCIATION

Organized 1922

#### MEMBERS—1927

Baldwin, O. H.	.....	West Chester
Barker, H. C.	.....	West Chester
Barnard, C. P.	.....	Unionville
Bartram, G. M.	.....	West Chester
Brinton, Robert F.	.....	West Chester
Brinton, Wm. & Son	.....	Glenrose
Brosius, S. G.	.....	West Grove
Crowell, Samuel B.	.....	Edgemont
Davis, E. N. G.	.....	Newtown Square
Dohan, John T.	.....	Darling
Hilles, William T.	.....	Malvern
Kemery, C. H.	.....	West Chester
Linville, A. S.	.....	Mendenhall
McNeal, William	.....	Parksburg
Martindale, Mrs. C. P.	.....	West Chester
Nichols, Olive T.	.....	Downingtown
Pacehall, John	.....	Kennett Square
Passmore, N. S.	.....	Glen Mills
Passmore, S. S.	.....	Mendenhall
Perrigo, A. H.	.....	West Chester
Stroud, R. C.	.....	Upper Darby
White, Theo.	.....	Darling
Woodward, N. S.	.....	Mendenhall
Worthington, H. R.	.....	West Chester

## ERIE COUNTY HORTICULTURAL SOCIETY

### OFFICERS—1928

President—FRANK WOLF	N. Girard
Vice President—FRED MOHRING	N. Girard
Secretary—J. V. MEEDER	N. Girard
Assistant Secretary—E. B. GRUBBS	N. Girard

### MEMBERS

Blair, F. W.	Girard
Shreve, C. L.	Girard
Kach, Steve	Girard
Crothers, J. D.	Girard R. 3
Wolfe, Clayton H.	Girard
Lehman, S. S.	Girard
Meeder, J. V.	Girard
Landis, H. D.	Girard
Foster, C. W.	Girard
Grimshaw, H.	N. Girard
Lemmon, D. R.	N. Girard
Mason, J. A.	N. Girard
Jones, G. T.	N. Girard
Beatty, J. E.	N. Girard
McClenathan, J. J.	N. Girard
Rilling, Harvey	N. Girard
Mohring, F. G.	N. Girard
Wolf, Frank L.	N. Girard
Wheeler, C. H.	Fairview
Grubbs, E. B.	Fairview
Eisaman, G. A.	E. Springfield
Vernon Reed & Sons	McKean
Curtis, A. B.	North East
Loop, H. S.	North East
Champlin, B. F.	North East R. 6
Campbell, J. G.	North East R. 2
Sprague, Theodore	North East
Smith, G. C.	North East
Moorhead, D. M.	Moorheadville
Shattuck, Henry	Erie R. 6
Tate, S. C.	Erie R. 6
Wynkoop, J. W.	Erie R. 6
Brown, J. Wallace	Erie R. 8
Forbes, R. M.	Erie R. 1

## FRANKLIN COUNTY HORTICULTURAL SOCIETY

Organized January 21, 1922

### OFFICERS—1927

President—C. P. OMWAKE	Greencastle
Vice President—S. A. HEISEY	Greencastle R. 4
Treasurer—F. A. ZIMMERMAN	Chambersburg
Secretary—J. H. KNODE	Chambersburg

### MEMBERS

Bingham, W. O.	St. Thomas
Bream, D. M.	Chambersburg
Brereton, O'Hara D.	Edinville
Davidson, N. H.	Chambersburg
Diffenderfer, C. R.	Chambersburg, R. 6
Gehr, Harvey J.	Waynesboro

Gillan, C. F.	St. Thomas
Goshorn, Taylor	Quincy, Box 47
Meisler, J. G.	Chambersburg R. 11
Miller, C. C.	Marion
Miller, D. L.	Waynesboro
Nicodemus, Ed.	Waynesboro
Omwake Bros.	Greencastle
Pomeroy, R. S.	Chambersburg
Pratt, L. F.	Chambersburg
Sharp, W. K.	Chambersburg
Shayzer, H. C.	St. Thomas
Shockey, L. P.	Chambersburg, R. 8

## INDIANA COUNTY HORTICULTURAL SOCIETY

Organized February, 1924

### OFFICERS—1928

President—T. C. HOOD	Saltsburg, R. D.
Vice President—CLARENCE McHENRY	Indiana
Sec.-Treas.—H. W. STONEBREAKER	Indiana R. 7

### MEMBERS

Ackerson, S. A.	Blairsville R. 4
Black, H. M.	Idamar
Brown, Bert	Indiana
Brown, H. M.	Indiana R. 5
Brown, Robert	Homer City R. D.
Diven, W. C.	Livermore R. D.
Elbel, George H.	Rossiter R. D.
George, Thomas K.	Homer City
Gibson, Ira	Indiana
Henderson, John G.	Saltsburg R. 1
Hines, Zenas	Clymer R. 2
Hood, T. C.	Saltsburg
Hutchison, J. J.	Armaugh
Hutchison, C. H.	Armaugh
Indiana County Home	Indiana
Indiana Hospital	Indiana
Irwin, S. B.	Punxsutawney
Lydie, J. M.	Blairsville R. 1
McHenry, Clarence	Indiana
Murray, Ed. A.	Punxsutawney R. D.
Nibert, William	Indiana R. 3
Nichol, Harry A.	Indiana R. 3
Overdorf, H. W.	Blairsville
Patterson, James	Apollo
Salsgiver, Andrew	Indiana R. 7
Simpson, J. A.	Indiana R. 5
Snyder, Fred	Avonmore R. D.
Stewart, C. D.	Indiana R. 4
Stonebreaker, H. W.	Indiana R. 7
Strong, T. M.	Blairsville R. 1
Swartz, D. H.	Clymer R. 1
Wadsworth, J. W.	Sewad
Wagner, J. S.	Blacklick R. 1
Wakefield, E. B.	Homer City R. D.
Wetzel, William S.	Marion Center R. D.
Williams, F. W.	Indiana R. 4

## LANCASTER COUNTY FRUIT GROWERS ASSOCIATION

### OFFICERS—1928

President—ELMER R. SNYDER.....Masonic Homes, Elizabethtown  
 1st Vice President—HARRISON S. NOLT.....Columbia R. 1  
 2nd Vice President—G. B. O. Felty.....Millersville  
 3rd Vice President—ELIAS H. VOGEL.....Lancaster R. 3  
 4th Vice President—C. B. SNYDER.....Ephrata R. 1  
 Secretary—M. A. MOORE.....Lititz  
 Treasurer—S. E. FORRY.....Ephrata R. 1

### MEMBERS

Aument, Andrew .....Safe Harbor R. 2  
 Barr, Frank S. ....Narvon  
 Betz, W. E. ....Stevens R. 2  
 Borry, E. E. ....Stevens R. 2  
 Bricker, E. B. ....Lititz  
 Brossman, Morse .....Ephrata R. 4  
 Brubaker, J. C. ....Lititz R. 1  
 Dochat, C. J. ....Lancaster R. 2  
 Engle, John G. ....Marietta  
 Felty, G. B. O. ....Millersville  
 Forry, S. E. ....Ephrata R. 1  
 Garman, Albert S. ....Manheim  
 Geist, Willis H. ....Lancaster R. 5  
 Glick, Jacob R. ....Lancaster R. 5  
 Good, Martin R. ....Lancaster  
 Haverstick, Paul E. ....Lancaster  
 Herr, C. M. ....Lancaster R. 2  
 Herr, David S. ....Lancaster R. 7  
 Hershey, C. Maurice.....Gordonville R. 1  
 Hershey, H. S. ....East Petersburg  
 Hess, Francis P. ....Lancaster R. 7  
 Hostetter, J. E. ....Gap R. 1  
 Huber, L. B. ....Neffsville  
 Kauffman, A. L. ....Ronks R. 1  
 Kendig, J. D. ....Manheim  
 Kraybill, S. S. ....Mount Joy  
 Landis, D. M. ....Lancaster R. 7  
 Lepole, Walter .....Akron  
 Mayer, Guy S. ....Willow Street  
 Mellinger, Jacob D. ....Lancaster R. 8  
 Moore, M. A. ....Lititz  
 Myers, H. C. ....Lancaster R. 7  
 Nolt, Harrison S. ....Columbia R. 1  
 Peris, Roy .....Florin  
 Reider, M. H. ....Elizabethtown  
 Reist, H. G. ....1166 Avon Road, Schenectady, N. Y.  
 Risser, H. N. ....Marietta  
 Root, J. W. ....Manheim R. 1  
 Royer, John .....Akron  
 Ruhl, H. F. ....Manheim  
 Rutter Bros. ....Lancaster  
 Shank, H. A. ....Lancaster  
 Shenk, D. W. ....Lancaster R. 7  
 Shirker, J. B. ....Akron  
 Smith, George K. ....Akron  
 Snavely, Elmer .....Lititz R. 5

