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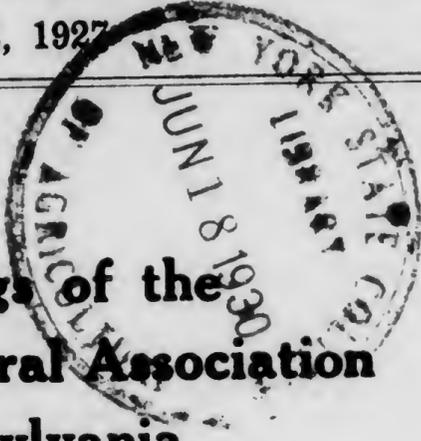
# Pennsylvania State Horticultural Association News

Vol. IV

JUNE, 1927

No. 2

## Proceedings of the State Horticultural Association of Pennsylvania for 1927



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SIXTY-EIGHTH ANNUAL MEETING  
HELD IN HARRISBURG  
JANUARY 19-20, 1927

**Pennsylvania State  
Horticultural Association News**

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**Proceedings of the  
Sixty-eighth Annual Meeting of the  
State Horticultural Association  
of Pennsylvania  
for 1927**



HARRISBURG

JANUARY 19-20, 1927

# State Horticultural Association of Pennsylvania

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## FOREWORD.

Most fruit growers will remember the past year as that of America's bumper apple crop when prices bumped on the bottom. Such a calamity may not happen again in ten years; it *may* be repeated in 1928, but whatever happens, the subject matter contained in the following pages should be of value in reducing the danger of future disaster. The abridgment of these "Proceedings" is the indirect result of the big crop and the small returns. Attendance at the January meeting was very small; the response to letters requesting financial aid was about what one might expect from folks who had either no money or no enthusiasm, and so the bank account was too slender for the printing of a book. Therefore we submit the part herewith which will be of value to every member and leave the rest to verbal report from some member who attended,—or to your imagination.

ROBERT E. ATKINSON,  
*Secretary.*

WEDNESDAY (morning) 19, Jan. 1927

Auditorium of the South Office Building at 9:45 a. m.

President H. C. Brinton presiding.

**President Brinton:** At our last meeting some of our members were having considerable trouble from deer. At that time there was a vacancy on the Game Commission and the officers of your Association spent considerable time endeavoring to select a member of the Association to represent us on that Game Commission. I might say after a whole lot of time and effort on the part of the officers of the Association we finally selected Mr. Howard Anderson. We brought him up here to Harrisburg, introduced him to the Secretary of Agriculture. Mr. Willits was very kind and took us to the Governor's office and we thought everything was set and lovely to have Mr. Anderson appointed to that vacancy. The matter dragged for a long while and finally there was another appointment made. We don't know anything further. We were very sorry to see it go through that way because we felt that this Association is entitled to a representative on the Game Commission.

We had a delightful summer trip this year. It was very unfortunate, I think, that more of our members were not along. The notices were a little bit short; that is, we didn't have our notices out in time. I think, perhaps, that held some of us back. We are all losing a whole lot in not taking in those summer trips. We are losing in several ways; I have attended several of them personally now; I just go along and take the family with me; sometimes I think I can't possibly make arrangements to leave home, but at the last minute we do in some way. In addition to having a lovely little vacation, it is a wonderfully educational trip to get around and see how your neighbors are working and see how they are getting results.

I was very much interested in Mr. Roberts' orchard up in New York State. He has a large orchard principally of Greenings. When we were there they were in splendid condition and he handles that orchard with one man in addition to himself. He has simplified his methods and gotten the thing in shape. I can't begin to explain to you his methods, but if you had been there I know it would have been an education in itself.

On the trip we visited two or three roadside markets. We are all becoming more or less interested in roadside markets.

It is my personal opinion that roadside markets are somewhat like our spraying and dusting programs in this respect: It seems to me that they are more or less in an experimental stage for the individual. They do not seem to be in an experimental stage for those who are fortunately situated on a standard highway and within reasonable driving distance of a large community. There is where the roadside markets do very well. This particular roadside market that I have in mind was Mr. Tice's in New Jersey. He sells all his stuff through that market. In addition to his own stuff and in order to fill out his store supplies, he has to go into the markets and buy supplies that he doesn't grow. At certain times of the year he buys lettuce and celery and oranges and grapefruit and things of that kind. In other words, to fill out his own line.

We asked him about prices. Personally I think he happened to be very fortunate. He said that on the roadside market they want the very best material produced and they don't care anything about prices. He was a little bit amused and he laughed about it. He said, "It seems to me the more I charge them the better I can sell it." That, of course, doesn't always hold true, but you can get good prices under favorable situations.

There is one other matter that I wanted to speak of especially and that indirectly is the membership of our Association. I don't know how many of our members fully appreciate the advantage of being a member of this Association, what the advantage of this Association is, but to me there are a great many. Not the least among them is the privilege of coming here and attending our meetings and having this fellowship with one another. The other evening I had occasion to get several of our proceedings together. I was looking up some matters and went over those. I can't think of any place where I would turn my hand at the present time to get reliable information in a concise form as in those proceedings. We can send off to our state department and to the State College and we can get the information, it is true, but probably the very same information we send for we have in these proceedings. We probably will have had those same men here, because as soon as a new problem comes up we try to get the very best authorities here to tell us about it.

I am afraid quite a number are like myself. We go home; in due time our proceedings come along and we look over them to see if our name is in print and lay it aside and forget about it. When the occasion arises, however, if we take the trouble to look back and use these proceedings as a reference library, it is really surprising how much we can get for that two dollars.

In fact the whole thing reminds me of a little story of an old darkey preacher. This day the preacher was talking on free salvation and he delivered a wonderful sermon to his congregation. After the sermon he said they would take up a collection for the pastor's expenses and maintenance. One of the darkeys present got up and said, "Brother, how is this? You are taking up a collection now to pay the parson's expenses and he just done told us salvation is free."

"Brother, you go down there to the river and you can get all the water you want free. When you get that water piped back into your house and delivered, you got to pay for it."

Our first topic is "Advertising to Increase Consumption—How the Dairymen have Succeeded," by Mr. R. W. Balderston, Secretary of the Interstate Milk Producers' Association.

**Mr. R. W. Balderston:** Members of the Pennsylvania State Horticultural Association: I presume I was asked to come before you not to tell you anything about the dairy business except insofar as it may have some particular bearing on some of the problems that may be facing you at the present time or in the future. And so I have endeavored in thinking out the kind of talk that I would give this morning to think of those things that perhaps touch most closely on your affairs.

I want to say right here at the beginning before I explain much about the efforts of the dairymen through the Dairy Council work, that I hope you will agree with me when I am through that we have several more things in common than perhaps you had thought of before, because your slogan, as I understand it is, "An Apple a Day Keeps the Doctor Away; An Onion a Day Keeps Everybody Away." Ours, of course, is "A Quart of Milk a Day."

I thought I would show you just a few slides, if we can have the lights out, to give you just a little idea of how the Dairy Council operates. There is in Pennsylvania a well-organized Dairy Council movement of six years' standing with headquarters in Philadelphia on the East, Pittsburgh on the West. Each one of us operates around what we call one of our primary milk markets. The extent of the Philadelphia State Dairy Council is as far west as Johnstown, with work in Altoona and something like a dozen of the smaller cities in Pennsylvania running further East. The Pittsburgh organization with headquarters in Pittsburgh operates up through the territory which is within that shipping zone around Pittsburgh,—Ohio, West Virginia as well. Our organization in the eastern part of the state also operates in Maryland, New Jersey and Delaware.

Six years ago the people's attention in this country was directed very sharply toward malnutrition, largely through

the operation of the selective draft which showed up such a large proportion of defectives among our young men. And so the Dairy Council movement was launched at the time when people were thinking in terms of proper foods as a fundamental to correct health and so this picture shows you the thought that people had at that time. At that time Philadelphia started a camp for undernourished children. They started the work through the schools of Philadelphia for undernourished children and those that were 13 per cent. or more underweight were given special treatment, special talks, special health work and were given an extra pint of milk during the day during the school time. Many of them were sent out to this camp along the Delaware River for the summer in order to bring them back to normal health. They were given about six weeks of special feeding and training in the open air. In many cases you could see in the six weeks enough extra pounds to make a difference. One boy looks like the picture in the left when he went in and like this when he came out. He hasn't only gained poundage but if you notice the difference in expression you will realize that the teacher knew what she was talking about when she said, "The biggest gains the boys made was in their attitude toward life, their attitude toward school work, toward play and all those things."

The Dairy Council felt that there wasn't any way in which it could push the dairy industry better than to deliberately pronounce as one of its fundamental foundation stones the fact that it was going to tie up with the movement for health which was taking shape at that time, which had as its slogan about eight health rules. Just at that time Dr. McCollum put out as the slogan on nutrition a quart of milk a day, (to mention our own particular product first, because that is what we think of), two greens at least and plenty of fresh fruit. And so that picture of tomatoes, oranges, apples, celery, cabbage, lettuce, spinach and a quart of milk a day has been the nutrition slogan of the Dairy Council.

Inasmuch as most of the school teachers themselves can talk in terms of fresh air, can talk in terms of plenty of sleep, washing behind the ears and brushing the teeth, all those things, but do not know this newer knowledge of nutrition, we felt that we could be most helpful to humanity, as well as to ourselves, to concentrate along that line and so we have been preaching the slogan of the vegetable growers and the fruit growers, as well as of the dairymen, for the past six years.

In order to present this kind of a program to people it was necessary to make an appeal to them. There is a large group in our community not represented here to-day (there is one

lady back there) whom we thought would be interested in the question of good looks, beauty, and so we started right in with the slogan of painting the cheeks from the inside out in place of cosmetics from the outside. We have a lecture which is called Inside Paint which takes up all the factors of nutrition that have to do with it—clear skin, bright eyes and all those things which the ladies like to hear about.

I just want to show you that we go into this science. We have people that are trained in home economics to talk with authority. In talking to groups of mothers, housekeepers, nurses, school teachers or groups of normal school teachers, we go into the thing quite deeply. There, for instance, is a slide which shows various common foods that are good carriers of iron. There is a breakfast that is good for the amount of iron it contains as well as for bulk. There is a dinner of the same outline. Of course one of our nutrition experts in talking with people will spend considerable time explaining why all those things are necessary, but you are more interested in our methods than you are in the story we are telling.

Not only that but we go into the subject of how to cook these foods. We found a great proportion of our people in Philadelphia were of foreign birth or were colored people from the South. Not only that but there is a large proportion of the American public that has grown up to the idea of meat and potato diet that would be much improved if they ate more fruit and vegetables and milk. So we have had several people whose job it has been to show how to cook these foods and then have a little hand out or sample to pass around. As you know people like to go where there are free samples and we can get much larger crowds around the schoolhouse if it is said that somebody is going to hand out a free sample of something.

With milk one of the biggest arguments we have had has been the fact that milk contains more lime for the same unit than does lime water. It is the best source of lime; in these modern days when people are discussing so much the importance of lime in the diet from many standpoints we are emphasizing that in our work.

When you talk foods to people to-day there is one word which they have gotten into their minds. It may not mean very much but everybody talks vitamins. It has gotten into the joke columns of the papers and people are poking fun at it in a mild sort of way. I won't bring in all the vitamins. There are several vitamins. If any of you are interested in the efforts of your fellow horticulturists in the citrus-growing regions you will realize that pasteurized milk, for instance,

must have the addition of some such fruit juice as orange or tomato in order to avoid the danger from the lack of vitamine C, which, if carried to excess, causes scurvy. Vitamine A is the one which is less common perhaps and is the one which is found in large quantities in the fat of milk. To-day we have five vitamins but how many more there are going to be before somebody talks to you again about them, I don't know, because they are finding one or more new ones every year.

I simply throw this slide on the screen as pointing to the fact that the health authorities give us dairymen a reason for insisting that people feed their children butter and not oleomargarine.

In order to have the proper kind of message to give people on foods it is necessary to do a lot of research work. Consequently the Dairy Council has a lot of information which is gained from such authorities as Dr. McCollum of the Johns Hopkins University, Dr. Dutcher of Penn State and others. The Dairy Council itself has an experimental or demonstration farm or plant which is under the direction of Dr. Palmer of Minnesota University and from that go out animals for exhibit purposes, chiefly rats, some chickens, used to have dogs and some pigs, showing animals fed on various diets; one fed on milk and one fed without the milk; and which to the farmer seemed to be the most effective means of bringing this message home.

There are one or two other features in regard to milk that we find people are interested in. One of them is the methods in which milk is handled, just the romance of milk, the story of milk. Consequently, we have pictures like that showing milk distribution in Panama, for instance.

Then the Dairy Council has a lot of plays which the children in the public schools are taught by the teachers to put on themselves. This play is called, "Following the Milk Can." You will find the farmer on the one side and the different operations through which milk is carried personified by one of those characters. One play brings out the various ways in which you can consume milk. We worked a long while before we found out a dramatization that appealed to boys, particularly boys of high school age. In 1923 we developed a play in which the boys take part in an impromptu circus and in which the lines are those which appeal to just that age. The health circus, for instance, brings out the importance of fruits and vegetables in the diet just as much as it does milk.

We find lots of people in the towns, of course, that get out into the country with their automobiles. On the other hand, they are woefully ignorant of country practices and country

things. We asked a girl one day what butter was made from and she said it was made from Jelke's oleomargarine. And so we have a talk or a story which begins with large pictures or with lantern slides in which the story of a little girl that goes out to visit her country cousins is given, in which we bring in the country scenes and the homely country things which we find extremely interesting to the city people. We have a motion picture called Highland Lassie, in which the cow herself tells the story of what is done with her milk and how important it is to humanity. That has gone through the motion picture houses in Philadelphia. In one year the records kept show that was seen by over a million people.

We found Mother Goose had a lot about milk in it. We have a little booklet which we called "Why the Cow Jumped Over the Moon," which brings in the various Mother Goose jingles.

This slide is a map of Philadelphia. The only thing perhaps that you can see is that it is covered with a lot of black dots which look about the size of a grain of shot. Each one of them is a school that had a complete Dairy Council program in one year in Philadelphia. In other words, we visited that school two, three or four or more times with a talk to an assembly period. Every morning at nine o'clock there are from nine to a dozen of our employes that are talking in the assembly periods. Sometimes a girl will go to a school and stay all day talking to one group of 500, one period right after another, giving the same story to all the groups if they be of the same grade, or a suitable story if the grades be from one to eight, as in many cases.

I presume that in your discussions here to-day and tomorrow the question of high quality fruit, particularly apples, will be one of the questions which will come up. I haven't looked at your program but I take it for granted. Furthermore, I know just enough about the apple business and the old family orchard that we were ashamed to take anybody in because we thought we were so busy with the cows we hadn't time to know that we farmers who had an orchard on the side were more or less of a nuisance to the fruit growers because we would always insist on taking a few apples along when we went to the creamery and stop at the grocery store or sell them at the market. They were wormy and they were misshapen and weren't standard as to size or shape or color or even as to variety. The regular horticulturists would like to have gotten rid of that kind of competition. The people became disgusted with apples and the next time they wouldn't buy any apples.

It was the same with the dairy game. Consequently a few years after starting the Dairy Council had established an

educational organization with three men in it, with motion pictures, lantern slides, with all kinds of equipment that we could think of to talk to the farmers on improving the sanitary conditions under which the milk was produced so as to get a milk of a better flavor and a milk which would sell better. The public insisted on this because they said if you are going to ask us to drink milk we insist on getting milk which is of the highest quality.

That picture, which you just saw, which was the first kind of testing which we did in this work to show the farmers the importance of cleanliness and the importance of high quality products, was the sediment testing in which we took a half pint of milk and collected on a little cotton disc the visible dirt which came out of it which we would then show the farmers, showing what actually had gotten into the milk after the cow had given it, which he ought to keep out.

The butter fat test, of course, is important but that is carried on and has been for a great many years in the dairy industry. The question of odor, of flavor, is one in which we had a great deal of trouble in the southern part of Pennsylvania and particularly in that part of Maryland which supplied our market, when the garlic season opened in the spring. Consequently, one of the first educational efforts we put forward was to show the farmers the importance of care to keep the garlic flavor and other objectionable flavors out of milk. It is one of the most delicate things we had to face. I remember very distinctly some years ago we had a couple of trees, Newtown Pippins. My father had a vegetable and fruit cellar out back of the barn and we had picked all the other fruit and when we came to pick the Newtown Pippins the only apple barrel that we could find around was one in which during the previous winter my mother had stored some Buffalo robes with mothballs in them. We put the Newtown Pippins in the mothball barrel. When we came to eat the Newtown Pippins along in the spring I remember very distinctly that the family turned up their noses and it wasn't for some days that we remembered the history of the mothball barrel and why those Newtown Pippins weren't fit to eat. It is very much more so the fact with regard to milk. Consequently, in this milk exhibit down here one of the most delicate things which the judges had to handle was that question of flavor. In regard to that, in commercial practice we detect it by getting the odor as it comes off the top of the can.

Milk for keeping qualities must have low acidity. I want to break right in here to say that in talking to you I am talking in terms of the Pittsburgh Dairy Council as well as our own. The Pittsburgh Dairy Council has carried much further

than we have in Philadelphia, through the force of circumstances which exist there in their market, the methylene blue test for bacteria. We have reached a point in the dairy game when the next few years I imagine will see a standardization in every form of the question of bacteria control through the various tests which are gradually being developed at the present time.

We insisted on certain minimum requirements on the farm. There is a cement block milk house which the farmer built because the Dairy Council insisted. In 1924 we started a Department of Quality Control. At the present time everybody shipping to Philadelphia and nearby markets to co-operating dealers must have a milk house, must have proper light and ventilation, must cool properly, etc. We have a force of thirteen men with automobiles which are making inspections all the time to see that these requirements are carried out. Not only that but we watch for containers. Of course, the ultimate consumer doesn't see the milk in the container in the same way, perhaps, that she sees your apples in your apple boxes or in your apple baskets. We want an attractive container, but further than that we must have a milk can which on the inside is perfectly smooth and easily cleansed. Consequently, milk containers are condemned if the farmer persists in using them.

This is a slide which I wanted to show you to point out the attractiveness of a presentation such as it is possible to give to people at the present time. That slide is taken from an illustration in a cookbook called Health Recipes which the Dairy Council has put out and which is distributed not free but for twenty-five cents a copy, which is exactly the cost price to us, or a little below the cost price. We distribute thousands at that rate. This cookbook has the recipes in card size because so many women nowadays are having their recipes in a card catalogue. There are thirty-two such illustrations in the cookbook.

The material on the side is simply educational material which is used by the Dairy Council. The silhouettes at the top of that screen were gotten out this past year. The illustrations were made by a woman who is known throughout the United States as the best artist for silhouette work. The slogans on them were worked out after a great deal of care and those posters are in demand for illustrations, for decorations in public schools, in settlement houses, in health clinics, etc. I wish you would look particularly at the slogan on the last poster which says, "Guard your Child's Health; Watch his Diet." The connection between that and selling an extra quart of milk may seem somewhat remote. The fact is that the doctors, in insisting upon watching the child's

weight, are at all times insisting upon the parents giving the child an adequate amount of milk which in most cases at the present time the doctors insist is a quart of milk per day.

The Dairy Council has through these doctors the best educational advertising force that I know. We feel by adopting this health program and this nutrition program of Dr. McCollum we are getting more advertising than we otherwise could get. We are getting the kind of advertising that such people as Colgate & Company or any of the other well advertised brands of foods or toilet products would be glad to get.

Mrs. Henry Calvin, who is head of the home economics in Philadelphia, said to me about a year ago, "Mr. Balderston, you don't know what trouble you have given me."

I said, "What is the trouble now?"

She said, "We let you put your educational material in the public schools. There isn't a week passes that somebody else doesn't come along and say, 'Why can't we have the same privilege in Philadelphia as the State Dairy Council?'"

The next picture, "Milk Made the Difference," shows two men stopping at their mid-morning lunch of milk in a big factory. Much of our effort has brought very good results when we have carried it out by co-operating with the heads of factories to stimulate milk service, mid-morning, particularly for the men who have to do very hard manual labor.

You may be interested to know at the present time in a great many hazardous employments, such as the lead industry, they not only urge the men to get their milk every day, but the company itself won't employ men without insisting that they take the milk because of the fact that it very largely obviates the danger from lead poisoning.

One of the biggest projects which the Dairy Council has under way is that of establishing and stimulating a milk service, mid-morning milk service to all the children whose parents could give them the money to buy it in Philadelphia and other public school systems. And such a poster as that is meant to stimulate that service.

The cards underneath are car-card size, poster and billboard size for outdoor advertising, but at the present time the Dairy Council does not do straight advertising to any very large extent either through newspapers or billboards, because it is felt that everybody has access to those media and that our opportunity is through this educational work, which I just tried to point out to you is a unique field and one in which we have a splendid opportunity.

The first one of these posters over here is for cafeteria work, to try to get people to have a wholesome and properly balanced meal. Of course to farmers a balanced meal is an entirely different thing from a worker in an office. Consequently, a great many people who insist on having their meat and potatoes for lunch every day when they quit the farm and go to the town in a few years realize what a mistake they made. The middle poster is simply one used in the country work to emphasize the importance of a standardized product of high quality by pointing out that in this production of quality milk it is a question of a chain, which if you drop any one link destroys the effect of the whole. The various items which we insist on are included in that chain.

This poster over here was developed in England. Seeing the results of the Dairy Council here the Englishmen have started a London Dairy Council.

We found it very difficult to talk to the high school age or to the young man or young woman just starting out in a business life. Consequently, we were very glad to get the services of a younger man who was formerly with the American Child Health Association who makes a specialty of talking the lingo of that age. We have had him talking in the school systems for the past four years with a semi-humorous talk. Lately he has been talking a great deal to parent-teachers associations as well. This poster was developed to put on the bulletin boards in high schools to attract the attention of the young people who are studying there.

Then for the cafeteria work we have one which says "Business is Business." We have a great deal of literature down at the booth. If anybody is particularly interested, if you will drop in as far as the literature is concerned we will be glad to explain it to you and let you carry some of it away. I see by the clock my time is more than up.

I expect somebody here will want to know what the results have been. We started our Dairy Council work at a time when we were swamped with dairy products in this country due to the fact that the production of dairy products for shipment abroad during the war had dammed back and we had factory after factory closed which had been producing those war goods. It was a temporary situation but we started in with the thought that while we might do a great deal temporarily (and we feel we did) to help correct that situation at least in our own market, we feel that the propaganda, if you will let me use that word, we are putting forward about a proper diet is such that it has permanent value to humanity and to our industry. If, in working through the public schools, we can influence the next generation toward a better balanced diet, we will have built for our own industry a permanent future.

As long as the doctors are saying that a quart of milk a day is the ideal for a child, at least a pint for an adult, and the average consumption in this country has been slightly over a half pint per capita, we feel we have a long way to go before we reach anything like the saturation point. We have got to pass the point where we are interested much in a flashy, temporary kind of a program. We finance it on a permanent basis with a certain contribution on the part of the farmer. For every hundred pounds of milk that he sells one cent is matched by one cent for every one hundred pounds of milk being handled by the dealer. These contributions are automatically deducted by the dealer from the farmer's check and forwarded to the central office.

Our organization is managed by a Board of Governors of which we have equal representation for the farmer and the dealer. We have an Advisory Committee of scientifically trained people, authorities in education, in nutrition, who meet with us at intervals and advise us as to this educational program. You don't know how much good we have done for you through the fact that we have been actively pushing the consumption of plenty of fruit every day as a health measure. We are glad to have helped you. The opportunities for this work are unlimited. In other words, are limited solely by the funds at our disposal. We would be very glad to cooperate as fully and in every way that we possibly can with the vegetable and fruit growers of this country if they could somehow organize, finance and undertake a similar or a co-operative movement.

In the first few years the results have increased the consumption markedly. Naturally as we go along the average increase becomes perhaps a little less year by year. The United States Government survey made in 1924, the result of the first four years work, showed an increased consumption per capita in Philadelphia from fifty-four hundredths of a pint to sixty-nine hundredths of a pint per capita. Not only that but it showed the average butter consumption of Philadelphia to be 23 pounds per year per capita, as against 17 pounds per capita for the average of the whole United States.

I didn't come here, however, to preach to you or to do anything else than to try to explain to you just in an offhand way some of the things we have been doing. I could have gone into detail as to our organization. In fact, we have four departments. I could have told you what they do but I imagine you are not interested so much in that. I could have gone into a lot of detail as to the reaction of the consumer; how we had to overcome prejudice at the start on the part of educators and public health authorities, etc. All that is "over the dam." The experimental stage in this kind of work

is past. We have spent a lot of money finding out what we could do; some of the things that it didn't pay to do; and we feel that the Dairy Council movement, nationally as well as from a state-wide standpoint in Pennsylvania, is a permanently assured program. I thank you for this opportunity.

**President Brinton:** Mr. Balderston has a report that has been handed in here and he is going to read it at this time for us.

**Mr. Balderston:** The State Horticultural Association is a member of the Council of Agricultural Associations which organization, as many of you know, has been active in the past four years as a sort of federated round table body representing the agricultural interests of the state on such matters as we have in common; supporting such legislation as you people want so as to get the other farmers in the state behind your proposition regarding deer depredations and so as to get people to understand some of your problems in regard to tuberculosis, etc. This organization is without paid officers; as far as I know there are very few demands for funds. It meets at irregular intervals but it is at all times watchful of the interests of our state agricultural people.

Mr. McKee, the secretary, handed me this report for last year and asked me if I would present it now, urging that you take steps to appoint one director, as I understand it, and two other delegates to be the future members of that body to represent you.

The State Council of Agricultural Associations was formed in 1923 to be composed of representatives from all the farm organizations of the state for the following purpose:

The object of this Council shall be:

- A. To bring together representatives of agricultural associations at a round table for mutual understanding and the discussion of their problems.
- B. To co-ordinate agricultural policies for definite action.
- C. To initiate and support measures beneficial to agriculture.

During 1926 the Council's activities have functioned chiefly through committees which have been active on the following lines of work:

Committee on the Agricultural Needs of State College. This Committee consists of Mr. Horst, Chairman, Dr. W. A. Haines, Mr. Allebach, Mrs. Howard Van Kirk, Mr. Morris Phillips. This Committee has been working for about four years. A two-day conference of representatives for the farm

organization was held in State College, studying the needs particularly as to teaching and research work. Following, this budgetary data was turned over to the Committee. They are in a position to make a constructive report which we believe the entire membership of the Council will endorse and actively support for the advancement of the work of the College.

**Rural Electric Service Committee.** This question has received the most attention of any during the year. In fact, a committee of the Council has been active on work of this kind for three years chiefly in support of the issuance of order 27. This order having features to which the electrical utilities objected, a sub-committee was named to work with them in procuring a modification that would be more workable. The sub-committee's report which was the result of five joint meetings of the committee with a committee of the electrical utilities was acted upon by the Council and approved. A permanent committee on this question has been named consisting of: W. S. Wise, M. T. Phillips, J. A. McSparran, H. D. Allebach, Miles Horst and J. M. McKee, Secretary. This committee has held a number of meetings with the committee on electrical utilities and are now working with them as a joint committee and believe that in the near future they will jointly agree unanimously on a plan for the extension of rural electrical lines and as to the rates that will be charged. If this plan is agreed upon, it offers promise of a rapid extension of service to rural districts under conditions and terms that appear very favorable.

**Rural Education Committee.** This committee is composed of: Chairman Phillips, Dr. Haines and Mr. Brinton, who were named to represent the Council on questions bearing on rural education.

**Game Damage.** A Game Damage Committee consisting of C. J. Tyson, Miles Horst and R. T. Criswell have been appointed and continued and are in position to act at any time.

**State Fair.** The committee to represent the Council on the question of a State Fair are: Dr. Haines, Chairman, Mr. Dewey and Mrs. Hice. The State Chamber of Commerce is working on this project and our committee has deferred any actions toward legislative support for a State Fair until some action is taken by the State Chamber of Commerce.

**Federal Appropriation for Tuberculosis Indemnity.** Representatives of the Council have been active in support of securing more Federal money so as to meet the amounts appropriated by the State. A substantial increase for Federal appropriation in the State was granted.

Coming Year's Work Ahead of the Council for 1927. This being the legislative year there will be many legislative questions on which the Council will speak for agriculture. The first step is for every organization to name its three representatives on the Council designating one as a director. The annual meeting of the Council will be held as a dinner meeting at 6 P. M. at the University Club, 7 N. Front St., Thursday evening, this week. Be sure and have at least your director present.

**Question:** What action is the Dairy Council taking in regard to this testing movement?

**Mr. Balderston:** The Dairy Council is an educational organization and as such has taken no part at all one way or another. Its effort has been to improve the quality of the supply and also to increase the consumption. There has been no action taken in respect to that matter at all.

**President Brinton:** We are quite indebted to Mr. Balderston for showing us what has been done along educational lines to advertise milk. He has not given any particularly definite data in dollars and cents as to the results; in other words, he hasn't told us that the farmer used to get five cents a quart for milk and he gets ten cents now. That was not his idea. But we could see very plainly what did happen and it showed very plainly what these dairymen succeeded in doing by getting together and working. There is another feature there that appeals to me and that we overlook and that is that whenever a bunch of men get together and work hard they put the thing across. They didn't put it across in a day or a year, but they are still growing and the result of it is they are making better dairymen out of them every day. Those men that got in and worked hard are better men to-day for doing that work than they were before and that is just what I would like to see our fruit growers doing. Our fruit growers have got to get together. I don't think we will have another year in the fruit end of it like we have had this year for another twenty-five or thirty years. Away back in the nineties, if I remember right, there was a year about like this year, only it hit the men harder than now. Some fruit is moving. We are not getting money for it, but the fruit is moving. At the time I spoke of in the nineties a carload of York State Baldwins came into Camden, N. J., and they were selling them out of the car at ninety cents a barrel. You know where they are getting off for the man who produced those apples. I believe you all feel that if we can get together and get an advertising program started we can get in the same position that the milk men are in to-day.

Before we go on with the next topic I have just a couple of committees that I would like to appoint and we would like

to have them get together as soon as possible. The Auditing Committee will consist of Mr. Weinberger, Mr. Grove and Mr. Reiter. The Nominating Committee will consist of Mr. Fenstermacher, Mr. Griest and Dr. Fletcher. The Resolutions Committee will consist of Mr. H. G. Baugher, S. H. Wertz and Dr. Anthony.

The next topic we have on our program is "National Advertising of Apples," by Mr. John W. Gorby.

**Mr. John W. Gorby:** Mr. President, Ladies and Gentlemen: I am mighty glad to be with you this morning. I stand before you as a personal representative of apple growers just as hard up as you are, in Virginia, West Virginia, New York, Massachusetts, Vermont, New Hampshire, Indiana, Illinois, Michigan, Idaho, Washington and Oregon. It is perhaps the first time you ever had a man stand before you representing as many apple growers in the apple-growing districts of America. I testify to you that that is an event in the history of the apple-growing fraternity in this country. Nearly every other industry in the world is organized except the apple growers and now we are well on the way toward a national organization that has real dynamite and pep behind it.

The other day Queen Marie of Rumania in perhaps the most effective speech she made in this country at the Union League Club in Chicago brought tears to the eyes of some of those hard-headed bankers along La Salle Street (and that is something) when she said, "I am come that Rumania might have a face and a voice." On that plea she based her arguments and it was very effective. I may repeat to you that I am come to you this morning in order that the apple growers in Ohio and these other states that I mentioned might have a face and a voice. I assure you in the name of the officers of this organization, whom I represent, that that voice is going to keep on ringing down in the years until they place the apple where it belongs at the top of the fruits of this country.

We have been pushed aside enough. Time after time national organizations have come up. With all due respect to these other organizations I don't have any feeling against them whatever. They are good fellows. They simply got together and put it across. Time after time national organizations have come up—the orange, the cranberry, the pineapple, the banana. To be exact about 23 separate fruit and vegetable national campaigns have been successful in a certain degree and each time the apple has been pushed farther and farther off the table. I don't want to give away any secrets but today I sat at a table beside a man very much interested in apple production, not in Pennsylvania, and this man ordered orange juice for breakfast. What do you think of that?

What did that? Of course you know what did it.

The other day I talked to a big business man in Chicago and I said, "Do you have apples for breakfast?" He gave me a very significant answer that I am going to pass out to you. He said, "The reason why I don't have apples for breakfast is because they are not set before me." Isn't that right? "If they were before me, I would eat them." The job of this organization that I have the honor to represent is to set apples before the American citizen and keep on setting them there until he eats them. They won't stay very long because all the world loves apples. They have merit behind them.

As an orchardist, if you had a big husky fellow hanging around your orchard always coming in regularly at meal time and always coming home under your shelter at bed time, never missing a meal, always coming to you for support and then going out and working all day long for somebody else, never doing a bit of work for you, what would you think of management like that? I don't believe you would stand for that very long. You would say, "I will fire that fellow or put him to work." Well, you can't fire him; that is the trouble. The American people, business men, other organizations, are spending this year, 1927, nearly one billion dollars for advertising their products. Every time your little girl buys a package of chewing gum you help pay the billion. Mr. Wrigley isn't giving \$25,000 for a swim across the channel for nothing. He has his name on the front page of every sporting edition in this country within the past three weeks and I see now he is getting ready to put on another swim this time for the women and that will put his name on the front page of every woman's magazine in this country.

Every time you buy an orange you pay for the advertising; so don't worry about the advertising bill for the apple. You are not going to pay it. Who will pay it? Little, old Mr. Consumer who eats the apple. He always pays the bill in the long run, and he will be happy for doing it and he will thank you and me for putting it before him and he will be healthier in the end and will make more money himself.

This hired man I speak of you have been paying for while he worked for somebody else. Let's set him to work for the apple. My job this morning is to see that you clearly understand that this big husky fellow called "organized advertising" is going to work for you from now on and keep working day and night. The consumer pays the bill and will be happier for it.

I wonder how much you know about advertising any way? I think you could pass an examination this morning on ad-

vertising. I believe you could on the same basis that my football friend did. He was a fine athlete. The college president had time after time suffered the shame of reading how his team had been defeated and he said, "That has gone far enough. I am going to get a crack athlete." He went out and induced a fine high school athlete to come to his college and said to the head examiner, "When this boy goes through his examination, don't be too hard on him. He is a good football player but I don't know anything about his studies. Don't be too hard on him. If he gets a grade of 50 per cent., let him through." He came through with a grade of 50 per cent. By and by he won all their games for them. After the season he came into the class of the president. The president found him impossible; didn't know anything. He went back and complained to the head examiner. "How in the world did this boy ever get through his entrance examinations?"

"Well," the examiner said, "you remember what you said to me."

"I remember. But what in the world did you ask him?"

"I asked him two questions. I asked him first what was the Declaration of Independence. He said it was the Constitution of the United States. Of course, that was wrong. Then I asked him what was sulphuric acid and he said he didn't know and that was right."

I think we could all pass an advertising examination with a grade of at least 50 per cent.

What is your job here this morning? I don't want you to misunderstand me. Your job here this morning is as a representative of that apple growing community back yonder in this great old Keystone State. You are not here for a selfish purpose this morning altogether. You are here representing that district and when you go back, take this message. You won't disturb me a bit if you will pull out your pencil once in a while and put down some of the facts on paper that I am going to give you because I want you to see that apple grower neighbor of yours when you go back home and tell him about this, because you are here to carry the message.

I don't suppose you will do it quite as fast as that colored soldier over in France. I had a commander friend over in France who was in charge of colored troops and he got word late one night that at daybreak they were going over the top. He called this big negro, Tom, to him and says, "Tom, to-morrow morning we are going over the top at daybreak. I want to put you through a little preliminary drill so that when you go over the top you can cover yourself with glory.

We will just imagine that the command has come down and up the side of the trench you go hand over hand. Just as you get to the top of the trench and look over and get ready to charge there come forty Germans straight toward you each one with that sharp bayonet sticking toward your heart. What are you going to do?"

"Well," he rolled his eyes in his head, "I sure spread the news."

I want to spread the news about this organization. It is here. It is no longer in the dream stage. It is here and as I stand before you this minute I represent more than 1,000 apple growers in these states I have named. If I could bring you their message it would be one like this: Not that this should be done; not that it may be done or even can be done; but, men and women, as I stand here, as God is my witness, they ask me to tell you it must be done. I bring you this message from these various states.

In Rochester, N. Y., last week, eighty-eight members signed on the floor saying it must be done. We can't delay this any longer. It must be done right now. Action is demanded and it is started as you will see before this meeting is over. I have a letter here from an Ohio grower from Chillicothe, Ohio. I will not stop to take the time to read his letter. I have a letter from Virginia, a convention similar to this, that gave us in one meeting sixty-five members for Apples for Health, Inc. I have a letter in my possession from McCue (?) & Son, down in Virginia. Many of you know McCue. He says that when he first heard of this he didn't think it amounted to much, but he thought it was worth trying so he sent in his membership and then on the second letter that he got from us he saw Gov. Harry Byrd's name as 1st Vice President of the organization and after he heard the message of your speaker in Charlottesville he said at first he felt he couldn't afford to spend more than a membership fee but after hearing the message he felt he couldn't afford not to give it his full support. Conditions are so bad in Virginia and other states I have mentioned that he felt he couldn't afford to withhold a particle of his entire support.

I have a message from an Idaho grower in which he said, "I am for this 100 per cent. but I am not for it if you are in it for only one year. If you will promise to go at least five years, here is my check for five years' membership." I tell you we are in it to stick; not for one year but for five years and I promise you my friends if we stick five years we will never stop. Advertising is like a snowball. It rolls up and up and up.

Some one was asking me about the Northwest this morning, how they stand on this. I will tell you how they stand.