Snavely, H. H. ....Lancaster  
 Snavely, H. R. ....Lititz R. 5  
 Snyder, C. B. ....Ephrata R. 1  
 Snyder, E. R. ....Elizabethtown  
 Stauffer, Tillman H. ....Lititz R. 4  
 Staltzfus, Ezra .....Gordonville R. 1  
 Stoneroad, S. A. ....New Providence  
 Vogel, Elias H. ....Lancaster R. 3  
 Wenger, G. P. ....Quarryville R. 1  
 Wenger, John E. ....Denver  
 Wenger, M. P. ....Denver  
 Wertsch, Edwin.....Lititz R. 5  
 Widders, J. B. ....Lancaster R. 3  
 Witmer, J. B. ....Lampeter  
 Wolgemuth, Abner M.....Mount Joy R. 1  
 Zerphy, J. H. ....Elizabethtown  
 Zimmerman, H. S. ....Lapark  
 Zook, Amos F .....Lancaster R. 5

## LAWRENCE COUNTY FRUIT GROWERS ASSOCIATION

Organized 1914

### OFFICERS—1928

President—J. A. BOAK.....New Castle R. 4  
 Vice President—J. W. Cox.....New Wilmington  
 Sec.-Treas.—Rankin S. Johnston.....New Wilmington

### MEMBERS

Aiken, J. V. ....Portersville  
 Allen, L. R. ....New Castle R. 3  
 Boak, J. A. & Son .....New Castle R. 4  
 Bovard & Baldwin .....New Castle  
 Cox, J. W. & Son.....New Castle R. 5  
 Cummings, J. W. & Son.....New Wilmington  
 Currie, W. E. ....New Castle R. 1  
 Friday, G. P. & Son.....New Castle R. 1  
 Fullerton, A. H. & Son.....Edenburg  
 Harbison, C. F. ....New Castle R. 1  
 Hartzell, C. M. ....New Castle R. D.  
 Hileman, Carl .....New Castle R. 3  
 Hutchison, T. G. ....New Wilmington  
 Ingham, M. M. ....New Castle R. 3  
 Johnston, J. H. ....New Wilmington  
 Johnston, R. S. ....New Wilmington  
 Kelso, James .....New Galilee  
 Kildoo, S. L. ....New Castle R. 4  
 King, H. L. ....New Castle R. 1  
 Leslie, J. Merle .....New Castle R. 8  
 McClure, Frank .....New Castle R. 5  
 McCormick, C. M. ....New Castle R. 2  
 Newton, E. M. ....New Wilmington  
 Pherson, J. L. ....Volant  
 Young, Fred.....Elwood City R. 1

## LEHIGH COUNTY HORTICULTURAL SOCIETY

Organized March 16, 1923

### OFFICERS—1928

President—J. H. WEINBERGER.....Zionsville R. 1  
 Vice President—H. F. SCHREIBER.....Zionsville  
 Sec.-Treas.—A. L. HACKER.....Allentown

### MEMBERS

April Farms .....Coopersburg R. 2  
 Bender, L. J. ....Allentown R. 4  
 Billmeyer, H. W. ....Quakertown  
 Brown, H. W. ....Box 576, Allentown  
 Dickenshied, F. S. ....Zionsville  
 Fenstermacher, P. S. ....Allentown R. 5  
 Gackenbach, C. A. ....Orefield  
 Hacker, A. L. ....Allentown  
 Kidd, Virgil .....Allentown R. 4  
 Kleppinger, B. M. ....Coopersburg R. 2  
 Knappenberger, Thomas .....Zionsville  
 Kuhns, Victor .....Allentown R. 3  
 Kyle, W. B. ....Zionsville  
 Lapp, H. E. ....Allentown R. 3  
 Laudenslager, Martin B. ....Orefield  
 Mattes, Paul .....Emaus, R. 1  
 Merkel, C. D. ....Coopersburg R. 2  
 Mill, H. S. ....622 N. 6th St., Allentown  
 Mohr, Frank .....Fogelsville  
 Rinker, Harvey .....Allentown R. 4  
 Ritter, Astor .....Allentown R. 3  
 Schantz, H. A. ....Lentz Bldg., Allentown  
 Schantz, L. M. ....Orefield R. 1  
 Shantz, M. P. ....Lentz Bldg, Allentown  
 Scholl, Paul .....Fogelsville  
 Scholl, W. J. ....Zionsville  
 Schreiber, Harry .....Zionsville  
 Shoemaker, C. C. ....Catasauqua  
 Smith, G. E. ....Bethlehem R. 4  
 Stauffer, Wallace .....Quakertown R. 2  
 Weaver, W. S. ....Macungie  
 Weinberger, J. H. ....Zionsville  
 Wolfe, Joseph .....Fullerton

## LYCOMING COUNTY FRUIT GROWERS ASSOCIATION

Reorganized 1924

### OFFICERS—1927

President—W. H. BANZHAF.....Muncy  
 1st Vice President—M. O. WELSHANS.....Jersey Shore R. D.  
 2nd Vice President—S. L. RYNEARSON.....Muncy R. D.  
 Sec.-Treas.—W. F. MacVEAGH.....Muncy R. 3

### MEMBERS

Artley, O. R. ....Linden  
 Banschaf, W. H. ....Muncy  
 Gibson, Ralph .....331 Center St., Williamsport  
 Harer, Roy .....Salladasburg  
 Hoy, J. A. ....329 Park Ave., Williamsport  
 Lundy, T. A. ....Muncy R. 3

MacVeagh, W. F. ....Muncy R. 3  
 Miller, H. A. ....35 Ross St., Williamsport  
 Mutchler, Sherman .....Hepburnville  
 Percy, M. A. ....Montoursville  
 Rynearson, S. L. ....Muncy R. D.  
 Sechler, Roy .....Muncy R. 5  
 Sheadle Sisters .....Jersey Shore R. 4  
 Van Sant, W. H. ....Post Office Bldg., Williamsport  
 Welshans, D. D. ....Jersey Shore R. 4  
 Williams, C. B. ....Canton  
 Winter, J. Randall .....Muncy R. 2  
 Zellers, E. B. ....Montgomery R. D.  
 Zellers, S. L. ....Montgomery

## WAYNE COUNTY FRUIT GROWERS ASSOCIATION

Organized 1916

President—HERMAN HAASE.....Narrowsburg, N. Y.  
 Vice President—HOMER BONEAR.....Honesdale  
 Secretary—T. H. OLVER.....Beachlake  
 Treasurer—GEORGE SEAMAN.....Honesdale

### MEMBERS—1928

Bonear, Chester .....Honesdale  
 Bonear, Homer .....Honesdale  
 Chumard, Lewellyn .....Ariel  
 Haase, Alfred .....Narrowsburg, N. Y.  
 Haase, Herman .....Narrowsburg, N. Y.  
 Heinz, Henry .....Narrowsburg, N. Y.  
 Olver, T. H. ....Beachlake  
 Roland, Otto .....Narrowsburg, N. Y.  
 Seaman, George .....Honesdale  
 Shaffer Brothers .....Ariel  
 Simons, R. B. ....Sterling  
 Spangenberg, R. F. ....Hamlin  
 Young, Miles L. ....Narrowsburg, N. Y.