Do you wonder that apple growers are figuratively speaking They have done it for so long they wouldn't quit if they could. They believe in advertising and they have told us all along that as soon as we get an organization truly representative of the apple growing Middle West and East they will join us and co-operate and part of their contributions will go to us. So you don't need to worry about the Northwest. They will profit by every bit of advertising we do and they will profit, I believe, a little more than you and I will back here in the East, because of the foundation they have already laid in their advertising. If you don't believe what I am telling you, try it out. Get right on one of these big trains that goes through this state of Pennsylvania and ask for an apple and when that apple is brought you ask where that apple came from. I have tried it in New York. I have tried it in New England and all over the East. There is only one word that those apple salesmen know how to pronounce—two words they have learned how to pronounce. One is "Washington" and the other is "Oregon." Who taught them? Advertising. Right here in your own state Washington and Oregon apples are sold on these trains. Any better than Pennsylvania apples? I deny it, not a bit better. I can go right out in your orchards and find apples just as sweet, just as beautiful, but the difference is organized advertising.

In West Virginia, your neighbor over here, one county subscribed \$2,000 to this cause and sent us a check for \$500 of it, or 25 per cent., at once so that we might get started. The State of Michigan in a meeting similar to this gave us eighty members in one group; Michigan is behind it 100 per cent.; New Jersey has given us about 150 members, Indiana about the same number; New York eighty-eight in one meeting. The Hudson Valley is very well organized for this. We have a representative there by the name of Mr. Herring, an apple grower, who has done splendid work. Illinois has given us 200 members. Massachusetts was the first state to give us support in the form of an endorsement. Maryland has given us some splendid support through the state apple districts. The following states have given us unanimous resolutions of endorsement: Indiana, Michigan, Illinois, Virginia, Massachusetts, Vermont, New York, New Jersey and Delaware.

All over the United States conditions in the apple growing industry are far from favorable. I wonder if you know that on September 24th, 25th and 26th in the Wenatchee Valley they had fifteen degrees above zero in their orchards. Think of it. Apples froze right on the trees and I saw a letter the other day from the Wenatchee Valley in which it said that apple growers were coming into the office of the organization and asking for food to feed their families. Such are the conditions we have to face in the various parts of this country.

getting on their knees before this organization and begging us to do something in order to create a steady demand for their products?

How do the commission men feel about this? How do the dealers feel? I am proud to tell you that our 4th Vice President is Mr. Thomas S. Smith. Many of you know Tom Smith of Chicago, a fine Christian gentleman, a man that I am proud to be associated with and one of the most popular dealers in the Chicago market. I have a letter of endorsement from Hall, Wing & Carter, another commission firm of the City of Chicago. Our office is right in the heart of the Southwater Market. I have a letter of endorsement from Secretary French of the National League of Commission Merchants now in session in Chicago and I am hurrying back on the afternoon train to speak before that body to-morrow morning on this subject that I am addressing you about this morning. W. O. Wagner, Chairman of the Executive Committee of the International Apple Shippers, has given us a very strong statement of endorsement. Mr. Phillips of Rochester, is Secretary of the International Apple Shippers Association and a man who deserves more credit for the National Apple Week Movement than perhaps any other man in the United States with the possible exception of the President, Mr. Simpson. Mr. Simpson is a member of our Board of Governors.

Ladies and Gentlemen, the International Apple Week Association has done splendid work and Mr. Stark, our President, has promised Mr. Phillips and Mr. Simpson that we will co-operate with them 100 per cent. in carrying on the National Apple Week Celebration as it should be carried on.

How do the allied industries feel? I mean the manufacturers of spray materials, spray machinery, orchard supplies, the nurserymen, etc. How do they feel? Why the best answer to that, ladies and gentlemen, is they are providing the money to get us started. They have already given us around \$6,000 in cash to get this movement started. They didn't wait to ask you to furnish the money. They said, "Here is the money; get busy." That is how they believe in it. I will quote you just one. His name happens to be Taylor. It doesn't happen to be our good friend here at the head of the Bureau of Markets, but one of his friends. This man's name is Chauncey Taylor of the Tobacco By-Products & Chemical Corporation of Louisville, Ky. He made this statement at the banquet of the Horticultural Society at Grand Rapids, Michigan, and I asked his permission to make this quotation and he has consented. "Apples for Health is a national organization. Nothing less will suffice." That is the real point, ladies and gentlemen. This is not a state organization or a local organization; it is a national organization.

"If I could make you gentlemen realize the keen-minded business men, the aggressive growers, the acreage production and money that is now engaged in shipping fruits competitive to the apple into your markets, I believe you would rise in a body and support Apples for Health, Inc., in its effort to better your conditions."

That, I submit to you, is a fair sample of the attitude of the manufacturers who make the materials that you use in your spraying and orcharding.

I want to compliment Mr. Balderston on the very splendid talk he has given just preceding this talk. He has given us many splendid suggestions. The health appeal is all powerful. I have in my possession here one or two statements of physicians on the apple that I would like to have you listen to and you may have quotations of them if you want them. The first is from Dr. W. A. Evans. It was published on Christmas Day in the Chicago Tribune and some 100 other papers including the Boston Herald. I am quoting just one paragraph. "Apples are an alkali-producing food. The winter diet rather tends toward acid production; at this season we are disposed to eat freely of meat, eggs, bread and cereals, all acid-producing foods. We need to add some apples to the diet to act as a balance for these acid-producing foods."

That one paragraph alone in my judgment is worth a million dollars to our cause. You will find that many persons forty years and over tend toward acidity. I have been afflicted in that way for years and I didn't know how to cure myself until I found out that the eating of apples will cure it and I recommend it to any one who is troubled in that way, because I have tried it out myself and I know I am telling the truth.

I have here a statement from Dr. Crane, the well-known syndicate writer, on apples. I will quote one or two paragraphs. "The apple is the friend of man and the ideal food. It not only contains nourishment and vitamins but it has sufficient bulk to be of value in the intestines. Children eat them at all times and their consumption does not seem to take away the appetite for other foods. The only thing that seems to be against their popularity is that they are common and easily obtainable. If every apple cost a dollar apiece and was hard to get, there would be discovered in them wonderful medicinal values."

I have also here a statement from Dr. Bingham of Cleveland on the health value of the apple. "The apple according to the U. S. Department of Agriculture has 628 calories, against 554 for peas, 531 for oranges, 227 for tomatoes and squash. Therefore two and a half pounds of apples are equal

in food value to one pound of ground steak or one pound of eggs. One pound of apples contains more heat units than one pound of oranges or peas and nearly three times as many as tomatoes or squash. It starts all the secretions into vigorous action and floods the system with a new tide of life. It is a friend of health and a foe to disease. It is a food, a tonic, a condiment and cosmetic all in one. It kindles the brilliancy of the eye and plants roses in the cheek. Eat an apple every day; throw your powder and paint away."

I was very much interested in seeing on the screen here quotations from Dr. McCollum of Johns Hopkins University of Baltimore. It was my pleasure to have an interview with Dr. McCollum only two weeks ago and he has given us some very interesting facts on the apple. I wonder if you know and appreciate the fact that Dr. McCollum is the leading authority on nutrition on the east coast of this country. "One large apple is equal to 100 calories, (This is taken from a book, 'Food, Nutrition and Health,' by Dr. McCollum) 10 apricots, three strips of lean bacon, five cups of shredded cabbage, one medium sized cantaloupe, one pound of celery, twelve to fourteen oysters, three medium sized peaches, thirty-seven raisins and two slices of fresh pineapple one inch thick."

Those are scientific facts that are not being questioned. I have also a statement from Dr. Kellogg of Michigan. I would give more if I had more time but time is passing and we must make the most of it.

What has been the achievement of the last 90 days in the organization of Apples for Health? I am proud to tell you that we are doing things. We are not going around talking about it. We are actually doing things. In the 90 days we have secured more than 1,000 members. We have worked day and night and we are continuing to work day and night. We have set our goal at 50,000 members, apple growers in this country. There are 100,000 apple growers in America who should belong to this organization. Will we get them? I don't know whether we will get 50,000 or not but we are going to get just as many as we can and with your help we can secure them.

We have issued 276,000 of these window strips. I am going to show them to you. The Great Atlantic and Pacific Tea Company in their various branches, 14,000 stores, are using this in their front windows. That is just one. We have issued that in a smaller size. Naturally the big apples go first. Then we have another here. I want you to tell me to-day how many of these you can use. Here is one for the Christmas season—"Apples for Health, Gifts of Good Cheer." The colors lend themselves to distinct reading. Here is one that

a professor in Amherst College wrote us about the other day—“Apples for Health, White Teeth and Rosy Cheeks.” When we got that out we thought that was the poorest, but we find that even in New England they like that better than any other we have issued. I wonder if the ladies would take offense if I said that apples have been found to be the very best means of reducing that has been found to-day? We propose in our next issue to get a picture of a fine healthy youngster eating an apple. “Apples for Health Keep the Doctor Away.” That was made for us years and years ago.

The other day Mr. Pratt of New York showed me a clipping of a full page oyster advertisement stating that the oyster was the most easily digested of all foods except the baked apple. Gov. Byrd of Virginia, who is our 1st Vice President, said he had an introduction that beat anything he ever had in all his life. He said he was introduced by a man in Norfolk who introduced him not only as the Governor of the State but one of the most successful apple growers in Virginia. Gov. Byrd has even succeeded in growing 280 bushels of oysters on his orchard. When you can grow oysters in an apple orchard, that is pretty good.

Through the trade press we have received column after column of splendid publicity. More than 50,000 pieces have gone out to apple growers all over the country. Then we have the clip sheet here which has gone to more than 1,000 newspapers all over the country. This is issued under the name of the American Pomological Society because it will be used far more by the country press under that name rather than under our own.

Is this pioneering? By no means, my friends, this is not pioneering. We have the inestimable advantage of knowing that others have traveled the path before us and have gotten results. Take down these facts. In six years by co-operative advertising the orange consumption per capita in this country has been increased from 31 to 65. In 20 years' time the total sales have increased from twelve million dollars to more than fifty-eight million dollars. In the raisin industry by co-operative advertising in ten years' time the consumption of raisins has been increased per capita from 1 to 4.1 pounds and the total tonnage of sales from 70 to more than 100,000 tons. Canned pineapple is perhaps the most remarkable illustration of the power of advertising to change the habits of the people. On October 27 President Coolidge made the statement in Washington to the ad men of the world that advertising has changed the habits of this nation and here is specific illustration of that truth. In ten years' time through the co-operating advertising of the Hawaiian pineapple growers the shipment of canned pineapples has in-

creased from 400,000 cases to more than 5,000,000 and at the same time purposely they have killed the fresh pineapple crates from 700,000 annually until at present they are shipping only 26,000, showing that advertising can not only create but can kill an industry.

Assistant Secretary Roberts of the National League of Commission Men now in session in Chicago has recently conducted a research of thirteen national advertising campaigns. Four of these are fruits. They ran an average of five years. Over a period of five years that these campaigns have run sales increased 230 per cent. Those facts can be verified by any one who chooses to give the matter the proper study. What do we learn from this? Here is what we learn: We learn from a study of these other campaigns that it takes time to get results. The President referred to that very truthfully when he said that it takes time to get these results. You mustn't expect results to-morrow.

The other day I got a letter from a man in a state not very far from this in which he said, “I sent you two dollars two months ago. You haven't sold my apples yet. Send it back.” Well, now, I have patience with that man. He simply didn't understand and I am going to see that he does understand exactly the nature of the work we are in. The records show that it will take three to five years to get definite, tangible results. So let's look the facts in the face. The second is that it takes money. I am going to tell you about a campaign that I haven't mentioned yet and that is the sauerkraut campaign. When we men were in the ranks in the World War we didn't even dare to refer to sauerkraut; we had to call it Liberty cabbage. But the cabbage people have gotten together and never in one year have they spent more than \$50,000 and yet by a questionnaire circulated among the hotels and restaurants of this country the hotels have reported that after four years of the sauerkraut campaign it is the second most popular dish on the menus, and the restaurants have reported that it is the most popular dish. Would you believe it? That is the effect that advertising will have on the food situation.

The average commercial crop in this country for the last ten years, according to Government reports, is 79 million bushels and we are asking for a half cent a bushel on those 79 million bushels. If we were able to secure all of it, which we will never be able to secure, it would give us an income of nearly \$400,000. Suppose we get half of it, \$200,000. Men and women, if you will give us a fourth of it, \$100,000, we will put apples on the map as they never have been put on before.

The third is that it takes organization and the fourth is it takes expert skill. All of these elements we are prepared to

supply and we are going to supply them. I have talked to you long enough. The time has come to do something. Mark Twain said we talk a lot about the weather but no one does anything. Now it is time to do something. Speaking of Mark Twain reminds me they say he was a bad man to swear. He was always swearing and he was remarkably skilful in his profanity. One day his good wife thought she had an idea of just how to cure Mark of swearing and she made up her mind she would swear just as hard as she could right in front of him. One morning things didn't go well and she started in and just let out a string of cuss words right in front of Mark. Mark looked at her with open eyes and said, "You have got the words but you haven't learned the tune." We not only have the words but we are going to learn the tune, too, and we are going to keep on singing it.

You are a sensible business man; you ask this question—"what can I do? Tell me what to do and I will do it."

It is so easy I hesitate to tell you. I would like to give you something hard to do but I can't do it. Give us two dollars annual membership. When you sell your apples, give us a half cent a bushel. Take some of these slips with you back home. Get them signed up and mail them in. That is all I ask you to do. It is so easy I hesitate to mention it. Put your name on the dotted line as a member. That makes you a member of the organization, first. Give us a half cent a bushel and at the bottom of this slip put down how many of these stickers you will want us to send you. They come in lots of six.

I thought you might want to know who are behind this movement. The President of this organization, Apples for Health, is Mr. Paul Stark of Louisiana, Missouri. The Secretary is Robert W. Dunn, an apple grower from Michigan, ex-President of the Hamilton Club of Chicago. The Treasurer is Lawrence Whiting, an Illinois apple grower and President of a Chicago bank. The 1st Vice President is the Governor of Virginia and so on.

How will the money be spent? It will be spent in the national periodicals. In the Saturday Evening Post, the Ladies' Home Journal, Country Gentleman, papers having national circulation, the best of which I can say without hesitation is the Saturday Evening Post and we are going to get into that just as soon as we have money enough to do it.

**Dr. Fletcher:** It occurs to me that some action should be taken by way of endorsement of this program so that our proceedings may show that, for the information of those who are not at the meeting. I will confess that I was from Missouri on this whole proposition for some time. I felt it was

a mistake for this organization to go out and solicit members before they had put forward their full program of advertising and how the money was to be spent. Well, I have seen the program of advertising, the distribution of the money. I have been assured that the overhead charges and salaries come from the dealers and that every dollar that the growers put in goes for advertising. I have been assured that in proportion as money comes from Pennsylvania, in that proportion to some extent the money will be spent in advertising that will be of particular benefit to Pennsylvania, so that in a sense it is local. Altogether I am satisfied that it is a step in the right direction.

I propose, Mr. Chairman, this resolution: The State Horticultural Association of Pennsylvania endorses the policy of endeavoring to increase the consumption of apples by advertising on a national scale as proposed in the Apples for Health campaign and urges individual fruit growers and local organizations of fruit growers to advance their own interests by supporting this movement. I offer that as a motion.

. . . The resolution was seconded and unanimously adopted. . . .

**Mr. F. G. Reiter:** Mr. Chairman and Members of the Association: When we speak of local advertising we think of advertising in newspapers and signboards along the main roads. That is what I had in mind when I first thought of this subject. Then I wondered if we are really going back far enough. Where does our local advertising begin? Does it not begin with an attractive farmstead, buildings in good order, well painted, machinery stored in proper place, fences kept in good repair, lawn well kept and some shrubbery and flowers to make the place attractive? What does that have to do with advertising? Put yourself in the place of the customer with two or more places to buy fruit—will you stop at the one more attractive? Yes, every time.

Next is the quality of the fruit. Good fruit is the best ad you can put out. Regardless of what else you spend for advertising if you do not have good fruit, well graded and packed, you cannot expect repeat orders, and after all that is where we get our profit. We cannot afford to advertise enough to keep new customers coming all the time. In other words, a satisfied customer is a good investment in advertising.

Next is one or more attractive signboards. You may have a beautiful home and fruit of the finest quality and yet have many customers drive past your door and not know that you have good fruit for sale. When an attractive display of fruit can be used in connection with the signboard, it is more effective. At our roadside markets we find a large display of

fruit attractively arranged is a big drawing card. If our display shelves are allowed to become partly empty many cars go past apparently thinking our supply is low and too much picked over. We also find plenty of parking space is very necessary. People will not stop if there is not plenty of space to get off the main traveled road.

We are located on an improved road and began to advertise three years ago. We erected a building for our roadside market and placed a sign 6 x 8 feet about a quarter of a mile out on the road each way from the market. These signs read: "TREESDALE FARMS FINEST QUALITY HOME GROWN FRUIT FOR SALE." Attached to the bottom of these were small signs which read: "CHERRIES" or "APPLES" or "PEACHES." These were attached as the fruit came in season and removed when the crop was sold out. In this way we prepared the customer to have a desire for the particular product before he reached the market. We also had two smaller signs near the market which read: "STOP—TREESDALE FARMS FRUIT FOR SALE." With arrow pointing to the fruit house.

We soon found many people in the city did not know when to expect the different fruit and when varieties of apples were in season. We started a mailing list, sending out cards when the cherries, peaches, plums, grapes and apples came in season and found this quite helpful.

Our roadside market was going fine, but we felt we could increase our business by locating on a more traveled road. We purchased another farm, erected a small building 10 x 20 feet and put up two signboards, similar to those at headquarters. Last year, our second year at the new location, we found our new building entirely too small. We added 24 feet in length and a projecting roof of 20 feet on the front and found before the season was over that our business taxed the larger building to the limit. We handled through these roadside markets 170 bushels of cherries, the majority of the crop of 500 bushels of plums, 2,100 bushels of peaches, 500 bushels of grapes and a great many apples. When we discovered our apple crop was going to reach nearly 20,000 bushels, we felt we needed more customers. To reach more customers we advertised in the Pittsburgh daily papers with good results. About half our crop was sold locally and several thousand gallons of cider. In our experience the local market is the best market and you can afford to advertise to get the business.

**Question:** Are you open on Sundays?

**Mr. Reiter:** We are. A few years ago we didn't sell anything on Sunday. We have had customers come in there to

buy on Sunday and have told them they would have to come back during the week. When we commenced to advertise a little we found people coming in every Sunday saying, "This is the only time we can get out." We are, of course, 22 miles from Pittsburgh. We made up our minds when the fruit was to sell we were going to sell it when the people will buy and whether we like it or not, we have got to sell on Sunday to reach the roadside trade.

**Question:** Have you had any trouble with the law?

**Mr. Reiter:** We haven't had any trouble at all.

**Question:** What proportion of your fruit do you sell at the roadside market compared to what you raise?

**Mr. Reiter:** At the present time half of our apples, three-fourths of our plums and all of our other fruits. We are growing fast and it will only be a matter of a few years until we will have to go outside more than we do at the present time. We are rather well located at that for the other fruits. What apples we don't sell at the roadside market we sell through the American Fruit Growers at Pittsburgh but we can't get very well satisfied with the produce yards sales. Other sales are mostly direct to the large dealers at Pittsburgh where we can put in 100 bushels or 60 bushels at one time. We find if we get at the large fruit dealers in the right way apparently we can move our crops pretty well.

**Question:** Do you operate your roadside market at this season of the year?

**Mr. Reiter:** We close our market at about Thanksgiving time.

**President Brinton:** How have your by-products worked out?

**Mr. Reiter:** We are going into by-products to some extent and believe that there is a good field open for us in that direction, apple butter in particular and pasteurized apple juice. That was our original one and is still going good, although last year during the fall season our call for fresh cider without the benzoate of soda in it was very large and we believe we are going to increase our business a great deal in our location. All the cider that is shipped in is treated with benzoate of soda. Our pasteurized apple juice is going very good. We have some customers who buy it all the time but you don't sell much of that during the season when you can get the fresh cider, for two reasons: We can't hold quite the natural flavor with the pasteurized juice and we can't sell the pasteurized juice for the same price as the fresh cider. We have in stock about 8,000 gallons of pasteurized juice that will

be kept over for next summer's trade, moved out at the stands and at some of the neighboring soft drink places. We sold about 4,000 gallons in that way this last summer before the other cider came on and expect by shoving business a little bit the 8,000 will be moved next year before other business comes up.

We made about 3,000 quarts of apple butter this year, selling it at fifty cents a quart and while it isn't quite all out, it would have been had we been able to keep our roadside open until Christmas time. We have some customers coming back every few days when the weather is open for a few quarts of apple butter.

**Question:** What do you get for sweet cider?

**Mr. Reiter:** We get 75 cents a gallon for the sweet cider and a dollar a gallon for the pasteurized in a gallon jug.

**Mr. Taylor:** The Secretary has asked that the committee reports be given verbally to a large degree. That will be entirely necessary in the case of the Advertising Committee, of which I happen to be the Chairman, because I have not been able to get the committee members together this morning. So that the few suggestions and statements that I want to make are with reference to the work of the committee during the past year.

We knew that market conditions would be poor from the size of the crop. About the first of July we endeavored to locate some interest among peach growers in possible peach advertising. At that time we did find that there was a real interest among the commercial shippers of peaches in the state to do some advertising in the trade papers and after following that through, interviewing all of them that we could reach, we found that a considerable group whose estimated shipments would be approximately 750 cars were willing to contribute toward advertisements in the Packer. That was followed through. An assessment on a per car basis on their own estimates of forty-five cents per car was collected and the advertising contracted by the committee in the name of the Horticultural Association. The funds for that were entirely contributed before the advertising appeared so that we were able to pay the bill promptly when it was received. Two half-page ads of Pennsylvania peaches were carried in the Packer and I presume most of you saw them during the month of August. The issues which were selected were those which were distributed at the International Apple Shippers at Buffalo. The results, of course, should be reported on by the men who contributed, but to the best of our knowledge all of them say that it was a good investment. If they want to comment on it later, I hope they will.

We had not been able to find any interest among local market growers towards some poster advertising, but at a late date we found a group of two or three who were willing to pay their share if others did and so as a last minute proposition one letter was sent out, orders were received and I think 1,200 posters of this type were printed and distributed. Most of you have seen them. Another year with more time and an earlier interest on the part of growers, a much better job and a much larger and wider distribution can be made.

A limited number of these price cards were also prepared and distributed, the idea being that one of these would go in each package among the growers who were thoroughly sold on this type of material; in other cases the idea being that these price cards would be turned over to the retailers who were selling the fruit of the growers and put on the packages, this being the place to put the price at which their product was selling.

We started early on the apple proposition, knowing that we would be up against a good demand and a bad market. I think in all either two or three letters were sent out to the members of the Association. If you did not receive the letters, you are not listed on the Association's list with which the Secretary supplied me. I have had a number of cases of that character which have all turned out indicating that the growers have not paid their membership in the State Association and therefore did not get the chance to get the advertising.

We went ahead with three types of material as in the past, hazarding, I may say, the major portion of the income of the Association on this venture and that is one thing I don't like about the present work of the Advertising Committee. The financial statement a little later on will show you why. We arranged for this poster—"Have You Eaten One To-day? We Recommend Pennsylvania Apples. Buy a Basket." Or, in cases where the grower desired it, (and that included about 80 per cent. of the cases), this line "Buy a Basket" was removed and the name and address of the grower or the local association placed in that space. Eighty per cent. of the growers wanted it so that evidently it is worth while to have your name and your address on advertising material of this character, if you want to get your maximum benefit out of it.

We ordered altogether a little more than 2,500 of recipe booklets and have a small stock on hand at the present time. The recipe book in the past has been a fair success. We were not satisfied with it because it lacked color and after all color in advertising is one of the most important things. Apples are almost ideal for color use. So that we went ahead and contracted for some extra art work and some printing and

prepared the same booklet which had been distributed in the past but with entirely new color. The front page was this design—"Apples, a New Way Each Day"—with this large apple cut and below that the name and address of the individual, providing he bought 500 copies. On the inside cover—"Eat Apples for Better Health"—an extract from an interview with Dr. Kellogg by Mr. Gorby, mentioned this morning. Then the recipes covering 16 pages. A list of Pennsylvania apples and their best uses on the third cover and on the back cover the chart showing the months in which the different varieties should be used. Over 2,000 of these booklets have been sold during the past year. A large number were given out at Apple Day at the Sesqui-Centennial, the Executive Committee of the Association authorizing that expenditure.

Then the other piece of material was a price card similar to that used in previous years, Pennsylvania Stayman, or any one of the thirteen other varieties, being intended to carry the price at which the fruit was being sold.

With regard to color and its value I would like to show you the difference between those two. That is the same thing except one is green and one is black. I think that carries a lesson in itself to show the difference in the attractiveness of a piece of advertising when you can get a good color into it.

As to finances—the work of this committee is supposed to be self-supporting. That being interpreted to mean that the bills for printing, etc., and for postage, should be carried by the Association members who secure this material. The balance of the distribution expenses have been handled by our Bureau and we feel that it is entirely legitimate to do that to a reasonable degree, at least until this proposition can be gotten under way in a constructive way. The receipts for the advertisement in the Packer, \$338.13; the peach advertising material, \$103.50; apple advertising material, \$616.00 with one account unpaid still of \$11.00. In practically all cases we got checks in advance, but like all business propositions that rule cannot be interpreted to a perfect degree and we have one bill of \$11.00 still to collect. Total receipts, including the \$11.00 bill, \$1,068.62. Expenses, Packer advertising, \$337.50; the peach poster and other material, \$132.50; the apple material, \$697.75. A total expense of \$1,167.75. That is \$99.12 in excess of the receipts, but against that excess we have on hand some material of each of these types, having a cost value of \$137.00. So that if the material on hand is circulated in the near future or next year, the Association will have no deficit on this account, but will have just about an even break. In addition this has absorbed the cost of 2,500 recipe books which were distributed at Philadelphia so that there is about \$50.00 there that has not been sold but has been distributed.

The thing I don't like about this advertising work is the fact that we can't get growers to place orders in time enough to give us a fair chance to get the material shaped up and back to them by the middle of October. We have tried it now for three years and I am convinced it is almost humanly impossible to do it. This year we went ahead and contracted for five years' advertising material that we held orders for. We couldn't wait any longer. We have sold all but 20 per cent. of that in all cases. Now the growers who left their orders on the radio, as one man told me, or on the desk, or who had written an order but forgot to mail it, and all the other full line of excuses that might be mentioned, who wanted the advertising but who hadn't forwarded the advertising orders to us promptly, all helped to contribute to this risk which we had taken and were forced to take with the funds of the Association, because when the orders come in, they want them by return mail.

That means two things, it seems to me in the future. Either that a different arrangement of handling things with this committee must be worked out, or, second, that by next season it must be co-ordinated in some way with the work of Apples for Health, so that it can be handled effectively without involving the Association in possible financial loss.

With regard to the possibility of joining with Apples for Health, it does offer this decided advantage: In the quantities we are purchasing now we must get three-color work or four-color photographic work, which is the most expensive, but the best quality of material. Apples for Health should be in a position to secure lithographic material which is much cheaper and very nearly as good and in that way perhaps costs can be reduced and larger volumes distributed without any serious effect on the quality of the material that is being put up.

It seems to me if Apples for Health comes up to its possibilities that they can arrange for color work and then at the same time that is being followed here in Pennsylvania and is now being used in Ohio, can be adopted in all of the eastern states where there is a local market sale of fruit, and have printing on that, on top of the lithographic work, which will make that same lithographic material suitable for use in each of these states that may desire the material.

That is simply a suggestion out of our experience. The results of advertising I would rather leave to the statements of the growers who are here who have used it. We feel that the increased growth has been shown, that it is serving a purpose and that it is being worked out in a service to the members of this Association in giving them material that they

can't get in any other way. We will finish a detailed statement for the minutes of the meeting. I have this material on hand if any of you would like to have it.

Whereupon the session adjourned at 12:15 p. m.

#### ADJOURNMENT

#### PROGRESS IN FRUIT STANDARDIZATION

by

P. R. Taylor,

Director, Bureau of Markets

The more recent developments in fruit standardization in Pennsylvania date from 1923. In the spring of that year, a committee representing this association and other similar organizations worked out a set of standard apple grades with the Federal and State Departments of Agriculture. These grades were termed the U. S. Apple Grades and shipping point inspection under them was carried on at eight points in Pennsylvania, a total of 234 cars of apples being inspected.

Early in the following year these grades were adopted as the standard grades for apples in Pennsylvania. During the shipping season 109 cars of apples were inspected of the rather small crop, and 72 cars of peaches were inspected using the new Federal grades. In all, the work was carried on at a total of 10 inspection points.

During 1925 the expansion of the apple inspection continued, 304 cars being included at 12 loading points. Because of the small size of the peach crop and the small number of cars shipped in the state, no peaches were inspected during this year.

By 1926 interest in this work had shown a decided increase. During the spring months, a number of changes were made in the previous grades. One of the most important was the establishment of the U. S. Commercial grade, having the same standards as U. S. No. 1 grade except that no color was required. A number of minor changes in color requirements and other details were also made. The revised U. S. Grades were adopted as the state standards in September and were used throughout the season.

The prospect for large crops and poor markets created an interest in shipping point inspection among many who had not previously co-operated in the work. As a result the total inspections of peaches amounted to 435 cars and up to January 1, 1927, 1,002 cars of apples had been inspected, the work being carried on at 41 points of inspection. The total number of cars of fruit inspected amounted to 1,437.

Up to the present time, shipping point inspection has only been attempted on rail shipments or fruit from cold storage, so that the percentage of cars inspected to total shipments gives an accurate measure of the relative increase in this work during the past four years.

	Year	Number cars shipped	Number cars inspected	Percent Inspected
APPLES	1923-24	4033	234	6
	1924-25	1588	109	7
	1925-26	2486	304	12
	1926-Jan. 1	3247	1002	30
PEACHES	1923	615	None	None
	1924	447	72	16
	1925	199	None	None
	1926	810	435	54

Prior to the establishment of the U. S. Standard Grades it had frequently been contended by many that it would be impossible to make definite grades which would be practical over a period of years for use with commodities such as apples and peaches because of the varying seasonal conditions. The following percentage show that the present grades are satisfactory in this respect as they indicate the proportion of the fruit inspected which met the requirements of U. S. Fancy and U. S. No. 1 each season:

APPLES		PEACHES	
1923	71%	1923	
1924	64%	1924	84%
1925	79%	1925	
1926	76%	1926	75%

The apples inspected during 1926 represents the largest single sample upon which records of the grade of Pennsylvania fruit have been available. The factors mentioned on the grade certificates which caused the fruit to be graded below U. S. No. 1 Grade were as follows:

	Number of Cars	Per Cent.
Lack of Color	187	19%
Worm Injury	91	9%
Scars	57	6%
Mechanical Injury	39	4%
Hail Injury	22	2%
Russeting	14	1%
Sooty Blotch	10	1%
All other defects	20	2%

Absence of good color was the most important single reason for Pennsylvania fruit failing to meet the U. S. No. 1 Grade, although most of these cars were placed in the U. S. Com-

mercial Grade. It is evident, however, that growers should give more attention to methods for increasing the color of their fruit. Worm injury, scars, and mechanical injury were of sufficient importance so that more attention should be paid to eliminating them. The year 1926 was unusual as scab was very uncommon, not being included in the list of defects affecting the grade of the fruit although it had been one of the important factors affecting grade in previous years.

The 435 cars of peaches inspected in 1926 include over half of the carload shipments of the entire state. According to these certificates, 75% of the fruit graded U. S. No. 1 or better, there being only 135 cars which failed to meet this grade. The defects mentioned on the certificates of the 135 cars which did not meet grade were as follows:

	Number of Cars	Per Cent.
Softness	124	29%
Worm Injury	41	9%
Scab	35	8%
Mechanical Injury	30	7%
Misshapen	10	2%
Split Pits	10	2%
All other defects	18	4%

The chief defect, softness, was largely due to the continued rains of the harvesting season which caused premature ripening and seriously retarded picking operations. As one-third of the peaches inspected were kept out of grade by this single factor, it was of real importance in the marketing of the crop. The other more important defects mentioned above are mostly susceptible to better control through orchard and packing house operations.

Based on the experience of the past four years, it seems possible to draw a number of conclusions regarding shipping point inspection work. At the present time, 35 states are co-operating with the Federal Department in such inspection and during the fiscal year ending June 30 last, 165,529 cars were inspected of which number 31,493 were apples and 5,732 peaches. The figures for the present fiscal year will show much higher numbers than the above, apple inspections probably representing about one-half of the entire shipments in the United States.

It is inevitable that the quality of fruit actually placed on the market must be of a higher grade than formerly when such a large proportion of the crop has met the requirements of the U. S. Grades. This does not mean that good grading was not carried on in the past by many shippers, but rather that the adoption of definite standard grades and a uniform system of inspection have resulted in a more dependable grade of fruit entering the package.

The certificate based on a shipping point inspection has considerable value to the shipper as protection against unwarranted rejection after the fruit has reached market. But quite a few shippers have the idea that the issuance of a shipping point certificate is a guarantee against rejection of the car inspected. This is a mistaken idea. There is only one way by which the inspection certificate can be made practically an infallible protection against such rejection. If the contract of sale is written so that the shipper makes delivery of the product when he forwards the bill of lading with the inspection certificate attached, practically every unreasonable pretext for rejection has been prevented. This is the system in general use on most other farm products but up to the present time only a few fruit growers have protected themselves in this way.

In one case during the past season such a contract provision was used and a certificate of U. S. No. 1 Grade was forwarded with the bill of lading. The buyer rejected the car, asking for government inspection at the terminal market to justify his action. When the inspection sustained the original grade at shipping point, he still continued to refuse to accept the shipment. The shipper released it to another dealer who sold it for the account of the original buyer. Suit is now pending against the original buyer for the loss sustained. While the case has not come up for trial at this time, there seems to be little question but that the two inspection certificates will be ample evidence to establish that the shipper delivered the quality of product which was purchased.

Proper inspection should reduce the amount of railroad claims as the condition of the product at the time of shipment should be improved under normal loading conditions. This is especially true in the case of peaches and other soft fruits where the ripeness and softness of the fruit is always a disputed question between the carrier and the shipper. By a disinterested inspection the actual facts at the time of loading the car are known and can be considered in the settlement of claims. The value of such information was best indicated during the past year when such a large proportion of the peach crop softened prematurely. A number of shippers desired to discontinue the inspection service when they found that their fruit would not meet the U. S. No. 1 Grade because of the presence of soft peaches. Fortunately, they were convinced of the value of continuing the inspection work on these cars and have subsequently found that these certificates are of considerable assistance in the settlement of claims even though some fruit in the shipments was soft.

Under such conditions inspection certificates do not prevent fruit from ripening and decay from spreading, especially when

shipped a long distance from market. One shipper felt that the inspection was worthless because it did not protect him against rejection after a rail haul of five days. The original certificate showed a fair percentage of soft peaches in the shipment. If it had been used properly, this certificate would have been the basis for diversion of this shipment to a nearer market than the original destination. The grower could have protected himself against the chance of rejection if he had used the information actually contained on the certificate.

To an increasing degree inspection certificates are being required by banks interested in the financing of fruit in storage or on the way to market. This is rather common practice in the financing of export shipments. The risk which the bank takes is reduced by the practical elimination of grade as a factor of uncertainty in the transaction. Many features of marketing which are popular under favorable market conditions lose their value during seasons when sales are hard to make and still harder to complete. This does not seem to be true of shipping point inspection, which gained ground in practically every fruit State in 1926 although marketing conditions were the poorest in years. The increased use and general satisfaction with this type of work indicates that it has been of appreciable benefit in selling the crop during the past year. Surely, if it has proven of value in a market of this character, it can be of equal service in a year when conditions generally are most favorable.

I do not desire to leave you under the impression that everything concerned with inspection work is perfect and that it has no problems of its own. As a matter of fact the handling of the work during the past season has been almost, if not as difficult a task, as the marketing problem of the grower.

Most of the fruit crop in Pennsylvania is packed in small packing houses at scattered points. As a result, there are a large number of inspection points although comparatively few of them have a sufficient volume of business to justify the presence of one man at each point for the entire packing season. It is, therefore, necessary to have each inspector handle work at two or more points of his character. This creates the problem and expense of transportation as well as the reduced supervision at each point when the inspector is absent on the other work. We have endeavored to locate men on the basis of a minimum volume of business of ten cars per week at any one point. This is a very difficult rule to apply as inspectors must be hired, trained and located before the harvesting season begins. In a number of cases the business did not develop as was expected and the expense incurred was largely a loss. Growers can help greatly in the future if they can make more definite plans at an early date.

One of the most difficult problems during the past season has been that of finance. The rapid expansion in the work done was made possible only through the revolving fund of the Bureau of Markets which permitted the expenditure of fees collected in such inspection work. In this way the service was largely self-sustaining although the small balance of \$1,500 carried over from the previous year was exhausted early in the season as fees were not collected rapidly enough to meet the payrolls of the inspectors. Available funds from appropriations were used to tide over this shortage but at the end of the season the excess of expense over income on fruit was slightly less than \$1,000. The cost of inspection, without supervision, of 435 cars of peaches averaged \$4.99 per car and 1,002 cars of apples to January 1 averaged \$5.39. A portion of the latter expense was due to the effort to extend the service to a number of shippers whose subsequent volume of work did not justify the expense.

Before the next season, the financial aspects of the volume of shipping point inspection work must be given further consideration. It seems entirely sound that shippers who receive the service should pay a reasonable fee for it, at least covering the actual cost of the field inspection work. With the present revolving fund of the Bureau of Markets, it should not be difficult to set the fee at a level which will cover the expenses during the average year and still furnish service to those who desire it for a reasonable volume of business. But if the revolving fund should be discontinued, then the amount of work which can be carried on during 1927 and 1928 will be limited by the size of the appropriation made for this purpose by the present legislature. In New York State where the latter system has been in effect, the growth of the inspection work has been retarded by the lack of finance even though appropriations have been fairly liberal. Funds have not been large enough to keep up with the demand for the work.