## YORK COUNTY FRUIT GROWERS ASSOCIATION

OFFICERS—1928

President—C. F. WEAVER.....York, R. 9  
 Vice President—H. M. ANDERSON.....New Park  
 Vice President—WALTER B. LOUCKS.....York  
 Secretary—GEORGE A. GOODLING.....Loganville  
 Treasurer—SAMUEL SWARTZ.....Spring Grove

### MEMBERS

Auchey, Claude L. ....Hanover  
 Alban, Thomas A. ....Loganville  
 Anderson, H. M. ....New Park  
 Anderson, Ralph .....Fawn Grove  
 Allen, Howard .....New Park  
 Bear, Arthur .....York R. 10  
 Bear, Jacob .....York, R. 10  
 Bear, John .....York R. 10  
 Beaverson, E. S. ....York R. 5

Brown, J. Turner	.....	New Park
Bupp, Jere	.....	York, R. 2
Faber, Horace B.	.....	358 W. Market St., York
Fahs, D. C.	.....	York, R. 9
Flinchbaugh, H. H.	.....	Loganville
Forry, C. S.	.....	Spring Grove
Forry, Roy	.....	Spring Grove
Gable, J. B.	.....	Stewartstown
Gibson, W. F.	.....	Yoe
Goodling, G. A.	.....	Loganville
Gross, H. S.	.....	York R. 10
Hartman, L. E.	.....	Cly
Hauser, C. L.	.....	York R. 7
Horn, David	.....	York R. 3
Howard, P. H.	.....	Dover R. 1
Hykes, E. S.	.....	York R. 8
Hykes, S. W.	.....	1300 N. George St., York
Kibbler, C. P.	.....	W. Market St., York
King, M. G.	.....	Mt. Wolf
Latterman, R. A.	.....	York R. 5
Lau, L. B.	.....	East Berlin
Lau, L. E.	.....	East Berlin
Lehman, George E.	.....	Wrightsville R. 2
Lightner, E. S.	.....	York R. 10
Loose, H. H.	.....	Menges Mills
Loucks, Walter B.	.....	York
March, W. A.	.....	Dover R. 4
Markey, Elmer	.....	York R. 2
Martin, A. C.	.....	Muddy Creek Forks
McPherson Bros.	.....	Bridgeton
Miller, Amos E.	.....	Hanover
Miller, Harvey	.....	Loganville
Miller, J. L.	.....	York
Morris, B. F.	.....	Fawn Grove
Neiman, Otto	.....	Dover R. 3
Raver, Ervin	.....	226 Grantley St., York
Resh, Noah W.	.....	Hanover R. 2
Richardson, W. F.	.....	Whiteford, Md.
Shaffmer, Harvey E.	.....	Dover R. 3
Shaw, R. C.	.....	Stewartstown
Sidler, Anton	.....	York R. 9
Smeltzer, J. Harris	.....	Loganville
Smith, S. A.	.....	Yoe
Stoner, Benjamin	.....	Hellam
Swartz, Samuel	.....	Spring Grove
Tarbert, D. F.	.....	Dallastown
Thomas, John W.	.....	York R. 8
Weaver & Lees	.....	York R. 9
Wernig, Charles	.....	York R. 2
Winter, M. L.	.....	Hellam R. 1
Yohe, George	.....	Spring Grove

## STATE HORTICULTURAL ASSOCIATION OF PENNSYLVANIA

### MEMBERSHIP LIST 1927 AND 1928

Name	Membership	County
Abracyinkas, Andrew	Catawissa R. 4	Columbia
Ackerson, S. A.	Blairsville R. 4	Indiana
Acmc Veneer Package Co.	Orchard Park, N. Y.	Chester
Adam, J. N.	West Chester R. D.	Berks
Adams, Charles S.	Esterly	Adams
*Adams, W. S.	Aspers	Lawrence
Aiken, J. V.	Portersville	York
Alban, Thomas A.	Loganville	York
Allen, Howard G.	New Park	Lawrence
Allen, L. R.	New Castle R. 3	York
Almone, Victor	York R. 6	Centre
Amer. Lime & Stone Co.	Bellefonte	Bucks
Amos, Wm. J. & Son	Warminster	York
Anderson, H. M.	New Park	York
*Anderson, H. W.	Stewartstown	York
Anderson, Ralph W.	Fawn Grove	Berks
Angstadt, James E.	Mertztown R. 2	Centre
Ansbacker Insecticide Co.	527 Fifth Ave., New York	Dauphin
Anthony, R. D.	State College	Lehigh
*Anwyll, Harry L.	Harrisburg	Lyc
April Farms	Coopersburg R. 2	Lyc
Artley, O. R.	Linden R. 1	Lyc
*Atkinson, D. W.	Wrightstown	Bucks
Atkinson, R. E.	Wrightstown	Bucks
Auchey, C. L.	Hanover	Bucks
Aument, Andrew	Safe Harbor R. 2	Lancaster
Baird, A. T.	Lock Haven	Clinton
Baldesberger, W. P.	Bridgeville R. 2	Allegheny
Baldwin, O. H.	West Chester	Chester
Balthaser, G. W.	Wernersville	Berks
*Banzhaf, W. H.	Muncy	Lyc
Barker, Herbert C.	West Chester	Chester
Barnard, C. P.	North Brook	Chester
Barr, Frank S.	Narvon	Lancaster
Barton, W. E.	Six Mile Run	Bedford
*Bartram, Frank M.	Kennett Square	Chester
*Bartram, G. Morris	West Chester	Chester
*Baughner, George L.	Aspers	Adams
Baughner, H. G.	Aspers	Adams
Bear, Arthur	York, R. 10	York
Bear, Paul A.	Mt. Wolf R. 4	York
Bear, Jacob R.	York R. 10	York
Bear, John W.	York R. 10	York
Beatty, J. E.	North Girard	Erie
Beaver, James	Mifflinburg	Union
Beaverson, E. S.	York R. 5	York
Beck, A. F.	Perkasie R. 1	Bucks
*Bell, R. H.	Bureau of Plant Ind., Harrisburg,	Dauphin
Belles, J. C.	Shickshinny R. D.	Luzerne
Bender, L. J.	Allentown R. 4	Lehigh
Benner, B. E.	Iron Springs	Adams
Benner, H. G.	Coopersburg	Lehigh

\*Life Members

Name	Membership	County
Benner, Roy	Perkasie	Bucks
Benner & Smith	McAlisterville	Juniata
*Bennett, Eugene B.	Easton R. 3	Northampton
Berry, E. S.	Shippensburg	Cumberland
Berth, E. M.	Fairmont Springs	Luzerne
Betz, W. E.	Stevens R. 2	Lancaster
Biddle, W. F.	Bedford	Bedford
Bievenour, W. S.	822 Prospect St., York	York
Billmeyer, H. W.	Quakertown R. 2	Lehigh
Bingham, W. O.	St. Thomas	Franklin
Bitzer, Emil	647 E. Northampton St. Wilkes-Barre	Luzerne
Black, H. M.	Idamar R. D.	Indiana
Black, M. C.	Allison Park	Allegheny
*Blaine, George W.	Northeast	Erie
*Blair, Charles P.	Monaca	Beaver
Blair, F. W.	Girard	Erie
*Blessing, David H.	4 N. Court St., Harrisburg	Dauphin
Boak, J. A. & Son	New Castle R. 4	Lawrence
*Boals, McClellan T.	Hanlin Station	Washington
Boltz, Peter R.	Lebanon	Lebanon
Bonear, Chester	Honesdale	Wayne
Bonear, Homer	Honesdale	Wayne
Borri, E. E.	Stevens R. 2	Lancaster
Bountiful Ridge Nurseries	Princess Ann, Md.	Lawrence
Bavard & Baldwin	New Castle	York
Bowman, Oscar	307 W. Hanover St., York	York
Boyer, John F.	Middleburg	Snyder
Boyer, Paul	Wyoming	Luzerne
Brace, M. M.	Chambersburg	Franklin
Bream, D. M.	Chambersburg	Franklin
*Breidenbaugh, H. L.	Boyertown	Bucks
*Brereton, O'Hara D.	Edenville	Franklin
Bricker, E. B.	Lititz	Lancaster
*Brinton, H. C.	Hannover	York
Brinton, Robert F.	West Chester	Chester
Brinton, W. H. & Son	Glenrose	Chester
Bronson, Marvin	Dallas R. D.	Luzerne
Broomell, H. Howard	Bridgeport	Montgomery
Brosius, Sumner G.	West Grove	Chester
Brossman, Morse	Ephrata R. 4	Lancaster
Brown, Bert C.	Marion Center R. 3	Indiana
Brown, H. M.	Indiana R. 5	Indiana
Brown, H. W.	Box 576, Allentown	Lehigh
Brown, J. Turner	New Park	York
Brown, J. Wallace	Erie R. 8	Erie
Brown, M. M.	Martinsburg, W. Va.	Indiana
Brown, R. A.	Homer City R. 2	Lancaster
Brubaker, J. C.	Lititz R. 1	York
Bupp, Jere	York R. 2	York
California Spray Chem. Co.	204 Franklin St., New York	Erie
Campbell, J. G.	Northeast R. 2	Erie
Campfield, W. S.	Staunton, Va.	Adams
*Cation, U. R.	Orrtanna	Adams
Central Chemical Co.	Hagerstown, Md.	Erie
Champlin, B. F.	Northeast R. 6	Luzerne
Chapin, Irvin	Shickshinny R. 3	Luzerne
Chase Brothers	Rochester, N. Y.	Chester
*Chase, Charles T.	Bala	Indiana
Clark, B. M.	Indiana	Indiana