The hiring, training, and supervising of up to 30 men during a busy season of a few weeks is no easy task. By cooperation with other states and the Federal Department, it has been possible to secure qualified inspectors when such men were not available from sources within Pennsylvania. In general, we believe that these men have proved to be honest, industrious, discreet and qualified for their work. When you realize that the inspector occupies relatively the same position as the umpire at a baseball game, and at the same time must prepare a certificate which will be sufficiently accurate to justify its admission as prima facie evidence in court, you will realize that the selection and training of inspectors is not an easy job. In only a very few cases has it been necessary for complaints to be received from shippers

regarding the work of men who are not suitable, as most of such inspectors were discarded just as soon as the lack of ability became apparent.

Because of the general success in securing capable men and the close supervision given the work by Mr. Lynn in 1923 and 1924, and Mr. James in the last two years, only one car in the 2,262 cars inspected over a period of four years has been reversed as to grade by Federal inspectors in terminal markets. In this one case during the past year, bruising from excessive pressure in closing the barrel had injured the fruit upon arrival at market. While we had hoped to maintain a clear record through the entire season, the samples returned from this particular shipment indicated the serious degree of damage which had resulted in transit. This particular damage has been much more serious than in ordinary years because of the high moisture content of the fruit.

The high quality of the work in Pennsylvania as compared with many of the other of the 35 states which have been participating in shipping point inspection has been largely due to the careful supervision of Mr. James and Mr. Lynn, and the interest and ability shown by the men who were employed as inspectors. As far as I know, the two men mentioned above are the only state employees who also act as Federal supervisors in the operation of a shipping point inspection deal.

The adoption of the U. S. Commercial Grade has largely solved the problem of fruit with insufficient color to permit grading U. S. Grade No. 1. The present U. S. No. 2 Grade is of no practical value because the name prevents the commercial use of this grade. This was the attitude of the committee on grades of the association but the effort to modify this portion of the U. S. Grades did not succeed. Until such a change is made, the U. S. No. 2 Grade which is really for cooking apples will be of little value in a commercial way. Both the U. S. Peach and Grape Grades should be officially adopted during the coming season, as they have now had sufficient test to prove their value.

One of the most difficult problems in handling the work during the past season has been the necessity for supplying shippers with typed copies of the certificates within a few hours after the inspection was made. To render such a service satisfactorily would require the establishment of several field headquarters so that each inspector would be in close touch with the supervisor of his district who is responsible for the issuing of the certificates. If the work is to be carried on extensively in the future some provision of this character must be worked out to give satisfactory service which will permit the maximum use of the inspection certificates by

shippers. This problem has developed in a number of states during the past fall, but indicates the value of such certificates in the actual marketing of the crop.

The rapid growth and the general satisfaction which is expressed by those for whom shipping point inspection work has been done indicate that further expansion may be expected in coming years. As it involves passing judgment upon perishable products of rather variable quality, it must be expected that problems will always be pressing for solution. The human elements alone present a considerable chance for misunderstanding and dispute. Shipping point inspection has proven that it is a practical method of standardizing the grade of fruits and vegetables under most difficult conditions. Its future expansion will be entirely dependent upon the co-operation of the growers and the continuance of a high degree of efficiency in inspection.

### THE CO-OPERATIVE METHOD OF PACKING AND SHIPPING IN CARLOTS

by

M. C. Burritt, Hilton, N. Y.

The problems of the co-operative carlot shipper are not unlike those of the individual shipper. They center around the securing and packing of quantities of high grade fruit to a uniform standard at a reasonable cost, and its delivery as nearly directly to the consumer as possible. In order to do this, it is necessary to begin at the orchard; to have an effective packing house organization and to call to one's aid such services and shipping point inspection and advertising. But a co-operative packing organization has other problems, chiefly those of human nature, involved in getting numbers of individuals to work together smoothly and to accept their shares of responsibility as growers for grading, packing, distribution and sales. It has been our experience, also, that it is rather more difficult to make such an organization efficient both because of indifference at times and of criticism and fault-finding at others. However, I shall not take your time to discuss this phase of the problem with which most of us are familiar.

So important has the packing of a better grade of fruit to a higher standard become, and especially so fundamental to co-operative marketing, that we are more and more centering our attention in New York on ways and means of securing it. A recent conference of representative Western New York growers declared that "it is evident from our experience that

co-operative marketing must follow rather than precede better standardization and grading in Western New York. Therefore, the emphasis should be shifted from co-operation for sales service to co-operation for a packing service and for the voluntary establishment of a sales plan." The recent meeting of the New York State Horticultural Society devoted a considerable part of its session to discussions of ways and means of improving our pack of apples and decided among other things to make some drastic changes in its grading law and demanded rigid enforcement. It was felt that what is needed is not so much better grades as a larger volume of fruit packed to the grades we now have.

The conference of fruit growers just referred to is so important and I shall have occasion to refer to it so much in this discussion that I think I should pause a minute to tell you about it. This conference resulted in a strong program for New York growers. It may have some suggestions for you.

First, the growing of good fruit. The more one tries to pack good fruit, the more he realizes that a good pack depends upon a good product to begin with. Good pruning, proper thinning, good orchard management generally and above all good spraying are necessary. Because all these things are costing more and more and because prices are so low, there is a tendency to neglect them and to do less in the orchard in order to save expense. We believe that this is a mistake because efforts must be concentrated on the production of quality and this cannot be done without strict attention to all the factors which make for quality. We recognize the need for economy but suggest that it can best be obtained by the elimination of poor varieties and inefficient individual trees and old orchards.

To my mind there is nothing in the present situation that would warrant a wholesale destruction of fruit trees. But it is a time to cull severely. Just as we cull out the old toothless cow and the low producer when milk is cheap, so we ought to cull apple trees now. This is the opportunity to use the axe on varieties of doubtful value and to take out those trees which because of condition, location, age or other infirmity are probably unprofitable. Our recent fruit conference condemned a list of 105 odd varieties for commercial use in Western New York and approved tentatively a list of fifteen. There is no use in spending time and money growing fruit which can never be profitable and which only helps to fill up the market and pull down the price of good fruit.

Branding and inspection. In New York State we find ourselves in some disagreement as to the best general method

of securing a better grade and pack of apples. Should we, can we, compel an honest pack of apples by law? Or does the way to a better pack lie in its voluntary establishment? Our experience has been rather against the expectation that we can accomplish the desired result by legislation alone. Our grading law from which we hoped so much simply caused the majority of the growers to sell "tree run" and to leave the packing to dealers. In the absence of an adequate inspection and enforcement staff the dealers have been able to evade the law in too many cases so that New York's reputation for fruit has fallen instead of raised under the law.

This failure to secure the desired improvement by law alone led our fruit conference to declare its belief that higher standards and better grades can best be secured by their voluntary establishment and to recommend that an organization of growers be formed for the ownership and use of a high grade brand under which Western New York fruit may be sold; that the use of this brand be rented to growers and dealers under conditions established by the organization; that the organization provide for supervising and packing to the minimum standards set by the organization; that the brand be withheld until the fruit is subjected to shipping point inspection; that when a sufficient volume of fruit is packed and sold under this brand a program of advertising should be undertaken and that the selling of fruit through the organization shall be optional with the member.

I note that the use of shipping point inspection is increasing in this state. In New York it is also growing in favor. Every car of standard co-operatively-packed fruit of the Western New York Association is thus inspected. Our brand "Yorkwin" has 3 per cent. less tolerance than the U. S. No. 1 Grade and the Government inspectors inspect to this standard. Our ideal is to pack our fruit not merely so that it will get by the inspectors, but as good as it is reasonably possible. We think of shipping point inspection as assurance to ourselves as well as to our customers that we have done what we are trying to do. If we have not we want to know it before the car is shipped. We know that whatever we may get by with in shipping, that nothing that is unsatisfactory gets by the consumer, the housewife, and we want her to like our fruit.

The packing of good fruit to a uniform grade in quantity means that it must be largely done through packing houses. These may be privately as well as co-operatively owned and by dealers as well as by growers. With us the custom packing house is growing in favor because it is more and more realized that it is the grower rather than the dealer who is primarily interested in the improvement of the quality of the

pack, and that therefore it is in the interest of the grower to retain the ownership of his fruit at least until it is properly packed and branded. Our growers like the central packing house at the shipping point because it lessens and simplifies the labor problem at the orchard.

The great problem in the packing house is to keep the costs down. In too many cases costs are almost prohibitive. They are uniformly higher than grower costs of packing. Data gathered by our State College of Agriculture on 47,811 barrels of apples packed on farms in Western New York showed costs ranging from 20.94 to 28.4 cents per barrel in 1922. Packing house costs in thirty-five packing houses in 1922 averaged 48.1 cent per barrel and in twenty-eight houses in 1923 51.4 cents per barrel. Even under the most favorable circumstances the lowest packing house cost was 34.7. This is an important factor. An increased cost to pack fruit to a high uniform grade may be necessary.

There are some factors to guard against in building and operating packing houses, whether privately, custom or co-operatively operated, which if properly taken into consideration will materially reduce costs. The overhead must be kept low. This means the cheapest building consistent with efficiency. A floor, receiving and loading platforms and a roof are about all that is necessary. One should be very cautious about investing more than \$5,000 in such a building. Even this amount means an annual cost of five cents a barrel on 10,000 barrels. Volume, too, is important and especially volume distributed over as long a season as possible. All costs except labor, and even this in part, are directly proportionate to volume. These costs including management, general office, building equipment, power, light and heat, are roughly 50 per cent. of the packing house costs. Variety and season of the fruit influences costs and a good distribution of the supply of fruit throughout the season will materially lessen costs. It goes without saying that the better quality of fruit delivered to the packing house, the cheaper the cost. Finally, good management is a limiting factor. A system of operation must be flexible and not too rigid, to meet special conditions.

A good sale of the fruit is and always will be the final measure of results. Without well grown and well standardized and packed fruit, we have learned that we cannot expect good sales. But the best of fruit may be poorly sold. How to get the necessary premium to cover the greater cost of producing and packing good fruit is always a problem. You who are so fortunately situated as to be able to sell your fruit directly to local markets have the problem solved, or at least the opportunity to solve it yourselves. But even these markets are not guaranteed to you. Look well to your

treatment of them. California friends have demonstrated that distance is not necessarily a barrier to successful competition in our local markets.

I expect the question which most interests many of you is whether to try to sell directly or to place our fruits in the hands of brokers or some of the national sales organizations to sell. Personally, several years of experience has convinced me that if a man has good fruit the longer he can retain control of it himself on its journey to the consumer, the larger the return he is likely to get for it. Every dealer of fruit from producer to consumer must, of course, be paid for what he does whether it is worth anything or not. If he renders a real service either to the producer or the consumer, his charges will be added to the price the consumer pays, but if he does not render real service his charges must be deducted from the producer's price. I believe that in the majority of cases, not all, the grower pays the bill for the so-called sales service. The more direct connection we can establish with the consumer, the better. I am well aware that too many of us as growers are not as well informed about markets and practices and conditions in the markets as we ought to be. But we must learn. I see no reason why we should not sell directly to the wholesale distributor at least, and in the case of large retailers and chain stores directly to the retailer. These consumers are buying f. o. b. and sales to them we have found to be the most satisfactory. They require large lots of uniform fruit of good quality and are ready to pay for it and for the service of a steady supply. By pursuing this policy the Western New York Fruit Growers Association is steadily reducing its sales through brokers and its sales costs per barrel.

Finally, we must do something to regain and retain the demand for apples among other fruits. We are losing our apple markets to other fruits. This means advertising. But to my mind it means first the advertising that good quality apples do for themselves. We must have something to sell before advertising will do us much good. General advertising can do us no harm and may do us some good. My impression, however, is that the Northwest apple growers and eastern individuals and organizations with high grade brands and who are in a position to accompany general advertising with specific advertising of their own, will profit most by it. The most important emphasis just now is better fruit and better packing.

## RECENT TENDENCIES IN EASTERN MARKETING

by

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Marketing has in the past been largely concerned with scientific rail transportation. The keenest minds in the country have been working on improvements in refrigerator cars or "refers," as they are commonly called, on faster freight movements, on rail rates, and on methods of avoiding glutted markets through improved information service. The result has been the adoption of standard refrigerating car specifications, wherein cars lined with paper are not assumed to be as efficient protection against winter cold or summer heat as cars lined with two inches of celotex inside and out. Cars are now commonly rolled unconsigned and diverted at the last moment to this market or to that market, depending upon the supply and demand in the one or the other. Entire train loads of perishable products have been rushed to destination in almost express shipment time, and the securing of commodity rates on certain shipments has virtually lessened the distance to market. All these have been the high spots of marketing in the past.

The fruit sections of the East are now turning from this path and blazing a way for themselves that better suits their peculiar conditions of proximity to a vast consuming market which they will never likely be able to oversupply.

### Movement by Truck

The increase in shipment by motor truck is one of the most striking of these changes. Buyers in the consuming centers are sending their trucks out after the fruit and find it no additional burden to go three or four miles back into the country for a load after they have already come 70 or 100 miles. To the fruit grower, however, a haul of several miles, together with the extra time consumed in loading and billing cars, is no small item.

The radius of this truck movement, taking the Hudson Valley as an example is gradually increasing. Two years ago one community seventy miles from City Hall, New York City, which produced in the neighborhood of 25,000 barrels of fruit

in 1924, moved just 1,600 barrels by rail, and this because of a peculiarly severe winter spell. In 1925 production ran close to 50,000 barrels and not a single barrel moved by rail—all going south towards Newark, Paterson, Philadelphia, Brooklyn and New York. From Poughkeepsie, New York, more famed as the home of Vassar College and the Intercollegiate Regatta than for apples, a truck left every night between September and May of last year, carrying a half car of fresh fruit to New York City, 75 miles away. The season of 1925 saw trucks moving southward from the vicinity of Kingston, while even Catskill, 110 miles from New York, has trucked over 6,000 barrels to market, where formerly none were moved this way.

At this point the watershed of truck transportation is reached and shipments begin to travel north to Albany, Troy, Schenectady, and the Capital District. A hundred thousand barrels are said to have been trucked during the fall of 1925 from points within thirty miles of Albany. In other words, with the Hudson River Valley as an illustration, the tendency is to truck a great quantity of fruit that formerly moved by rail or boat—North or South, East or West, depending upon the market, but by truck nevertheless. The same situation is developing in New England, New Jersey and eastern Pennsylvania.

#### Sales "Orchard Run"

Another angle to the truck movement, which is, after all, a phase of heightened interest in developing local markets, is in the sale of fruit "orchard run." Peddler trade prefers a few large and a few small apples to a closely sized pack. The result has been an unbelievable increase in selling fruit by the barrel, largely unpressed and unsized. Prices are relatively high for Baldwin, Wealthy, Sutton, and other common varieties which formerly brought low prices on over-stocked markets. Instead of the peddler in Newark or Paterson going to New York City for his fruit, he now goes directly to the orchard or community packing plant and takes the fruit in open headed barrels or his own containers just as it comes from the orchard. And this traffic is, of course, not confined to the vicinity of New York City. Philadelphia, Camden, Syracuse, Albany, Springfield, Hartford, Boston, and Manchester are following the same general procedure. The combination of circumstances is one of the happiest that the Eastern fruit grower has seen in many a day.

#### The Automatic Cold Storage

Another development that hinges closely upon reinforced concrete roads and motor trucks, is the small privately owned,

automatically operated cold storage plant. Of course, the large expensive, all-purpose storage is still a profitable enterprise when scientifically operated by a technical refrigerating concern, but the individual fruit grower in the East is becoming more interested in the small house of three thousand to twenty thousand barrel capacity, erected as cheaply as possible or made over from an old building on the premises, and operated by automatic machinery. A general purpose plant handling butter, eggs, meat and so on, will cost between \$5.00 and \$6.50 a barrel capacity to construct and must be kept running the year round to pay dividends. The cheaply constructed house can be erected for \$2.00 to \$3.00 a barrel and is operated mostly during the colder months of the year when operating costs are not high. The plan that has been most successful is for an orchardist to raise a good average run of fruit so as to be able to pass it into the storage in crates or boxes as it is brought from the fields. Then in the winter season the fruit is graded out as needed and trucked to market to realize the extra price which fresh, unpressed fruit always brings. Furthermore, the distribution of labor is better, since the rush of grading and packing is separated from that attending harvesting.

#### Understanding the Market

So much for the increase of trucking, selling "orchard run," and the small type of cold storage plant. As interesting a development as any, however, has been the awakening of the East to the realization that her markets are at her finger tips if she will but develop them. Co-operative marketing was first blindly resorted to at a time when the word "co-operation" was looked upon as the magic that would transform conditions. But obviously it has had its ups and downs in a section where co-operative marketing of the type common to western America is perhaps less needed than in any other section of the country. The next step was the work of progressive individuals who began inquiring into why western fruit was preferred to eastern fruit, and then set out to *give their local markets what they wanted*.

They found, first of all, that their markets preferred eastern grown fruit because of its higher color and higher quality, and also because of its local production. Second, they were willing to pay the price for good fruit. Third, the small package containing a definite number of apples was desired. But this was a big change for the conservative East with its time-honored barrel pack.

#### Development of an Improved Bushel Pack

Fortunately at about this time—about six seasons ago—the price of barrels soared to a prohibitive level and the growers

resorted to bushel baskets, cartons, egg cases—anything to beat the exorbitant price of barrels. The market received the pack favorably, yet often discriminated against the bushel basket because it was not included as a "closed package" in apple grading regulations and was ordinarily the container for inferior fruit. Thereupon the apple laws of New York State, for example, were amended so as to include the bushel basket in a list of packages that must be stamped and labelled as to contents.

The next step, another season, was the continued use of the bushel basket for fruit which had formerly gone into barrels. And just at this point the manufacturers of baskets brought out a stiff, straight-sided bushel basket with a removable bottom which could be faced and filled from the bottom, presenting an attractive face for display. But the package, although received on the markets very cordially, took too much time to pack and again came a new development by the manufacturers. This time it was a straight-sided bushel with a permanent bottom, filled, however, in an ingenious way. A concave, metal sheet, like a dinner plate, just the size of the top of the bushel, is first faced with apples. Then a cardboard basket liner, as frequently used for protection in basket packs is set on this face of apples, rising about the metal dish much like a collar. The cardboard collar is filled with fruit, the bushel basket is inverted over it, and when the basket is set upright, there is a bushel of fruit with a round face of apples—a most attractive pack in a very substantial container. Three basket manufacturers in western New York sold 50 per cent. more bushel baskets in 1925 than in previous years, and about half as many straight-sided baskets as common bushels. It is doubtful that the barrel will ever command the market as it did before the high prices of 1920.

Another grower has developed a bushel basket trade, using the straight-sided basket and wrapping each apple in oiled paper. A recent improvement has been to sift ground cork around each layer as is done in California. Four pounds of cork at 5 cents a pound are used to each basket, but the price received per basket has been \$5.50 f. o. b. shipping point, and such delicate varieties as Northern Spy and McIntosh have carried without a bruise from northern New York to Florida in individual shipments.

#### The Carton Pack

Of course there are two kinds of markets, (1) the individual fancy trade and (2) the average grocer trade. A further effort in the direction of supplying the grocer trade with small packages has been tried with at least no loss as usually at-

tends the introduction of new packages, but at the same time with no outstanding success. The idea has been to pack a reasonably good, but not fancy grade of fruit in cheap cardboard cartons containing 12, 16, or 24 apples, depending upon the size of the fruit. These small containers are in turn packed in larger cartons of about 18 to a case and sold to chain stores and large department stores. There have never been sufficient of these small boxes to supply the trade, although one co-operative organization put up several thousand barrels in this way. Yet because the chain stores usually buy at a very low price and because any fruit in a small package is expected to be a little above the average grade, there has been considerable difficulty with the pack and with prices, so that in the final analysis the net return from fruit in cheap cartons has been no more than the net return for fruit in barrels. The feeling is that with an average "A" grade run of fruit it is at present a doubtful practice to put it into small boxes for this class of cheaper trade.

The fancy fruit market, however, appears promising. A few more cents for the package—and a little better grade of fruit in the package—has given surprising returns. Each individual has his own pet package, yet they are similar in one respect, namely, in having cardboard fillers or partitions for the individual fruits. Second-hand egg crates and orange boxes have been tried with a fair degree of success, but in the main the trade calls for a new, neat package. The greatest number of packages are of corrugated board—the small ones containing 8, 12, or 16 apples, and the larger ones running 100 apples to a box, or approximately a bushel. The attractiveness of the pack is not increased by the cardboard fillers or by having the stems up, so that more recently some individuals have devised partitions for cheek packing, while others have discarded the fillers and have merely placed the fruit check up. There is no saying which shape or size or interior arrangement is best. So far they have all been successful, though to be sure they must carry nothing but fancy fruit of high quality—McIntosh, Northern Spy, Delicious.

One size box in western New York sells for \$4.00 in New York City, when the same variety and grade in barrels brings \$9.00. Since 3½ boxes are equal to one barrel, the price received for the local boxed fruit is \$9.00 barreled against the \$14.00 boxed. The labor cost to pack a box and a barrel are about equal, while the box containers for a barrel quantity of fruit cost no more than a standard apple barrel.

Highly colored McIntosh and Northern Spy from New England and eastern New York in the cartons have sold for \$5.00 a box f. o. b. shipping point. Furthermore a considerable trade has sprung up on roadside stands for gift packages

of about a dozen apples. One grower sold his entire crop of apples, estimated at \$7,000, from his roadside stand by early Fall and then toured the country in a high powered car. One of his feature packages was a small corrugated box of 12 perfect fruits nested in cardboard fillers in mixed red, green, purple, and blue shredded paper and with silk ribbon inclosed, on which was printed the virtues of the fruit. Each package was ready for mailing and carried an address slip. They sold readily at \$1.25 a box at the stand.

### The Boston Box

In New England there is a flat, square wooden box in use for produce which is known as the Boston Box. Corn, potatoes, celery, tomatoes, apples—everything finds its way to market in this awkward box. It long appeared a hopeless package in which to pack fruit, but the market received it favorably, and so the fruit interests tried to devise some method of packing it. By laying some apples stem up and some cheeks up, definite packs have been made for different sized fruit. The latest development has been to replace the top with corrugated boards and three slats. Then by wrapping the fruit and giving the box a bulge enough to take up any slack, a very attractive pack is made and one which carries well. Both New York and Boston are receiving this package well, and downtown Fifth Avenue shops in New York City have displayed Vermont grown McIntosh in Boston Boxes!

This past season has seen one Hudson Valley grower import a packing house foreman from the State of Washington to supervise the development of a box pack for his fruit. So far he has been very much pleased at the way his plans have worked out. The same grade fruit in boxes has netted one dollar more per barrel than when in barrels.

As a final example of the tendency to watch the market and to cater to it, let me tell the way the cherry crop is handled in some sections. It costs about 6 cents to grow a 4-quart basket of sour cherries and 34½ cents to pick it, pack it, and place it upon the New York market—making a total of 40½ cents.

The growers a hundred miles from the market have learned that they can hold the fruit on the trees almost indefinitely provided it is kept free from brown rot and cherry maggot by dusting and spraying. Accordingly they watch the market and pick or spray, depending upon the market prices for cherries. If the market price drops below 40 cents, the grower stops picking and brings out his duster and sprayer. If the market goes up he picks and hustles his fruit to the market.

One of my neighbors sold 12,000 baskets of cherries a year ago at an average of 90 cents a four-quart basket, just by watching the market and giving it the fruit when it wanted it.

### A Summary of the Changes

These are merely a few of the changes that have come over the Eastern marketing methods. Increase in truck movements, increase in sales "orchard run," increase in small cheap privately owned and operated cold storages, increased use of small packages for fruit, development of a new bushel basket pack for fruit formerly barreled, development of a good pack for the Boston Box, development of individual corrugated boxes with cardboard fillers for fancy trade, and finally the close touch with markets which are really local ones so far as the large proportion of eastern fruit sections are concerned. In the final analysis it all means that the East has found that her markets are at her finger tips and that by exercising herself to find what her markets want and then using a bit of ingenuity to provide it, she has nothing to fear from outside competition.

**President Brinton:** Are there any questions?

**Question:** I would like to inquire about these small cold storage plants you speak of. What make of machines are on the market for such purposes?

**Mr. Tukey:** There are a number of types. Any good standard refrigerating house will be able to provide machinery. I think too often there is a tendency on the part of the growers to think that they can go out and learn the refrigerating game. My advice is to get in touch with a man who knows his business; some good refrigerating house. Cold storages are a technical proposition and they call for technical information.

**President Brinton:** Mr. Tukey, in our state our fruit growers have been working with the natural storage to a considerable extent and we have had some very good results. We are very fortunate in having one of our fruit growers who has been doing experimenting for us along scientific lines and has now reached conclusions that are very valuable, but in that trip over the state last year I was particularly attracted to those automatic cold storage plants and the thought came up in my mind, why wouldn't the natural storage, as we call it and as you have it in New York State, be more valuable to you than those more expensive automatic cold storages? In other words, what is the advantage of your automatic cold storage over our natural cold storage?

**Mr. Tukey:** I have often wondered about that. I think the answer is in the temperature at night. I think if we could

use the common storage to advantage, we would have done it before. We don't get that low temperature that we want early in the season. We want a cool temperature to hold our McIntosh, our Bartlett pears and cherries. Early in the season with our warm nights we can't get that. On our western trip we took this summer we saw some interesting air cooled storages that worked wonderfully well. They looked almost as well as a chemical plant. They had giant ventilators in the top of the building and at the bottom the whole sides came off. When they opened the ventilators a man had to hold his hat from being lifted off his head. That is the kind of ventilation and quick cooling they had. It may be a matter of night temperature. I should say if the common storage will work, you are to be congratulated and you ought to look into it first.

**President Brinton:** In many of our sections we have been using these storage houses for apples alone and I can only speak of my own section down in Adams County and York County section. The big part of our crop is York Imperials and they are not a tender variety of apple. You speak of your pears and your cherries. I can readily understand where you haven't low temperatures. We can get that to some extent by allowing the day's picking to stay out in the orchard or out on a platform overnight and putting it into the storage in the morning. That helps to chill it down a whole lot, but at any rate we don't get the low temperature we could with an automatic machine. At the same time we save the price of the automatic plant which I imagine is much higher than the price of our natural storage.

**Mr. Shank:** It might be of interest to know for you men who were not on the summer trip that those cold storages were of wooden construction. You didn't meet many cold storages of concrete or fibre construction. It is much cheaper than concrete or fibre construction. That is one striking feature to me.

**Question:** I would like to know what sizing machine gives the best results in handling McIntosh apples in York State?

**Mr. Burritt:** We don't grow very many McIntosh in Western New York and we are very hesitant about putting them over the graders.

**Mr. Lewis:** We have two storages. One of them has a concrete roof and one a wooden roof. The concrete roof is cheaper than the wooden roof. Each storage is 30 x 100.

**Mr. Dayton:** I should like to ask Mr. Tukey what temperature they hold their cherries. Is that not one deciding factor in their having to have cold storage, the fact that they have to hold cherries at a lower temperature than apples would stand?

**Mr. Tukey:** That may be true but we don't ordinarily. We don't use those plants for freezing. Where we freeze cherries, we have to go to a special commercial concern that has facilities. We hold our cherries around 30 to 34 degrees.

**President Brinton:** We don't want to lose sight of the fact that Mr. Tukey mentioned a while ago and personally it seems to me very odd and strange that in the fall those cherries are not held in storage; they are held on the trees. It looks very funny to us to go up there and see those cherries hanging there so long. They were ripe and ready to pick. They were waiting until the market was ready for them and the cherries that they do pack up there are the pie cherries. We got into that last year on our trip up to the Sodus Bay fruit farm. It was a mighty interesting sight. There were about 22,000 trees. Those cherries after being picked are chilled in tanks of ice water, run over a grading machine where the grading is done by hand. They have twenty or thirty women along this belt on which the cherries are dumped. The women pick out the defective fruit. They then go into a seeding machine and from the seeding machine right into barrels. As the cherries are put into the barrels, if I remember rightly, about 130 lbs. of granulated sugar is fed in with them. When the barrel is full they put the bung in. They have perhaps a five or six-inch bung in the end of the barrel instead of the side of the barrel as we are used to. The cherries are already chilled from the ice water and the barrel is carried off into cold storage and the cherries are then held until the pie makers are ready for them.

**Mr. Dayton:** Last year we had about 500 bushels of very nice McIntosh apples. We used the Cutler grader with very good results. With the use of this grader I do not believe we get any more bruises than we formerly did handling the way we did from box to box.

**Mr. Lewis:** The surprise of the meeting is the extension of the cherry picking time up to as far as six weeks. Apparently the early waste is owing to the larva and that is controlled by spraying and dusting. Is that also a cause of the shortening of the market life of the cherry in due time?

**Mr. Tukey:** I wanted to talk about that a little more tomorrow. The first thing we have got to have is a vigorous cherry tree. If your stem dries up, your fruit will drop. Then after that you have got to have protection from brown rot and the cherry maggot; the combination is what makes the cherries hang.

## EXPORT MARKETING OF APPLES

Our Secretary has assigned me such a large subject that to do much more than touch some of the high spots is out of the question.

Just when the first apples were exported to Europe seems to be unknown; perhaps the return voyage of the Mayflower carried a consignment of wild apples from New England. Export shipping had reached some importance about the time of the Civil War and records show that in 1880-81 there were exported from Canada 169,526 barrels, and from the United States 1,159,380 barrels, a total of 1,328,906 barrels. I believe these figures will surprise many of us who have thought of commercial apple growing as a matter of the past thirty or forty years.

Records have been kept and figures have been compiled by the International Apple Shippers' Association covering the period from 1880 to the present season. These figures are accurate and form an interesting study, especially when compared with total production and average price figures.

The first export of apples in boxes, of which there is a separate record, was in 1895-96, when 15,471 boxes were sent across. The following two years no boxes were exported, but since 1899 the quantity of boxes in export as well as domestic trade, has steadily increased, dropping back some years, but always going ahead. No apples were exported in 1917-18 because of the war, and few in 1916-17. In 1925 there were exported from the United States and Canada 2,893,736 barrels and 5,054,600 boxes, or a total, stated in barrels, of 4,578,603. This was the largest year on record except 1923-24 when a little over five millions were exported. When the figures for the present season are completed, it will probably show much the largest quantity so far exported—not less than eight million barrels.

Apples are exported to many countries, much the largest quantity going to Great Britain. The principal British ports of entry, in order of quantity, are Liverpool, London, Glasgow, Manchester and Southampton, and many others to a lesser extent. From these ports the fruit is distributed to many interior markets.

The following countries are also important in the quantity of American apples they consume: Denmark, Norway and Sweden, Germany, Holland, Belgium, South America, South Africa, Egypt and several Oriental countries, chiefly Japan and China. France and Italy are of very little importance in the quantity of apples consumed, but they do affect our exports tremendously because of their large production of other

fruits which compete with our apples in Great Britain. France grows large quantities of pears, grapes and stone fruits, while the citrus exports from Italy and other Mediterranean countries are important.

New York is much the largest port of shipment, with Halifax, Montreal and Seattle following in a bunch. Boston, St. John, Portland, Me., and Portland, Oregon, form a group smaller in apple exports but of some importance.

The importance and success of export markets depends on three factors: the foreign crop, industrial conditions and consequent buying power abroad, demand and resulting prices obtainable in American markets.

Considering these in reverse order, if our home markets are good and will consume large quantities of fruit at fair prices, it will require very high foreign markets to warrant the added expense of exporting. In such years, only the small sizes which do not sell in domestic markets can be sent to foreign markets where they sell to relatively better advantage.

When foreign industrial conditions are poor, as for instance, the British coal strike and consequent unemployment, buying power is affected and apples, which are a semi-luxury, suffer.

Great Britain, Scandinavia, Germany and the Netherlands all grow apples, but none of them produce enough for their own consumption, even in full crop years. They always import some apples and the quantity is simply increased by partial or complete failures.

The apples grown in Great Britain are of comparatively few varieties and these, with very few exceptions, are classed as cooking apples, and when I tell you that the York Imperial is imported to Great Britain largely as a dessert apple, you may draw your own conclusions. Most of the British varieties are early and short lived and are out of the way before our winter apples start to arrive.

Practically all of our commercial varieties are exported at times and at times do fairly well, but the outstanding export varieties are those which have tough skin and solid flesh, to stand the rough handling which they receive in shipping. In the foreign markets condition is always of more importance than quality or appearance. Thus York, Baldwin, Ben Davis, Winesap and Newtown Pippin are the most important of our export varieties.

Many Staymans have gone across during the present season, which has been some relief in the domestic markets, but not much benefit to the exporters. British markets have not learned to value this fine apple. The past season many early

varieties were exported, with varying success, even such as Duchess, Wealthy, Smokehouse and Grimes Golden.

To most of us there is something mysterious about the process of exporting. Either we sell outright to an apple exporting house and promptly forget, which is a pretty good way to export, or we consign through one of the large exporting agencies, of which there are a considerable number doing business in this country, and a few weeks later we are made glad or sad, as the case may be. In either case, we do not know much about what happens to our fruit. Even the practices and terms are strange.

A large part of the apples exported to Great Britain are sold at auction. Out of each lot two barrels are opened and displayed in the auction room. The face of one barrel is displayed and the other barrel is emptied for inspection. These samples are sold for about half price and are accounted for as "shewn." "Slack" means even the slightest loosening of the fruit or package, and "wet" means soft or decayed fruit.

The cost of exporting varies in different markets. Freight to Liverpool is 90c per barrel for common storage and \$1.40 per barrel for refrigerated space. Other fixed charges run from \$1.10 to \$1.25 per barrel, a total of \$2.00 to \$2.65 per barrel.

Some of you have seen vessels loading. A large mesh net made of heavy rope is spread out on the dock. About fifteen barrels of apples are stood close together on end, on this net. The corners are then brought together over the barrels and looped over the hook of a swinging crane hoist. The load is then swung out over the vessel and lowered into the hold, the barrels slipping and bumping about as they go. This is why unusual strength is required in export packages and great care in packing full, extra nailing and head lining, are essential.

Exporting of apples is expensive. It is uncertain and often disappointing, but in times of large crops and poor domestic markets, it has often proven a blessing. At least it may be a relief to our feelings by postponing the evil day.

C. J. TYSON.

## BANQUET

WEDNESDAY, (evening) 19, JAN. 1927

The Banquet Session convened at 8:00 p. m., in the Chestnut Street Auditorium, Mr. Sheldon W. Funk presiding.

**President Brinton:** We are fortunate this evening in having some one to handle the program better than your President could and I take great pleasure in presenting our member, Sheldon W. Funk, who will act as our Toastmaster.

**Toastmaster Funk:** Mr. President and Fellows in Misery: It surely does me good to come back to Harrisburg and look into the faces of the fruit growers of Pennsylvania. I have always thought that if you couldn't find any inspiration anywhere else you could at least find it at the meeting here in Harrisburg. We fruit growers have been down pretty far at different times but I don't think we have been out and I believe we feel that way to-night. In fact when I look into your faces I know that although you have had a very bad season you are nevertheless able to come up smiling.

They made quite a mistake in this program. I notice it says here that the toastmaster is the surprise of the evening. That should have been the joke of the evening, but the worst part of it is that the joke is on you fellows. We have had some very good talks during the day and I am sure we are going to have some good ones here this evening.

I was thinking when Mr. Gorby was talking this morning. He said it would take at least five years before we would feel any effects of the advertising campaign which they were putting on, but I then remembered something that I heard last week and I rather believed that we already have seen the effects of that advertising.

A business man came home one day rather unexpectedly and found his wife holding the family doctor on her lap and strange to say the fellow didn't say a word. He just went on through the house but the next day he had ten barrels of apples sent around to the house. His wife said, "John, what in the name of sense did you have ten barrels of apples sent here for? There are only two of us in the house and we will never be able to eat them."

Said he, "I always heard that an apple a day keeps the doctor away and I wanted to be sure you were well supplied."

If we can get some more of these fellows to send around ten barrels of apples we may be able to solve this problem to a certain extent.

I notice the first man on the program has for his topic, "Making a Show." It is rather hard to call on this man at this time because I believe he has gone hungry, but nevertheless, we will have to take the program in order. I know that we have a man here who is going to be able to tell us something about making a show. He has had quite a little experience and I believe he is almost as efficient as was the Jew salesman that I heard about some time ago. The Jew was standing out in front of his store, which was customary, and he noticed a lady coming down the street looking as though she wanted something but didn't know just where

to get it. He approached her to find out whether he couldn't be able to sell her something. She said, "My husband just died and I am looking for a suit of clothes in which to bury him."

"Come right in. This is the place."

The fellow took the lady right into the store and not only sold her a suit of clothes but he sold her a suit of clothes with two pairs of pants.

**Mr. Paul Thayer:** Mr. Toastmaster and Friends: I fail to understand just exactly what the Toastmaster meant. He spoke of fellow sufferers. He had his supper—what is the matter with him. He doesn't belong in our class. The small boy said to his mother, "Is that true that an apple a day keeps the doctor away?"

"That is the common belief."

"Well, thus far I have kept ten doctors away but I think we will have to have one before long."

The title of my subject is a little bit ambiguous, "Making a Show." I don't know just what they mean by "Making a Show." The grand old party of Pennsylvania made a good show for us Tuesday which reminds me that I have gotten several digs since then about a light-colored hat that I have been wearing around here and they have been accusing me of belonging to the Philadelphia Republican Vore Booster delegation, which I neither deny nor affirm. A number of years ago there was a leader of Pennsylvania politics by the name of Simon Cameron and somebody asked him what was the constituent element that made a leader and Cameron very wisely said, "To keep ahead of the crowd but not too far ahead." If any of you are worrying about that light-colored hat that I am wearing I may say that it antedates the Philadelphia delegation by twelve months.