\*Life Members

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Name	Membership	County
Clemson, J. W.	Halifax	Dauphin
Cherry, Alfred	Bellwood	Blair
Chumard, Lewellyn	Ariel	Wayne
Cook, H. R.	Hyndman	Bedford
*Cooper, C. A.	1000 Highland Ave., Coraopolis,	Allegheny
Cope, F. R. Jr.	Dimock	Susquehanna
Coursen, I. H.	Wyoming R. 3	Luzerne
Cox, J. W.	New Wilmington	Lawrence
Craighead, E. M.	Gettysburg	Adams
Creasy, Luther P.	Catawissa R. 1	Columbia
Cressman, B. F.	2100 Walnut St., Philadelphia	Philadelphia
Cressman, C. K.	Boyertown	Berks
Cromley, P. S.	Danville R. 6	Montour
Crothers, J. D.	Girard R. 3	Erie
*Crouse, E. A.	Gettysburg	Adams
Crowell, A. & T.	Avondale	Chester
Crowell, Ralph T.	Buckingham	Bucks
Crowell, Samuel B.	4420 Osage Ave., Philadelphia	Philadelphia
Culp, C. B.	Schellsburg	Bedford
Culp, Fred	Schellsburg	Bedford
*Cummings, Joseph F.	Sunbury	Northumberland
Cummings, J. W. & Son	New Wilmington	Lawrence
Currie, W. E.	New Castle R. 1	Lawrence
Curtis, A. B.	Northeast	Erie
Cutler Manufacturing Co.	353 E. 10th St., Portland, Oregon	Lawrence
Dagostin Brothers	Sugar Loaf	Luzerne
Davidson, N. H.	Chambersburg	Franklin
*Davenport, Eugene	Plymouth	Luzerne
Davis, E. N. G.	Newtown Square	Chester
Dayton, R. S.	Dimock	Susquehanna
DeCou, Benjamin S.	Norristown R. 1	Montgomery
DeLong, Cletus Y.	Mertztiwn R. 2	Berks
Dennis, A. J.	Louisville	Lehigh
Dickenschied, F. S.	Zionsville	Lehigh
*Dickinson, B. M.	5634 Stanton Ave., Pittsburgh	Allegheny
Diehl, D. W. W.	Bedford R. 4	Bedford
Diener, W. Stewart	Boyertown R. 2	Berks
Dietrick, W. J.	32 N. 12th St., Allentown	Lehigh
Diffenderfer, C. R.	Chambersburg R. 6	Franklin
*Dill, Robert	North East	Erie
Diven, W. C.	Livermore	Indiana
Dochat, C. J.	Lancaster R. 2	Lancaster
Dohan, John T.	Darling	Chester
Drumheller, J. R.	Boyertown	Berks
Druck, Albert	Wrightstown R. 2	York
Duncan, D. G.	Shippensburg	Cumberland
*Dunlap, James M.	Shippensburg R. 2	Cumberland
*Dunlap, R. Bruce	Dept. of Welfare, Harrisburg	Dauphin
Eagelman, J. G.	Geigers Mills	Berks
Ebauch, W. H.	Stewartstown	York
Ebling, Aaron	Reading R. 2	Berks
Eby, Henry R.	Jail Bldg., Pittsburgh	Allegheny
Eisaman, G. A.	East Springfield	Erie
Elbel, George H.	Rossiter R. 1	Indiana
Elder, George K.	Lewistown, Maine	Adams
*Eldon, Robert M.	Aspers	Adams
*Engle, John G.	Marietta	Lancaster

\*Life Members

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MUTILATED PAGE

Name	Membership	County
Ernst, C. H.	Wilkes-Barre	Luzerne
Eschelman, S. C.	McKnightstown	Adams
*Life Members		
*Evans, W. H.	Plainsville	Luzerne
Everhart, George W.	St. George St., York	York
Faber, Horace B.	York	York
Fagan, F. N.	State College	Centre
Fahs, David C.	York, R. 9	York
*Fassett, F. H.	Meshoppen	Wyoming
Fassett, L. E.	Meshoppen	Wyoming
Felty, G. B. O.	Millersville	Lancaster
Fenstermacher, P. S.	Allentown	Lehigh
Fetterman, J. G.	Media	Delaware
*Filbert, R. J.	Fox Chase	Philadelphia
Fisher, H. J.	Willow Grove	Montgomery
Fitting, George	Lumberville R. D.	Bucks
Flack, M. Raymond	West Chester	Chester
*Fletcher, S. W.	State College	Centre
Flinchbaugh, H. H.	Loganville	York
Flora, Wm. H.	Wrightsville	York
Forbes, R. M.	Erie R. 1	Erie
*Ford, A. E.	Glen Riddle	Delaware
Forry, C. S.	Spring Grove	York
Forry, S. E.	Ephrata R. 1	Lancaster
Foster, C. W.	North Girard	Erie
*Fox, Cyrus T.	Reading	Berks
Francis, C. D.	225 N. 17 st., Allentown	Lehigh
Frantz, Ira	Dallas R. 1	Luzerne
Frantz, S. P.	Trucksville	Luzerne
*Freed, A. J.	Racine	Beaver
Freed, W. A.	Racine	Beaver
Fretz, J. F.	Ottsville R. D.	Bucks
Friday, G. P. & Son	New Castle R. 1	Lawrence
Friend Manufacturing Co.	Gasport, N. Y.	
Fry, John L.	c-o C. K. Witner & Co. Reading	Berks
Fullerton, A. H. & Son	Edenburg	Lawrence
Funk, Sheldon	Boyertown	Berks
Gable, A. P.	York R. 6	York
Gable, J. B. Jr.	Stewartstown	York
Gackenbach, C. A.	Orefield R. 1	Lehigh
Garber, H. F.	Mt. Joy R. 3	Lancaster
Garman, Albert S.	Manheim	Lancaster
*Garrahan, R. H.	Kingston	Luzerne
*Garrettson, E. P.	Biglerville	Adams
Gay, Arthur	Dallas R. 3	Luzerne
Gehr, Harvey J.	Waynesboro R. 1	Franklin
Geist, Willis H.	Lancaster R. 5	Lancaster
George, Thomas K.	Homer City	Indiana
Gerhard, Owen S.	Clayton	Berks
Gibson, Ira E.	1302 Oak St., Indiana	Indiana
Gibson, Ralph	331 Center St., Williamsport	Lycoming
Gibson, W. F.	Yoe	York
Gilbert, Walter	West Leesport	Berks
Gillan, C. F.	St. Thomas	Franklin
Gleeb, William	Delaware Water Gap	Monroe
Glick, Jacob R.	Lancaster R. 5	Lancaster
*Good, C. W.	Waynesboro	Franklin
Good, Martin R.	54 S. Franklin St., Lancaster	Lancaster
Goodling, G. A.	Loganville	York