I am mighty glad the topic assigned was "Making a Show," because with all due respect to the 1927 committee I don't think that Pennsylvania has yet made an apple show that is worthy of the great industry that it represents, but I don't want to scold you people. I could scold some of you here. I could name over some of the counties that are not represented there, but I don't feel in that mood, because over there in the Emerson Brantingham Building we have to-night by far the largest apple show that has ever been put on in this state, if I am properly informed. At least back as far as my memory goes and the others have told me that it is the best show so far as size goes that the state has ever put on. There are several things in that show that are very encouraging to me and I want to mention them while they are putting my dinner on the table.

One is, it is twice as large a show as last year and by far the largest show we have had.

Another thing, the quality of the fruit is exceedingly high. There isn't a plate or a basket or an exhibit of fruit over there that is not worthy of a ribbon and if any of your people here have fruit there on which neither the red or the white or blue ribbon lies, it is nothing to your discredit, because every exhibit there is worthy. That is one thing that we will have to take care of in the future. With twenty-six plates of Delicious it is a shame that we have only three ribbons to go on them.

Another thing that is very encouraging to me. You know in working up the premium list, we have each line of exhibit—the plates, the bushels, the sixteens, the hampers, the trays, divided into two distinct groups. One group, the standard varieties. For instance, in plates there are, I think, twelve varieties in which the first plate gets four dollars, and then there is another list of about twenty or twenty-five varieties in which the best plate only gets one dollar, because we consider them secondary varieties. The thing that interests me is that this year the classes for the standard varieties are much larger than usual, while the off-type varieties, and the second class varieties, are less in number. In other words, we are getting here in Pennsylvania what they got in the Northwest long ago and what we must get to here and that is standardization of varieties, the elimination of the off-type varieties, varieties like Pewaukee and a dozen others that I could mention.

There is another way in which the show can be improved and that is for more of us, for more of the growers to get behind it so that it will be more representative of the state. And yet I want to bring this to you—that one-third of the counties of the state are represented in that show. That is pretty fine. We have apples from as far north as Wayne and Susquehanna counties; as far west as Indiana County and for most of the counties in between; and it is mighty fine.

On the other hand, as I said before, there are some counties that are not represented and others that are not adequately represented. I don't know who is going to be the Show Committee next year, but whoever is, I ask for them that you, as individual growers, make suggestions in any way you can to improve the show, because I believe it has wonderful advertising value, wonderful stimulating value in the way of growing and packing and I might say that this is the best packed exhibit that I have ever seen put up. And so I know that whoever is the Show Committee next year will welcome any suggestions that this organization can give for the betterment of the show. As we go on making a show we may finally arrive at a real show that is worthy of the apple industry of Pennsylvania.

**Toastmaster Funk:** Paul Thayer was very good for a fellow who hasn't had anything to eat for a long time. I am sure Paul has given us something that is well worth thinking about right along the lines of what we heard in the meeting this afternoon.

Our old friend, Mr. Anthony, has something to say to us on "Fruit."

**Mr. R. D. Anthony:** I am down on the program to talk to you on "Fruit." You can't always tell by what you see or what you hear as to what is meant. Several years ago my little five-year-old youngster was watching the annual migration of State College to Philadelphia for the football game. Every two or three minutes there would be a flivver go by. My youngster said, "Daddy, why can't we go to Philadelphia?"

"We can't afford it."

"Do we have to have a Ford?"

You can't always tell by what you hear what is meant.

When Atkinson put me on the program to-night I suspect he had it in mind that I was going to report for the General Fruit Committee, but he got very much fooled. This is no place for any Fruit Committee report. You are already too filled up with solid stuff for any further committee reports. That ought to let me out and I ought to be able to thank you and sit down, but instead of doing that I am going to talk to you about three minutes on a subject that I have very much at heart.

Three weeks ago I was with about 150 horticulturists representing probably three-quarters of the colleges and experiment stations of the United States and Canada who sat down at a banquet in Philadelphia and after the banquet our speaker of the evening was Mr. L. H. Bailey. If there is any living man that deserves the title of Father of Modern Horticulture, it is L. H. Bailey. There was hardly a man in that group who had not either received his training directly under Bailey or else directly under one of Bailey's boys. He told us pretty straight truth. One of his statements was this: The greatness of a people depends not on what they do in their hours of labor but upon how they use their leisure. No people can become great who spend their leisure time finding the easiest way to kill time. That is a splendid topic for the sermon I am going to preach to you in about three minutes.

We have had lots of talks to-day about our vocation. I want to talk to you now about your avocation. The old

saying was that all play and no work had a very decided effect upon the youngster. I have the same feeling about the old man, that all work and no play is hard on the old man. Now some of you fellows probably are thinking back in your heads that you have twelve to fourteen hours of work a day and you haven't got time for any leisure. You are just exactly the chaps that I have in mind. I don't know of anything more pitiful than the chap who doesn't have time for his leisure and the time comes when he has to take his leisure, when either by too much wealth or not enough health he has to slow up and he sits around and doesn't know what to do with his time. It is the most pitiful thing that I know of to see an active man rust out because when his time for leisure comes he doesn't know how to use it. He has made a mistake, a mistake that pretty nearly wrecks the end of his life.

Every one, old and young, needs a hobby and he needs it badly. I suspect that half the ills to which humans beyond the age of fifty are subject would cease to bother us if every one of us had a good hobby. It keeps our minds off our troubles and keeps us in touch with the world.

Has it ever occurred to you that fruit growing offers one of the finest chances for hobbies that there is? If it hasn't, just go home and think that thing over. I am going to tell you something that you may not believe at first. There isn't a man in this audience that knows anything about growing fruit. That sounds kind of strange. You chaps know how to make a living out of three or four varieties of apples, but you don't know anything about growing fruit. Down here thirty miles away there is an old chap that knows quite a bit about growing fruit and let me tell you what he has done. For fifty years he worked fourteen, fifteen hours a day for the Pennsylvania Railroad. He was freight and passenger agent for two counties. He knew the time was coming when he had to ease up. He is a wise old gentleman. He looked around for his hobby and he picked grape growing. To-day that man grows 200 varieties of grapes. He is the finest grape grower in the State of Pennsylvania. He knows how to grow fruit. He knows how to grow grapes. He isn't making money out of Concords and Niagaras alone. He is growing 200 varieties of grapes and he is happy. He is over eighty. He is crippled up with sciatica. He goes out with his workman and says, "You cut this and that." He can go into his vineyard in the heart of the City of York and shut the gate and the sight of York disappears. He is a fruit grower. He loves it. That is his hobby. It is his avocation. It is pretty nearly his life. Every one of you, if you are going to pass a happy declining period in your life, should go home and get a hobby.

**Toastmaster Funk:** I had the pleasure of judging the grapes grown by the man, which he has referred to, at the York Fair this past summer.

Mr. Fagan, with possibly one exception I believe, knows more about nursery certification work than any man in the country or in the world as far as that is concerned. I am going to have him in just five minutes report on nursery certification work in Pennsylvania.

**Mr. F. N. Fagan:** Two years ago your Society asked for a Committee on Nursery Certification. It accomplished a little last year which was reported on and they have accomplished a little this year. You can remember that they have been preaching the gospel for a good many years and we still have some non-believers. I really believe that nursery stock certification as to trueness to name of varieties is absolutely sound.

For your information and for the Secretary's help, your committee, composed of H. G. Baugher, C. H. Hadley and myself, have a short report to give you which I think as fruit growers you probably will be interested in.

An effort was again made to interest Pennsylvania nurserymen in the certification work. However, only two nurseries in the state, to our knowledge, have certified stock for sale this spring. In that there were only two firms asking for the work your committee did not feel that the Association would be justified in spending the money necessary for certification seals and tools. The committee suggested to the nurseries desiring certification that we secure the services of J. K. Shaw, of Massachusetts, the same as we did the year before. H. G. Baugher wanted more certification work during the season of 1926 and J. K. Shaw of the Massachusetts Fruit Growers certified stock for him. Pennsylvania nurseries at Girard had carried over a liberal supply of certified trees which were two years old this past growing season. They did, however, want their one-year apples culled and your committee looked after this work.

During the month of July the members of your committee spent three days in nurseries located in Adams, Franklin, York, Lancaster and Chester counties. In some nurseries bad mixtures existed in some apple varieties. In other nurseries we found that the nurserymen were making an earnest effort to cull out mixtures and this effort was readily seen in that many varieties showed no mixtures whatsoever.

All nurserymen visited expressed keen interest in culling or certification and as the subject is a matter of education, we feel that there is enough interest now amongst nurserymen

to make it possible to hold a successful school during the growing season of 1927 and we believe that we can get nearly every fruit tree nurseryman in Pennsylvania to attend such a school.

Now there is a little bit of a counter balance to the nurseryman proposition. There isn't probably a fruit grower in this room but what has received in past years (you will be the exception if you haven't) and planted a block of trees of any considerable size but what has experienced mixtures in his nursery stock. That has been due in many cases to wilful neglect on the part of the nurseryman. If your Association through this committee want the nurserymen of Pennsylvania to go to the extra trouble which will be necessary on their part to certify nursery stock, or to go to the extra trouble to cull nursery stock, there must be some feeling on the part of the growers that would indicate that the planter of trees is willing to pay a little extra for stock that they know they can depend on.

Don't misunderstand me and think that we want you to buy certified trees, for in the end what you are after is a true to name Elberta peach or a McIntosh or a Cortland or a Stayman apple. That is what you are after in the end.

This past year the American Association of Nurserymen held their second school for nurserymen in the United States. That school resulting from the experience of the first school was so largely attended that two instructors were necessary to teach them. That means that the nurserymen for their own good are gradually becoming educated to the point where they are convinced that this job can be done in the nursery and they are also convinced that errors will occur. One nursery in our state from which some of you have bought stock and for which we have high regard has been culling its stock, trying to give the planters of this state and adjacent states true to name stock. To his surprise when your committee visited that block a day this summer in one of the important varieties that would be planted in the State of Pennsylvania there existed a mixture that had been in there for thirty years. You can't blame that nurseryman. He did not do it wilfully, but you can give that nurseryman a lot of credit for going into that nursery with all the ability that he possessed at that time to weed out the mixtures that did exist in the nursery.

If certification and culling work is going to progress the growers of Pennsylvania dealing with their own nurseries must give them some support. It is good for you and it is good for the nursery. We hope this next year we can have a school in a nursery center in the State of Pennsylvania

where there will be in attendance every nurseryman growing fruit trees in the state. It is going to reflect in years to come in the trees that will be planted in the state, coming from those nurseries.

If any of the growers are further interested in certification and identification work, I am absolutely sure that Mr. Hadley and Mr. Baugher and myself will give you all the support. We haven't any radical changes or suggestions about passing laws in this state or any other state that is going to solve this problem. It is a mere matter of education on the part of the growers and the nurserymen. They know you want true to name stock and you know you want true to name stock. Therefore, don't condemn them every time that you happen to get a little mixture, but encourage them to go ahead and help clean this proposition up.

We know of one case in the state of a horticulturist whose orchard is just coming into bearing where there are at this very date, unless he has thrown them away, 200 mixed trees in an orchard purchased from one of our own Pennsylvania nurseries and that young man doesn't hold one grudge against that nurseryman. He realizes that man did not sell him those trees wilfully. Of course, he is hurt. But instead of getting mad about it, this nursery is helping him out and they are going ahead in the future to see that future plantings will not be in such condition.

**Toastmaster Funk:** There is one other man we want to hear from. I am going to give Mr. Pratt, a man whom we all know, a fruit grower, a few minutes to bring before this Association a problem in which he is very much interested.

#### "Crop Reports"

**Mr. B. G. Pratt:** Mr. Toastmaster and Fellow Fruit Growers: If you will bear with my voice for just a few minutes, I don't think it will be more than five, because I can't stand talking longer than that. A number of years ago there was a big political meeting in Arkansas and the Chairman said, "Gentlemen, we want every one in this room who is a Democrat to stand on his feet." Everybody stood up except a long dangling Connecticut Yankee sitting in the front seat. The Chairman said, "It seems you are not a Democrat."

"No, sir."

"Well, what are you?"

"I am a Republican."

"What makes you a Republican?"

"Why," he said, "my father was a Republican and my grandfather was a Republican."

Said the Chairman, "If your father had been a horsethief and your grandfather had been a horsethief, would you have been a horsethief?"

"No, sir, probably under those conditions I would have been a Democrat."

Now, gentlemen, you know that we have been following our fathers' footsteps whether they were Republicans or Democrats or horsethieves. And some of us have been putting cider apples in our barrels which shouldn't have been there. The question is, have we been checking up on ourselves?

That reminds me of the story of the colored boy who went into a grocery store and asked the proprietor if he could use a telephone. He said, "Yes." So he called up a Mrs. Smith and said, "Mrs. Smith, I hear you want a colored boy."

"No."

"Wouldn't you like to have a real good reliable colored boy to take care of your place?"

"I have a good boy. He is perfectly satisfactory."

He thanked her and put up the telephone and started out whistling. The groceryman said, "Are you looking for a job?"

"No, boss, I got a fine job."

"Weren't you asking for a job just now?"

"I'se Mrs. Smith's boy and I'se checking up on myself."

Now here was something that happened just last week up in New York State. They were checking up on themselves and, gentlemen, it was the biggest surprise that ever was. They selected fifty of the growers in the state and took a barrel of apples out of their storage and out of their pack. It was selected by an outside person. They were given numbers. Nobody knew the barrel except the man who owned it. Well, it was an awful surprise, but it was seeing ourselves as others see us. What are we going to do about it? If you will allow me I will tell another story.

An old colored woman was once brought to court for inhuman treatment to her boy. She was convicted and the Judge said, "Is there anything you would like to say before I pass judgment on you?"

"Yes, Judge, I just like to ask you one question. Was you ever parent of a perfectly worthless colored child?"

Gentlemen, the fruit grower to-day is the perfectly worthless colored child of our great agricultural country. We are not squealing. We are not begging for help like the corn growers. We don't want it. But we do want an even show. We want an even break. As a business man the Government knows the inside of my business as well or better than I do, because they analyze it better, but they don't care to publish it, do they? No, sir. There isn't to-day in the United States a corporation, I don't care how big they are, who, if at some time in their existence the Government had published the true inwardness of their business, would be alive to-day. As it stands to-day, gentlemen, the Government publishes the inside facts of the farmer's business every year. Our market reports which are hurting us as growers.

To illustrate, here is a lady looking for peaches and the price is a dollar and a half per basket. She says, "I saw in this morning's paper that there was any quantity of peaches. I will wait until next week and maybe I will buy them cheaper." Next week she doesn't buy at all. But if she hadn't seen that report she would have bought a basket next week and maybe another one the week after.

In other words, the market reports are cutting down our prices of our fruit and who does it help? Not the consumer but the Italian and Greek fruit stand. I believe that it would be of interest to this Society and to every horticultural society in this country to memorialize Congress and ask them to cut out our farm reports. You as fruit growers can get all the information you want from your Society. The average buyer doesn't wait for the Government reports. He doesn't rely on them. The average shippers' association gathers their own statistics. The only good that the U. S. market reports do is to publish abroad the condition of the farmers and if they have a big crop they know they are ruined.

They come around to you and say, "How much are you going to have this year?"

"Well, we hope we are going to have (and we give them what we hope we are going to have)." This year I hoped to have 75 cars of peaches. Well, I bought crates for 60 carload and after seventeen days of rain in the picking season I picked only 30 and that is the way with lots of us. But the idea goes out that there is a tremendous crop and I hope our resolutions committee will get something of that before the close of the meeting.

## THE NEW PRESIDENT TAKES THE CHAIR

**President Funk:** Ladies and Gentlemen, I certainly appreciate the honor which you have just conferred upon me. I feel very keenly the responsibility that devolves upon the President of this organization and I only wish that I would be able to carry on the organization as it should be carried on. I did not like to see my name presented here this morning because I sincerely felt that we had a great many other members in this organization who were better qualified, who were better acquainted with the organization, than I am. I just want to say this, that I am going to do the very best that I can with your help. I want you to remember that this organization is your organization. It is going to become just what you put into it, because an organization of this kind is just the same as every day life. You and I get out of life what we put into it and not one thing more and we are going to get out of this organization what we put into it and nothing more.

## RAMBLES IN HORTICULTURAL RESEARCH IN THE HUDSON RIVER VALLEY

by

H. B. Tukey,

N. Y. State Agricultural Experiment Station,  
Geneva, N. Y.

It would be folly for an outsider to come into your State and tell of what had been done in his State with an idea towards applying his findings to your conditions. The man who has been identified with investigational or research work becomes so dissatisfied with the application of his own findings that he prefaces all his remarks by "perhaps," "probably," "possibly," and kindred words that show his uncertainty upon question of controversy. Folks accuse him of straddling the fence, and I think he often does.

I shall never forget an experience at the University of Toronto where I was one year attending some meetings in connection with investigational work. It was dusk and as I passed into the open from one of the buildings I made the remark to a friend that it was *going to rain*, and surely if the signs of rain were ever present they were present that moment, and as a matter of fact it did rain shortly afterwards. But an elderly gentleman with bushy gray whiskers turned to me and said reprovingly, "Young man, when you have been in this line of work as long as I have you will never,

make a positive statement like that. You will say, 'From the evidence at hand, as I see it, it appears that it will probably rain.'"

And so I recognize the folly of even suggesting any application to your conditions.

On the other hand I make no apology for my subject nor for my appearance here, because I feel that we have learned some things that are of value to us. Whether they are of value to you is to be decided by you and your Experiment Station and college workers, not by me.

### Fertilizers for Apple Trees

Perhaps the most striking characteristic of Hudson Valley soils is their responsiveness to various cultural practices, quite by contrast to the slower, more fertile soils of western New York. Why this is so has not been definitely established but investigations of moisture content, temperature, and soil bacteria point to some interesting findings. For the present we can only recognize the fact that Hudson Valley soils are apparently more responsive than soils of other fruit sections of the state.

You are no doubt aware of the experiment with Rome Beauty apple trees in western New York on a heavy clay loam under a system of clean cultivation and cover cropping where in 25 years, records of tree growth, size and yield of fruit, and of such miscellaneous factors as color of foliage, and quality, maturity, keeping quality, and color of fruit, fertilizer applications have failed to give any response. Some trees have received stable manure; some, acid phosphate; some, acid phosphate and muriate of potash; some, nitrate of soda, dried blood, acid phosphate, and muriate of potash; and others, nothing. Measurements of trunk diameter show that the trees receiving manure average 0.08 of an inch smaller than the trees receiving no fertilizer, while those receiving a complete fertilizer are 0.06 of an inch larger. In other words the fertilizers have produced no response and the recommendations for western New York stand: "In the average western New York apple orchard that is well cultivated, properly drained, and sufficiently supplied with organic matter and humus by means of a cover crop commercial fertilizers are not needed."

But down in the Hudson River Valley in eastern New York we find a different situation. There the soils are relatively low in fertility, as I have said, and there the soils are apparently more responsible than the soils of other fruit sections of the state.