\*Life Members

Name	Membership	County
Gorby, John W.	1425 S. Racine Ave., Chicago, Ill.	
Goshorn, Taylor	Quincy, Box 47	Franklin
Graybill, N. Charles	New Windsor, Md.	
*Life Members		
Greene, J. W.	520 McCartney St., Easton	Northampton
Greening Nursery Co.	Racine Ave., Monroe, Mich.	
Gregor, G. N.	324 Glenside Ave., Glenside	Montgomery
*Greist, C. A.	Guernsey	Adams
*Greist, F. E.	Flora Dale	Adams
Grimshaw, H.	Fairview	Erie
Gross, H. S.	York R. 10	York
Gross, Mahlon	Fountainsville	Bucks
Group, Foster C.	Gardners	Adams
*Grove, W. E.	York Springs	Adams
Grubbs, E. B.	North Girard	Erie
Grubbs, N. S.	Mt. Holly, New Jersey	
Guyton, T. L.	Department of Agriculture Harrisburg	Dauphin
Haas, William	Coplay	Lehigh
Haase, Alfred	Narrowsburg, N. Y.	Wayne
Haase, Herman	Narrowsburg, N. Y.	Wayne
Haberman, Joseph W.	Baden	Beaver
Hacker, A. L.	Allentown	Lehigh
*Haddock, J. C.	Wilkes-Barre	Luzerne
Hadley, C. H.	Department of Agriculture, Harrisburg	Dauphin
Haines, W. A.	Bristol	Bucks
*Hall, L. C.	Fairview	Erie
Hamilton, R. W.	Home R. 2	Indiana
Haney, Edward	Riegelsville	Bucks
Harbison, C. F.	New Castle R. 1	Lawrence
Hardt, C. W.	2245 N. Second St., Harrisburg	Dauphin
Harer, Roy	Salladasburg	Lycoming
Harnish, C. H.	Leola	Lancaster
Harnish, James B.	Sinking Springs	Berks
Hart, H. V. Co.	Hagerstown, Md.	
*Hartman, D. L.	Little River, Florida	
Hartman, E. W.	Cashtown	Adams
*Hartman, L. E.	Cly	York
Hartman, M. T.	Emporium	Cameron
Hartman, T. A.	Stillwater R. D.	Luzerne
*Hartman, William	Etters	York
Hartzell, C. M.	New Castle R. D.	Lawrence
Hauser, Clarence L.	York R. 7	York
*Haverstick, Paul E.	Lancaster	Lancaster
*Hawkins, C. A.	Delta	York
Hawkins, E. B.	Delta	York
Hays, H. Samuel	Lancaster R. 2	Lancaster
Heacock, F. J.	Bedford	Bedford
Heinz, Henry	Narrowsburg, N. Y.	Wayne
Henderson, John G.	Saltsburg	Indiana
Herr, C. H.	Lancaster R. 2	Lancaster
Herr, C. M.	Lancaster R. 2	Lancaster
Herr, David S.	Lancaster R. 7	Lancaster
Hershey, C. Maurice	Gordonville	Lancaster
*Hershey, H. F.	Hamburg	Berks
Hershey, H. S.	East Petersburg	Lancaster
Hess, Francis P.	Lancaster R. 7	Lancaster

\*Life Members

Name	Membership	County
Hess, Paul C.	Mt. Alto R. 1	Franklin
Hess, Willis A.	Winchester, Va.	
Hile, Anthony	Curwensville	Clearfield
Hileman, Carl	New Castle R. 3	Lawrence
*Hill, William D.	North East	Erie
Hilles, William T.	Malvern	Chester
Hines, Zenas	Clymer R. 2	Indiana
Hitchings, Raymond C.	1419 Midland Ave., Syracuse, N. Y.	
Hoffman, Frank G.	Mt. Penn	Berks
Hoffman, H. L.	Butler, Star Route	Butler
Hood, T. C.	Saltsburg R. 2	Indiana
*Hoopes, W. W.	West Chester	Chester
Hoover, Albert	Cessna	Bedford
Hoover, Ralph	Everett R. 1	Bedford
Horn, David	York R. 3	York
Horn, William	Mars	Butler
*Horst, J. Morris	Lebanon R. 3	Lebanon
Hosler, Ralph	Berwick R. D.	Columbia
*Hostetter, Abram	Johnstown	Cambria
Hostetter, Herman	Lebanon R. D.	Lebanon
Hostetter, J. E.	Gap R. 1	Lancaster
Hottenstein, Ira	141 N. 10th St., Allentown	Lehigh
Howard, P. H.	Dover R. 1	York
Howe, Homer B.	Benton	Columbia
Hoy, J. A.	329 Park Ave., Williamsport	Lycoming
Huber, Levi B.	Neffsville	Lancaster
*Huey, S. R.	New Castle R. 3	Lawrence
*Huff, B. R.	Greensburg	Westmoreland
*Huff, L. B.	Greensburg	Westmoreland
Hughes Fruit Farm	Mercer	Lawrence
Hunt, V. C.	Bedford R. 4	Bedford
Huntsberger, Howard K.	Perkasie	Bucks
Hurd, Victor H.	Millerton	Tioga
Hutchison, C. H.	Armaugh	Indiana
Hutchison, James J.	Armaugh	Indiana
Hutchison, T. G.	New Wilmington	Lawrence
Huyette, Irvin B.	Reading R. 2	Berks
Hyde, A. A.	Manns Choice	Bedford
Hyde, Clarence M.	Manns Choice	Bedford
Hykes, Samuel W.	1300 N. George St., York	York
Ingham, M. M.	New Castle R. 3	Lawrence
Innerst, Jacob	Jacobus	York
Irey, Allen	Boyertown	Berks
Irwin, S. B.	Punxsutawney	Jefferson
Jamann, John	Reigelsville	Bucks
Jaquish, John J.	Tunkhannock	Wyoming
Jayne, Allen	West Auburn	Susquehanna
Jefferson, Thomas H.	Wycomb	Bucks
*Johnston, Mrs. F. C.	Dallas	Luzerne
Johnston, J. H.	New Wilmington	Lawrence
Johnston, R. S.	New Wilmington	Lawrence
Jones, G. T.	Girard	Erie
*Jones, S. Morris	West Grove	Chester
Kach, Steve	Girard	Erie
Kaltridor, H. J.	York R. 3	York
Kauffman, A. L.	Ronks R. 1	Lancaster
Kaufman, J. B.	York R. 7	York
*Keller, P. J.	Gettysburg	Adams
Kelly Bros. Nursery	Dansville, N. Y.	

\*Life Members

Name	Membership	County
Kelso, James	New Galilee	Lawrence
Kemery, C. H.	West Chester	Chester
Kendig, J. D.	Manheim	Lancaster
Kerchner, Harvey	Lenhartsville	Berks
*Kessler, George W.	Tyrone	Blair
Ketuer, J. D.	Wernersville	Berks
Keyt, Charles I.	Stuarts Draft, Virginia	
Kibbler, C. P.	572 W. Market St., York	York
Kidd, Virgil	Allentown R. 4	Lehigh
Kildoo, S. L.	New Castle R. 4	Lawrence
King, H. L.	New Castle R. 1	Lawrence
King, M. G.	Mt. Wolf R. 1	York
Kirshon, B. H.	Holicong	Bucks
*Kister, U. Y.	Etters	York
Kitchen, G. W.	Shavertown	Luzerne
Kleppinger, B. M.	Coopersburg R. 2	Lehigh
Knappenberger, Thomas	Zionsville R. 1	Lehigh
Knisely, Samuel	Bedford R. 4	Bedford
Knobel, E. M.	Sunbury R. 1	Northumberland
Koch, Charles H.	McKeansburg	Schuylkill
*Koehler, P. E.	Monaca	Beaver
Kraybill, S. S.	Mt. Joy	Lancaster
Kuhns, Victor	Allentown R. 3	Lehigh
Kunkle, N. J.	Orwigsburg	Schuylkill
Kyle, W. B.	Zionsville	Lehigh
*Landis, D. M.	Lancaster R. 7	Lancaster
Landis, E. M.	Dublin	Bucks
Landis, H. D.	Girard	Erie
Lapp, H. E.	Allentown	Lehigh
Latterman, R. A.	York R. 5	York
Lau, L. B.	East Berlin R. 2	York
Lau, L. E.	East Berlin R. 2	York
Laueks, Walter	York	York
Laude, William	Mountain Top R. D.	Luzerne
Ludenslager, M. B.	Orefield	Lehigh
*Lawrence, Schuyler	Main St., Towanda	Bradford
Lebanon, S.	York R. 9	York
Leech, Harry	Indiana Hospital, Indiana	Indiana
Lefever, John	Boyertown	Berks
Lehman, Arthur	York R. 5	York
Lehman, Elias	York R. 5	York
Lehman, Erless	York R. 5	York
Lehman, G. E.	Wrightstown R. 2	York
Lehman, S. S.	North Girard	Erie
Leiberknecht, H. F.	Hellman R. 1	York
Lemmon, D. R.	North East	Erie
Lengle, Paul H.	Pine Grove	Schuylkill
Lepole, Walter	Akron	Lancaster
Leshner, H. B.	Northumberland	Northumberland
Leslie, Merle	New Castle R. 8	Lawrence
Lewis, L. A.	Wyoming R. 3	Luzerne
Lewis, L. N.	Bridgeton R. 5, N. J.	
Lewis, Nelson	Pittston	Luzerne
Lewis, Russell	Pittston R. 1	Luzerne
Lienhard, Edward	Lehigh R. 2	Carbon
Lightner, E. S.	York R. 10	York
*Lightner, W. A.	Landisburg	Perry
Lincoln, G. H.	Clarks Summit	Lackawanna
Linde, J. Eric	Orefield	Lehigh

\*Life Members

Name	Membership	County
Line, H. W.	Wilkes-Barre Y. M. C. A.	Luzerne
Linville, A. S.	Media R. 2	Delaware
Livingood, W. W.	Robesenia	Berks
Long, W. W.	Eighty Four	Washington
*Loop, A. I.	North East	Erie
Loose, H. H.	Menges Mills	York
*Lorá, John	Wyoming R. 1	Luzerne
Loucks, Walter B.	York	York
Loudenslayer, Martin	Orefield R. 1	Lehigh
Lovett, R. P.	Fallsington	Bucks
Luigard, G. W.	Lenhartsville	Berks
Lundy, T. A.	Muncy R. 3	Lycoming
Lutz, W. J.	Berwick R. 1	Columbia
Lydic, J. M.	Blairsville R. 1	Indiana
*MacNeal, William H.	Parkesburg	Chester
MacVeagh, W. F.	Muncy R. 3	Lycoming
Macey, George	Noxen	Wyoming
Maderia, A. O.	Sinking Spring	Berks
*Maffet, M. A. (Miss)	264 S. Franklin St., Wilkes-Barre	Luzerne
Magid, Louis B.	Tallahal Park, Georgia	
Maloney Bros. Nursery Co.	Dansville, N. Y.	
March, W. A.	Dover R. 4	York
Markeley, N. S.	Shanesville	Berks
Markey, Daniel	York R. 9	York
Markey, Elmer	York R. 2	York
Marsh, H. V.	Seven Valleys	York
Marsh, Wilbur	Dover R. 4	York
Martin, A. C.	Muddy Creek Forks	York
*Martin, J. O.	Mereersburg	Franklin
Martindale, Mrs. C. P.	West Chester	Chester
Marvel Package Co.	Laurel, Delaware	
Mason, J. A.	North Girard	Erie
Mattes, Paul	Emaus, R. 1	Lehigh
Matthews, W. H.	Box 313, Salem, Ohio	
Mauger, Morris	Boyertown	Berks
*Mayer, Guy S.	Willow Street	Lancaster
Mayer, L. E.	Boyertown	Berks
McCanna, Francis	34 Mill St., Pittston	Luzerne
*McClelland, J. B.	Canonsburg	Washington
McClenathan, J. J.	Girard	Erie
McCormick, C. M.	New Castle R. 2	Lawrence
*McCormick, James	Harrisburg	Dauphin
McClure, Frank	New Castle R. 5	Lawrence
McDonald, R. C.	Inwood, W. Va.	
*McFarland, J. H.	Harrisburg	Dauphin
*McGeorge, Mrs. K. L.	Orrtanna	Adams
McGinnes, C. R.	Reading	Berks
McGowan, Howard	Geigers Mills	Berks
McHenry, Clarence	Indiana	Indiana
*McKee, J. M.	Harrisburg	Dauphin
McMullen & Patterson	Carbondale	Lackawanna
McNeal, William	Parkesburg	Chester
McPherson Bros.	Bridgeton	York
Mechling, Edward A.	Moorestown, N. J.	
Meeder, J. E.	North Girard	Erie
*Meehan, S. M.	380 Dorset St., Germantown	Philadelphia
Meisler, J. G.	Chambersburg R. 11	Franklin
Melcher, George W.	Bally	Berks

\*Life Members

Name	Membership	County
Mellinger, J. D.	Lancaster R. 8	Lancaster
*Mendelhall, J. H.	Glen Mills	Delaware
Merkle, C. D.	Coopersburg R. 2	Lehigh
Merkle, Floyd	Hamburg	Berks
Mesta Brothers	Finleyville R. 1	Washington
Meyer, H. T.	Lewisburg	Union
Meyer, R. W.	Rebersburg	Centre
Michael, Porter	Wyoming R. D.	Luzerne
Mill, H. S.	622 N. 6th St., Allentown	Lehigh
Miller, Albert & Co.	192 N. Clark St., Chicago, Ill.	
*Miller, Amos	Hanover R. 4	York
Miller, C. C.	Marion	Franklin
Miller, C. M.	Newville	Cumberland
Miller, D. L.	Waynesboro	Franklin
Miller, Harvey	Loganville	York
Miller, H. A.	Williamsport	Lycoming
Miller, H. W.	Paw Paw, West Virginia	
Miller, I. A.	Fishertown	Bedford
Miller, J. L.	York R. 9	York
Miller, L. P.	Cumberland, Md.	
Miller, Rollo	Fishertown	Bedford
Mitchell, A. F. & Son	Waterford, Ohio	
Mitchell, E. B.	Harrisburg R. 3	Dauphin
Mohr, F. J.	Fogelsville	Lehigh
Molering, F. G.	North Girard	Erie
Monosmith, S. B.	Weisel	Bucks
Moon, R. Barclay	Morrisville	Bucks
*Moon, Henry T.	Morrisville	Bucks
Moore, A. C.	Kingston	Luzerne
Moore, C. H.	Dallas R. D.	Luzerne
Moore, M. A.	Lititz	Lancaster
Moorhead, D. M.	Moorheadville	Erie
Morgan, T. H.	Norristown R. 2	Montgomery
Morris, B. F.	Fawn Grove	York
Mowery, N. E.	Mechanicsburg	Cumberland
Moyer, L. S.	Chalfont	Bucks
Moyer, S.	Hershey	Dauphin
*Muller, Adolph	Norristown	Montgomery
Murray, E. A.	Punxsutawney R. D.	Jefferson
Musser, W. E.	New Bethlehem	Clarion
Musselman, I. Z.	Orrtanna	Adams
Musselman, John	Orrtanna	Adams
Mutchler, Sherman	Hepburnville	Lycoming
Muttart, C. J.	1813 Pine St., Philadelphia	Philadelphia
Myers, H. C.	Lancaster R. 7	Lancaster
*Myers, Levi M.	Seddonsburg	York
Neiman, Otto	Dover R. 3	York
Newell, Henrietta	Oxford Valley	Bucks
Newton, E. M.	New Wilmington	Lawrence
Nibert, Wm.	Indiana R. 3	Indiana
Nicodemus, Ed.	Waynesboro	Franklin
Nichol, H. A.	Indiana R. 3	Indiana
Nichols, O. T.	Downingtown	Chester
Niering, Theo.	Wapwallopen	Luzerne
Nixon, E. L.	State College	Centre
Nolt, H. S.	Columbia R. 1	Lancaster
Northup, A. M.	Danville	Montour
Northup, H. J.	Dalton	Luzerne
*O'Connor, Haldeman	Harrisburg	Dauphin

\*Life Members

Name	Membership	County
Olver, T. H.	Beachlake	Wayne
Omwake Bros.	Greencastle	Franklin
Overdorff, H. W.	Blairsville R. 4	Indiana
Overholt, H. L.	Perkasie R. 2	Bucks
Oyler, H. J.	Gettysburg R. 5	Adams
Pacchall, John	Kennett Square	Chester
*Page, C. M.	Etters	York
Page, L. A.	Beverly, N. J.	
*Pannebaker, W. M.	Virgilina, Va.	
Panovec, Victor	Easton R. 2	Northampton
Parish, Charles	Wyoming R. D.	Luzerne
Parish, E. H.	Dallas R. 1	Luzerne
Passmore, N. S.	Glen Mills R. 1	Delaware
Passmore, S. S.	Mendenhall	Delaware
Patterson, James	Apollo, R. D.	Indiana
Paxon, E. M.	Lumberville, R. D.	Bucks
Paxson, S. L.	Lumberville	Bucks
Pease, F. B. Co.	502 S. Clinton St., Rochester, N. Y.	
Percy, M. A.	Montoursville R. 2	Lycoming
Peris, R. N.	Florin	Lancaster
Perrigo, A. H.	West Chester	Chester
Perry, J. G.	Dallas R. D.	Luzerne
Pershing, E. H.	New Hope R. D.	Bucks
Pershing, Thed.	Pineville	Bucks
Pherson, J. L.	Volant	Lawrence
Philp, George	1700 McFarland Road, Pittsburgh	Allegheny
Pomeroy, R. S.	Chambersburg	Franklin
Poorbaugh, J. A.	Yirk R. 3	York
Potteiger, C. M.	Richland	Lebanon
Powers, R. A.	Glenshaw R. 1	Allegheny
*Pratt, B. G.	50 Church St., N. Y.	
Pratt, L. F.	Chambersburg	Franklin
Primm, J. K.	204 Franklin St., New York	
Purmell, D. N.	Farm School	Bucks
Raitz, E. E.	Brookville	Jefferson
Rakestraw, W. L.	Unionville	Chester
*Rankin, Charles C.	West Chester	Chester
Rankin, R. R.	Elizabeth R. 1	Allegheny
Raver, E. C.	York	York
Read, F. A.	47 Jay St., New York	
Reed, Vernon & Sons	McKean	Erie
Reider, M. H.	Elizabethtown	Lancaster
Reist, A. E.	Palmyra	Lebanon
Reist, H. G.	110 Avon Rd., Schenectady, N. Y.	
Reiter, F. G.	Mars	Butler
*Rhodes, C. M.	West Leesport	Berks
Rice, A. E.	Biglerville	Adams
Rice, Daniel	New Bloomfield	Perry
Rice, L. D.	New Bloomfield	Perry
Rice, O. C.	Biglerville	Adams
Richards, A. C.	Johnstown	Cambria
Richards, N. F.	Schellsburg	Bedford
Richardson, W. F.	Whiteford, Md.	
Richey, M.	Everett R. 2	Bedford
Rick, C. M.	Reading	Berks
*Rick, John	West Leesport	Berks
Rife, Jacob L.	839 Market St., Lemoyne	Cumberland
Rilling, H.	North Girard	Erie
*Life Members		

Name	Membership	County
*Rinehart, E. S.	Mercersburg	Franklin
Rinker, Harvey	Allentown R. 4	Lehigh
Risser, H. N.	Marietta	Lancaster
Risser, P. N.	Bedford R. 4	Bedford
Rittenhouse, J. S.	Lorane	Berks
Rittenhouse, S. B.	Lorane	Berks
Ritter, Astor	Allentown R. 3	Lehigh
Ritter, Henry A.	Coopersburg	Lehigh
Roberts, A. J.	Moorestown, N. J.	
Roberts, E.	220 Dock St., Philadelphia	Philadelphia
*Roberts, Horace	Moorestown, N. J.	
*Robinson, A. Blaine	North East	Erie
*Rhode, William	Johnstown	Cambria
Rohlfing, F. F.	Hummelstown	Dauphin
Rohrer, G. H.	Mertztown	Berks
Roland, Otto	Narrowsburg, N. Y.	Wayne
Romig Brothers	Downington	Chester
Root, J. W.	Manheim	Lancaster
Rosenberger, W. G.	Schwenkville	Montgomery
Royer, John	Akron	Lancaster
Rozelle, H. E.	Pittston R. D.	Luzerne
Ruhl, H. F.	Manheim	Lancaster
*Runk, J. A.	Huntingdon	Huntingdon
*Rush, Perry M.	Sycamore R. 1	Greene
Ruth, B. F.	1109 Franklin St., Reading	Berks
Rutter Bros.	551 W. King St., Lancaster	Lancaster
Ryncarson, S. L.	Muncy R. D.	Lycoming
Salsgiver, A. R.	Indiana R. D.	Indiana
*Satterthwaite, Fred G.	Yardley	Bucks
Satterthwaite, L. P.	Newtown	Bucks
Schaeter, Charles	York R. D.	York
Schantz, H. A.	602 Hamilton St., Allentown	Lehigh
Schantz, L. M.	Orefield R. 1	Lehigh
Schantz, M. P.	602 Hamilton St., Allentown	Lehigh
Schenot, C. P.	Wexford	Allegheny
Schieferstein, W.	Leesport	Berks
Schelgel, E.	Steelersville	Lehigh
Schmidt, William	Berwick R. 2	Luzerne
Scholl, Paul	Fogelsville	Lehigh
Scholl, Winfield	Zionsville	Lehigh
Schoonover, W. E.	Dallas R. D.	Luzerne
Schreiber, Harry F.	Zionsville	Lehigh
Schrope, J. H.	Hegins R. 2	Schuylkill
Schuchman, G. W.	Shermansdale	Perry
Schultz, A. S.	Herford	Berks
Schultz, C. K.	Barto	Berks
Seaman, George	Honesdale	Wayne
*Searle, Alonzo T.	Honesdale	Wayne
Sechler, J. I.	Fogelsville	Lehigh
Sechler, Roy	Muncy R. 5	Lycoming
Seidler, A.	York R. 9	York
Seitz, M. H.	York R. 6	York
*Settlemyer, C. T.	Wilmore	Cambria
Seybert, Paul	Berwick	Luzerne
Shaffer Bros.	Ariel	Wayne
Shaffer, Charles N.	Hartsville	Bucks
Shaffmer, H. E.	Dover R. 3	York
*Shank, H. L.	Lancaster R. 7	Lancaster
Sharp, W. K.	Chambersburg	Franklin
*Life Members		

Name	Membership	County
Shattuck, H. B.	Erie R. 6	Erie
Shaw, R. C.	Stewartstown	York
Shayzer, H. C.	St. Thomas	Franklin
Sheadle, Lydia	Jersey Shore R. 4	Lyeoming
Shearer, W. J.	Vinemont	Berks
Sheble, E.	Hamburg	Berks
Shenk, D. W.	Lancaster R. 7	Lancaster
Sheppard, C. W.	Pittston R. 1	Luzerne
Shermeyer, H. A.	York R. 5	York
Shirker, Jacob	Akron	Lancaster
Shokey, L. P.	Chambersburg R. 8	Franklin
Shoemaker, C. C.	Catasauqua	Lehigh
Shoener, John	Orwigsburg	Schuylkill
Shoenthal, H. I.	New Paris	Bedford
Shrive, C. L.	Girard	Erie
Shultz, Chester	Barto	Berks
Shultz, E. T.	Dallas R. 1	Luzerne
Sidler, Anton	York R. 9	York
Simmons, Daniel	Mt. Oliver Station, Pittsburgh	Allegheny
Simmons, S. L.	Mt. Oliver Station, Pittsburgh	Allegheny
Simons, R. B.	Sterling	Wayne
Simpson, J. A.	Indiana R. 5	Indiana
Slamp, H. S.	Halifax R. 2	Dauphin
*Smedley, S. L.	Newtown Square	Delaware
Smedley, S. L. Jr.	Newtown Square	Delaware
Smeltzer, J. H.	Loganville	York
Smith, C. M.	Lewistown	Mifflin
Smith, Clayton	Bedford R. 4	Bedford
Smith, G. C.	North East	Erie
Smith, G. E.	Bethlehem R. 4	Lehigh
Smith, G. K.	Akron	Lancaster
Smith, J. E.	Newport	Perry
Smith, L. R.	Mt. Holly, N. J.	York
Smith, S. A.	Yoe	York
Snavely, Elmer	Lititz R. 5	Lancaster
*Snavely, H. H.	Willow St., Lancaster	Lancaster
Snavely, H. R.	Lititz R. 5	Lancaster
Snyder, C. B.	Ephrata R. 1	Lancaster
Snyder, E. R.	Masonic Home, Elizabethtown	Lancaster
Snyder, F. A.	Dallas R. 3	Luzerne
Snyder, Fred	Avonmore R. 1	Westmoreland
Snyder, Fry & Rick	Reading R. 2	Berks
Snyder, T. A.	Brodbecks	York
Snyder, R. S.	State College	Centre
Sones, J. E.	Thompson Bldg., Pottsville	Schuylkill
Spangenberg, R. F.	Hamlin	Wayne
Spangler, George	Yoe	York
Sprague, Theo.	North East	Erie
Squirrel Hill Nursery	2945 Betchwood Ave., Pittsburgh	Allegheny
Stahl, O. S.	Zionsville	Lehigh
Stahlman, T. M.	1111 Westinghouse Bldg., Pittsburgh	Allegheny
Staltzfus, Ezra	Gordonville R. 1	Lancaster
Standard Chemical Co.	Reading	Berks
Stark Bros. Nurseries	Louisiana, Mo.	
Stauffer, T. H.	Lititz R. 4	Lancaster

\*Life Member

Name	Membership	County
Stauffer, Wallace	Quakertown R. 2	Lehigh
*Stear, J. R.	68 N. 6th St., Chambersburg	Franklin
Steas, I.	1933 State St., Harisburg	Dauphin
Stein, G. E.	Wrightsville R. 1	York
Steininger, Charles D.	Coopersburg	Lehigh
Stephens, A. W.	Mooresburg	Montour
Stewart, C. D.	Indiana R. 4	Indiana
Steyer Bros.	Woodbourne	Bucks
Stitzer, C. E.	Mifflinburg	Union
Stock, Grover	Wyoming	Luzerne
Stone, F. B.	New Wilmington	Lawrence
Stone, L. R.	Schwenkville	Montgomery
Stonebreaker, H. W.	Indiana R. 7	Indiana
Stoner, Benjamin	Hellam	York
Stoneroad, S. A.	New Providence	Lancaster
Stoudt, C. M.	Hamburg	Berks
Stover, Jacob E.	York R. 9	York
*Strasbaugh, E. F.	Orrtanna	Adams
Strohecker, H. A.	Gouglersville	Berks
Strong, T. M.	Blairsville R. 1	Indiana
Stroud, R. C.	Upper Barby	Delaware
Sun Oil Company	Finance Bldg., Philadelphia	Philadelphia
*Swank, Luke H.	Johnstown	Cambria
Swartz, D. H.	Clymer R. 1	Indiana
Swartz, Samuel	Spring Grove	York
Tabor, R. H.	Mt. Vernon, Ohio	York
Tarbert, D. F.	Dallastown R. 1	Erie
Tate, S. C.	Erie R. 6	Erie
Taylor, P. B.	Harrisburg	Dauphin
*Taylor, Ralph S.	325 N. Matlack Ave., West Chester	Chester
Thayer, Paul	State College	Centre
*Thomas, Charles L.	King of Prussia	Montgomery
*Thomas, Edwin W.	King of Prussia	Montgomery
Thomas, J. W.	York R. 8	York
Thompson, J. H.	Wernersville	Berks
Tobacco By-Products & Chemical Corp.	Louisville, Ky.	
Transue, R. D.	Lumberville	Bucks
Treasure, R. H.	Benton	Columbia
*Trexler, Harry C.	Allentown	Lehigh
*Tyler, W. D.	Dante, Va.	
Tyson, A. R.	Norristown R. 1	Montgomery
*Tyson, C. J.	Flora Dale	Adams
*Tyson, E. C.	Flora Dale	Adams
*Tyson, W. C.	Flora Dale	Adams
Uibel, G. D.	Adamstown	Lancaster
Uncle Peters Fruit Farm	Mt. Carmel	Northumberland
Unger, Daniel	Boyertown	Berks
Van Sant, W. H.	Williamsport	Lycoming
Vogel, E. H.	Lancaster R. 3	Lancaster
Wadsworth, J. W.	Seward	Indiana
Wagner, A. H.	New Cumberland	Cumberland
Wagner, Charles E.	McClure	Snyder
Wagner, J. S.	Blacklick R. 1	Indiana
Wagoner, C. E.	Bedford R. 5	Bedford
Wakefield, E. B.	Homer City	Indiana
Walp, C. F.	401 E. 3rd St., Berwick	Luzerne
Walter, M. T.	Biglerville	Adams

\*Life Members

Name	Membership	County
*Walton, R. J.	Hummelstown	Dauphin
Warden, H.	Dallas R. D.	Luzerne
Waring, F.	Philipsburg	Centre
Way, D. A.	Port Matilda	Centre
Wealand, Harry	Elizabethtown R. 1	Lancaster
*Weaver, Abram	Windber	Somerset
Weaver & Lees	York R. 9	York
Weaver, W. S.	Macungie	Lehigh
Webber, Jacob	Dallas R. D.	Luzerne
Weicksel, Amelia	Perkasie R. D.	Bucks
*Weigel, H. M.	Harrisburg	Dauphin
*Weimer, E. A.	Lebanon	Lebanon
Weinberger, J. H.	Zionsville R. 1	Lehigh
Weinschenk, W. H.	New Castle	Lawrence
Welshans, D. D.	Jersey Shore	Lycoming
Welshans, M. O.	Jersey Shore	Lycoming
Wenger, G. P.	Quarryville R. 1	Lancaster
Wenger, John E.	Denver	Lancaster
Wenger, M. P.	Denver	Lancaster
Wernig, C. W.	York R. 2	York
Wertsch, E.	Lititz R. 5	Lancaster
*Wertz, D. Maurice	Waynesboro	Franklin
Wertz, J. N.	Johnstown	Cambria
*Wertz, George M.	Jersey Shore R. 4	Lycoming
Wertz, S. H.	Leesport	Berks
*Westrick, F. A.	Patton R. 2	Cambria
Wetzel, W. S.	Marion Center	Indiana
Wheeler, C. H.	Fairview	Erie
Wheeler, C. V.	Hunlock Greek R. 2	Luzerne
*Whisler, Edgar	Etters R. 1	York
Whisler, R. E.	Etters	York
Whitcomb, P.	York R. 4	York
*White, Arthur H.	Pulaski	Lawrence
White, F. Hayes	Liverpool R. 1	Mifflin
White, J.	County Home, Indiana	Indiana
White, T. J.	Darling	Delaware
Wiant, David H.	Huntingdon Mills	Luzerne
Widders, J. B.	Lancaster R. 3	Lancaster
Wiggins, A. W.	Clarks Summit	Lackawanna
Wilcox, H. D.	Media	Delaware
Williams, C. B.	Canton	Bradford
Williams, F. W.	Indiana R. 4	Indiana
Williams, J. H.	1210 Walnut St., Allentown	Lehigh
Willier, J. A.	Gratz	Dauphin
Winter, J. R.	Muncy R. 2	Lycoming
Winter, M. L.	Hellam R. 1	York
*Wister, John C.	Clarkson and Wister St., Germantown	Philadelphia
*Witherow, R. T.	Punxsautawney	Jefferson
Witmer, J. B.	Lampeter	Lancaster
*Wolfe, Charles A.	Aspers	Adams
Wolfe, C. H.	Girard	Erie
Wolfe, Joseph	Fullerton	Lehigh
Wolgemuth, A. M.	Mt. Joy R. 1	Lancaster
*Woods, Edward A.	Frick Bldg., Pittsburgh	Allegheny
Woodward, N. S.	Mendenhall	Delaware
Worthington, H. R.	West Chester	Chester
Worthley, H. N.	State College	Centre
Wright, A. L.	Spring Hope	Bedford

\*Life Members

Name	Membership	County
Wright, Elmer	Spring Hope	Bedford
Yohe, George	Spring Grove	York
Yost, P. L.	Sugar Loaf R. D.	Luzerne
Young, Fred	Elwood City R. 1	Lawrence
Young, Miles L.	Narrowsburg, N. Y.	Wayne
*Youngs, L. G.	North East	Erie
Zeigler, J. A. C.	1018 W. Locust St., York	York
Zellers, E. B.	Montgomery	Lycoming
Zellers, S. L.	Montgomery	Lycoming
Zerphy, J. H.	Elizabethtown R. 1	Lancaster
Zimmerman, H. S.	Lapark	Lancaster
Zook, A. F.	Lancaster R. 5	Lancaster
Zook, I. F.	Curryville	Blair

\*Life Members

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