That does not mean that Hudson Valley soils need fertilizers. It merely means that when they do need them they show the need more promptly and plainly. An unfertilized sod orchard in the Hudson Valley, for example, shows the harmful effects of sod very quickly. The response from cultivating an old unfertilized sod orchard is just as rapid. And so the effects of various orchard treatments are more sharply and quickly defined.

An example of one of these clear cut responses was found last season in the Newtown apple orchard, located between Poughkeepsie and Hudson directly across from the Catskill Mountains, where nitrogen, phosphorus, and potassium have been applied to various plats for the past three years. The orchard is a cultivated one on some of the better apple land in the Valley, the orchard producing good crops every other year, as is the habit of the variety. Last year was the bearing year. The nitrogenous fertilizer was applied just as the first touch of green began to show, the application being six pounds of sodium nitrate per tree. The phosphorus and potassium treatments may be omitted from the discussion for the present. The crop from the treated trees was approximately one thousand bushels, a sizeable crop whose figures mean something.

The trees receiving nitrogen averaged  $2\frac{1}{2}$  to  $3\frac{1}{2}$  bushels more per tree than those which received no nitrogen, and 3 to 5 bushels more picked fruit, and "drops" being approximately 30% of the entire crop under unnitrated trees and 20% under nitrated trees. Yet the fruit from the nitrated trees graded 18.7% " $2\frac{1}{2}$  inches and up," and 71.3% "below  $2\frac{1}{2}$  inches," while unnitrated trees graded 63.6% " $2\frac{1}{2}$  inches and up" and 36.3% "below  $2\frac{1}{2}$  inches." Furthermore the fruit from nitrated trees was poor in color for the variety, while that from unnitrated trees was attractively colored.

In other words, by the application of a nitrogenous fertilizer in this particular orchard, under this given set of conditions the response was an upset of a normally profitable system of orchard management, an overload of undersized fruit, and a financial loss to the orchardist. It may be that eventually or by altering the entire system of management a better system may be devised. But this experience indicates strikingly the necessity for caution in making any blanket recommendations in regard to any sudden change in such a system of orchard management.

### Fertilizing Cherry Trees

On the other hand with old bearing cherry trees some very clear-cut beneficial responses have been secured from nitrogen

applications. Cultural practices show that high producing cherry trees are those making good growth. This is true for at least two reasons:—Slides (1) when the annual growth is, say, 8 inches or over in the case of Montmorency spurs instead of blossom buds are formed on the season's wood, and spurs can carry many times more fruit than unspurred shoots; and (2) blossom buds on spurs are hardier than are lateral blossom buds so that in unfavorable seasons spurred cherry trees will carry crops while weaker-growing unspurred trees will not.

In 1926 the yield in four-quart baskets from one hundred trees receiving the fertilizer applications noted were as follows:

Phosphorus and Potash	87.0
Nothing	81.4
Nitrogen	133.8
Nitrogen and Phosphorus	136.8
Nitrogen, Phosphorus, and Potash	134.0

The increase in yield from nitrogen fertilizers is very evident, and while it cannot of course be said with finality that phosphorus and potash are not needed, they have given no increase in the three years that they have been used.

Experimental evidence has also shown that thinning-back severely to outside lateral branches with the addition of nitrogen will increase the yield over pruning without nitrogen applications.

In 1926 the yields were as follows from twenty trees:

Pruning and Nitrogen	65 baskets
Pruning alone	37 baskets

#### Fertilizing Apple Trees at Planting

Another clear-cut test dealing with fertilizers has come from fertilizing young apple trees at planting. A year ago sixty-three one- and two-year-old apple trees were fertilized in different ways with a quickly available nitrogenous fertilizer (nitrate of soda). Applications per tree were: one-half pound nitrate of soda applied in the tree hole at planting; one-half pound twenty-four to thirty-six inches back from the tree; one-half, one, two, and eight pounds close to the tree; and no application.

The trees which received either no fertilizer or one-half pound well back from the trunks made the best growth. As the amount of applications increased the trees made correspondingly less growth, while those trees with nitrate in

contact with their roots were killed outright. Had there been no untreated trees for comparison the slightly decreased growth of the trees receiving the small applications would have gone unnoticed. The more vigorous trees, regardless of age, suffered least and recovered from injury most rapidly.

This season just passed, the test was repeated using additional materials. Two separate treatments were involved, one in which the fertilizers were placed in the tree hole at planting time, and the other in which they were applied upon the surface of the soil as soon as growth had begun. Surface applications were made in a circle about the tree between two and eight inches back from the trunk, and tree-hole applications were made directly in the bottom of the hole and the tree set without further manipulation.

The applications in the tree-hole tests were: One-half pound nitrate of soda, one-third pound ammonium sulphate, one-sixth pound urea, two pounds hen manure, one-third pound cyanamid, one-half pound ammo-phos, one-half pound acid phosphate, one-half pound potassium chloride, and one-half pound bone-meal. Three plats were left untreated as checks.

The trees receiving bone-meal, acid phosphate, and nothing were very much alike at the end of the season, with the bone-meal-treated trees perhaps slightly better than the others. Whether the bone-meal increased the growth is impossible to say, nevertheless it did no harm. It is conceivable that the general practice in some sections of using bone-meal with young trees may be due to the fact that no injury results, in contrast to that which frequently occurs with some other materials.

Potassium chloride, nitrate of soda, hen manure, ammonium sulphate, cyanamid, ammo-phos, and urea, all produced either killing or defoliation. That hen manure should have been so severe was unlooked for, yet in entire agreement with the observation of growers in the vicinity who have sometimes used small amounts in the tree holes at planting, usually with a dwarfing effect.

As for the surface applications of nitrate of soda, ammonium sulphate, cyanamid, urea, and hen manure, made just as the tree began growth, either no benefit in increased growth resulted or else injury occurred, with the exception of moderate applications of urea. With urea marked response was shown. Cyanamid was most harmful in small amounts, nitrate of soda most harmful in large amounts, ammonium sulphate and hen manure less harmful, and urea beneficial in moderate amounts. Injury seemed in proportion to the amount and availability of the material.

The soil in which this test was conducted is a deep coarse sand or gravelly sandy loam, which allows water to pass through it quickly. Any quickly soluble salt, such as nitrate of soda, used in this test, must have a better opportunity to be carried quickly through the soil by rains and water movements. In other words any harmful effects of quickly soluble fertilizers might be present on this type of soil and entirely lacking on others. Nevertheless the results warn against indiscriminate fertilizing of young trees at planting.

### Cover Crops

At the present time a cycle of renewed interest in cover crops and the incorporation of humus in the soil is being ushered in and promises to be one of the leading items of discussion in the next few years. Accordingly three years' records that have been secured for eighteen cover crops, each grown with six different rates of limestone applications, take on added interest.

To mention briefly some of the outstanding points:—

Buckwheat and millet rank high as cheap sources of organic matter computed on the basis of the dry matter produced. Furthermore they answer the requirements of cheap seed, acid tolerance, and reliability. Three pecks of buckwheat and one of millet will give a surprising amount of material. The clovers without limestone applications have, with one exception, been unsatisfactory, and the high cost of seed plus the expense of liming have made their value questionable.

The one exception among the clovers has been a new clover from the West which so far as known has not been grown in the East. It is known as Wood's Clover, and is an acid-tolerant, rapid grower, whose seed is cheaper than that of most legumes. Although limestone has increased growth somewhat, the benefits from the various rates of liming are relatively low. To the casual observer looking over the plates no appreciable difference in the growth of Wood's clover has been apparent between no limestone applications and applications of one-half, one, two, four, and eight tons per acre. In the case of alfalfa, on the other hand, applications of two to four tons are necessary before a good crop can be grown. With no limestone alfalfa will not grow, while white sweet clover and Hubam present the same difficulty.

Furthermore Wood's Clover besides being a rapid grower, stands erect so as to catch snow and leaves for winter protection. It is killed by frost and therefore presents no serious problem in spring cultivation. No live stock has been induced to touch it in a green condition, a fact which makes

more likely the possibility of its serving the purpose for which a cover crop is sown. It has failed, however, under shaded conditions and has been easily crowded out by heavy weed growth. It offers possibilities and is worthy of trial but the indications are that more failures than successes will result.

Possibly as promising a line of investigation as any is that of studying the fruiting habits of fruit trees. It is found, for example, that Wealthy frequently fruits on one-year wood from lateral blossom buds. Cutting back this type of growth, therefore, amounts to thinning. On the other hand, short characteristically zig-zag spur growths frequently blossom but set no fruit. Removing this type of wood consequently reduces the "drone" wood in the tree without reducing the potential crop.

Baldwin is commonly a biennial bearing variety, yet trees have been found which are annual bearing, some of the young vigorous ones fruiting terminally and on one-year wood exactly like Wealthy. Whether anything profitable can be done to alter this varietal habit of Baldwin is at present very doubtful, yet it may be that it can. Northern Spy is an upright grower when young and frequently growers are concerned over thick growth resulting. Once a young tree has borne a crop, however, observation records that it opens up and becomes an entirely different tree.

McIntosh is an annual bearing variety because it tends to produce both fruit and blossom buds in the same year's growth. When growth is reduced from some cause or other the trees become biennial, producing fruit buds one year and leaf buds the next. A general rule that is by no means without exception but which seems to have value is that when the upper one or two lateral buds on the tips of the preceding season's growth grow out as strong lateral growths the trees of this variety are in their best condition for regular, annual bearing.

And now while I have rambled through a number of different subjects I hope I have left a thought or two with you to sharpen your wits and for you to settle among yourselves and apply to your own conditions. If I have done that I have accomplished my purpose.

**President Funk:** I believe the State of New Jersey has done more possibly along the line of the introduction of new varieties of peaches than any state in the Union at the present time and we are very pleased this morning to have with us a man from the New Jersey Experiment Station at New Brunswick who is going to talk to us on "The Development of New Peach Varieties." Mr. C. H. Connors.

**Mr. C. H. Connors:** Mr. President and Members of the Pennsylvania Horticultural Association: Last Friday the New Jersey Horticultural Society held a deferred meeting at Trenton. I know that if they knew I was coming here they would have asked me to bring their greetings to you, and I do so. There are a number of members of your Association who are members of our Society as well. I want to congratulate you on the apple show that you have. The quality is excellent and I would like to emphasize the point that Prof. Thayer made last evening, the fact that the outstanding commercial varieties—Stayman, Delicious, etc.—occupy a larger space in that show than do the old varieties which are not of such great value commercially. That same thing has been evident in our exhibits for the last ten years. There has been a gradual decrease in such varieties as Ben Davis, Westfield-Seek-no-Further, with an increasing number of exhibits of Stayman, Delicious, Baldwin and Grimes, and I think that as fruit growers we are to be congratulated upon this big step forward.

There is one thing about your show that seems strange to us. You know that we hold our State Horticultural Society meeting as a separate entity. It is just the Horticultural Society except that two years ago the State Grange met when we had a general meeting. We are fortunate enough to have in the same building in which our meeting place is located large exhibit rooms, for the display of our fruits and it seems to me that you are rather unfortunate, in that from your meeting place to the show room is a mile almost. Of course it gives you a chance to get a little air but it doesn't give you the opportunity to run in and out during the course of the meeting. If that could be improved I think it would help in the success of the meeting.

One other suggestion I would like to offer. It seems to me that the Secretary of an organization of this sort is always an overburdened man and I noticed this morning that he seemed to be anxious to collect memberships. Why don't you appoint a Membership Committee and give to each one of this committee a number of receipts and buttons and let those members go around and as they talk to the new members solicit them. Bond them if you want to for fear they will get away with something but I think in that way you will get more members more readily and save your Secretary a great deal of labor.

#### ADJOURNMENT

## THE DEVELOPMENT OF NEW PEACH VARIETIES

by

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The cultivation of the peach probably dates back as far as the beginnings of agriculture. The ancient Chinese, for it is probable that China is the original home of the peach, no doubt had selected sorts under cultivation, for we have records that they did with rice. From the time peaches were introduced into Europe, by Alexander the Great, we have records of their culture, and very early records of varieties, although it is comparatively recently that many varieties have been grown and widely distributed.

The speaker knows men, now living, who can recall how 70 years ago the red shale section of New Jersey was planted almost solid with peaches, all seedlings. Most of these were shipped by boat from the nearest point on river or canal, to the large centers, where they were pickled, spiced, brandied and made into brandy. Then we come to variety selection, as about the middle of the last century transportation facilities became such that it was easier to ship trees.

Why is a variety set apart? Because it is superior in some respect. It may mature earlier, it may be larger, it may be brighter in color, it may be freestone, it may have a better dessert quality, it may be a better shipper.

At the present time we have other complications. With the improvements in transportation facilities (a blessing but not an unmixed one), peaches may be shipped from more distant points and what has been the favorite variety in a northern district will find itself in competition on the market with superior varieties from a more southern district. What are we to do? Shall we give up growing peaches of that season or shall we try to find varieties that can better compete? There is always a demand for freshly picked, local grown fruit, and if we can secure varieties that are almost as good as the southern sorts, we may compete on more even terms.

This is the situation that faced us in New Jersey about 1910. Peach growing was at a low ebb, because of diseases and insects. The third most important variety (from the standpoint of numbers planted) was Carman, which came to market just about with Georgia Belles and Elbertas. In addition to its season, it is a clingstone, lacks uniformity in size, matures irregularly, softens easily, is in general a poor variety to handle. Being so undesirable, we decided to see what could be done about it.

A peach breeding project was established. The first thing to do was to find out all that was known about breeding peaches. There had been several stations working on phases of peach breeding, but nothing had been published, so we had to work out our own salvation. Various attempts were then made to breed by covering twigs of blossoms with paper bags, but this proved an uncertain method. In 1914, however, we got started on our big journey into the unknown, for that was what it was, as that year we covered a number of trees with cheesecloth tents and made a series of crosses.

There were a great many questions to answer. If we cross a white peach and a yellow peach, will the progeny be white and yellow? If we cross a large blossomed variety and a small blossomed variety, will the progeny have large or small blossoms? If we cross an early peach and a late peach, what will be the season of the offspring? These and many other questions came to mind.

If we had known the answer to these questions we might have been saved many years delay. As it was, we tried to cover the whole range, and so selected the following parents for the main series:

Greensboro, a representative of the hardy Chinese Cling group, because it was hardy, had large blossoms, a spreading tree habit and was white, clingstone, and early season;

Early Crawford, because when right it is a criterion of quality, mid-season, yellow, freestone, small blossom, upright tree, a representative of the so-called Persian group;

Elberta, because of its standard market variety, yellow, freestone, medium blossom and intermediate in tree habit, and because it is a seedling of Chinese Cling possibly crossed with Early Crawford;

Belle, because it is white, freestone, medium blossom, intermediate in tree habit, and because it is a seedling of Chinese Cling.

These four varieties gave us practically the whole gamut of characters, except very late season ripening.

One tree each of Greensboro, Early Crawford and Elberta, and two small trees of Belle were covered with cheesecloth tents. In order to learn what characters each possessed, a portion of each tree was left undisturbed and the remainder emasculated. This operation is rather easy with the peach, as a simple cut in the right place, with a twist and a lift will remove the corolla and the stamens leaving the pistil exposed. Although this is a simple operation, its repetition 5,000 or 6,000 times on a tree in a period of 2 or 3 days is very tedious

and tiresome. Last year, one man emasculated about 15,000 blossoms. After a few days the emasculated blossoms were pollinated, the method being to take some pollen between the thumb and forefinger and rub it on the stigma, or receptive tip of the pistil. Each variety was crossed on every other, so that we got direct and reciprocal crosses.

A good set of fruits was secured, just as good on those parts left undisturbed, as on those parts pollinated by hand.

When ripe the fruits were harvested, each cross or self separately, and at the proper season these were stratified in flats out of doors, each by itself. In the spring, the stones were cracked and the seeds planted out in the nursery row, each cross by itself. We now start them in moss first, then set them out in the nursery row. After remaining in the nursery one year, they are set in the orchard again, each cross by itself. Formerly they were planted 12 x 15 but now they are set 10 x 18 or 10 x 20 to allow a little more room between rows. By this close planting we can get 200 to 250 trees to the acre. The first year about 500 trees were set out. Strange to relate, not a single tree was obtained from the Greensboro seeds, either selfed or crossed.

The next year the same crosses were made, with crosses on Early Wheeler and Mayflower in addition. The third year, the early yellows and early whites were crossed, Carman, Lola, Early Crawford, Slappey, Arp Beauty. All told from the work of these three seasons, about 2,500 trees were set in the orchard.

One lesson was learned from the work so far. It is useless to use as seed parent any variety that ripens before Carman, as no seeds will germinate. Only about 15 per cent. of the Carman will germinate, while 85 to 90 per cent. of later sorts germinate.

There was nothing to do now but sit tight and wait for results.

Some fruits might have been expected on the first lot in 1918, but a frost killed the blossoms. In 1919, however, 5 years after the crossing had been done, most of the first lot and part of the second lot fruited. Then began the detailed records, with which I shall not burden you. Many surprises awaited us. All the seedlings from Elberta and Early Crawford self-pollinated and from Elberta x Early Crawford and the reciprocal were yellow. The yellow was evidently a pure character. The seedlings of Elberta x Greensboro, Belle x Greensboro, Early Crawford x Greensboro were all white. The seedlings of Elberta x Belle and Early Crawford x Belle and the reciprocals were one-half white and one-half yellow.

This indicated that there must be two kinds of white flesh so far as inheritance is concerned. Of course, we had no seedlings of Greensboro, but later work showed us that this was probably pure white, while Belle is heterozygous, or mixed white, because of the seedling of Belle self-pollinated one-fourth were yellow and three-fourths were white.

Flesh color is inherited after this fashion:  
yellow crossed with yellow gives all yellow  
yellow and pure white crossed gives all white  
yellow and heterozygous or mixed white crossed gives one-half yellows and one-half whites.

The flesh color gave the mendelian ratio in inheritance, and other characters behaved in an orderly fashion.

Cling x cling gives all cling.

Cling x Free gives half and half.

Large blossoms x small blossoms give the medium size, which when selfed or crossed gives one-fourth large, one-half medium, one-fourth small.

Small fruited is dominant.

The ripening season of the majority of the seedlings is about midway between the ripening dates of the parents.

About 90 per cent. of these seedlings bore marketable fruits and about 75 per cent. were good enough to plant in the orchard. This does not bear out the theory that all seedlings are worthless. On the other hand, these seedlings are the progeny of selected parents.

This detailed account has been given to show the amount of work involved and the amount of detail to be carefully followed.

### Results

The net results from the first 1,800 trees was that 120 were selected and propagated for testing. This was reduced to 60 and from the 60, these have been named: Pioneer, Cumberland, Delicious, Radiance, Eclipse, Primrose and Meteor. All of these varieties will be obtainable from some nurseryman next year.

Pioneer and Cumberland are seedlings of Belle x Greensboro, large, brightly colored, oval in shape, usually freestone, regular bearers, apparently hardy, quality good for the season, which is 4 or 5 days before Carman. We have thus accomplished our original aim, the replacing of Carman. Either of these is infinitely superior.

Delicious is of the same parentage and season, a little firmer in texture, but is round.

Radiance is also Belle x Greensboro, oval, very bright and ripens with Carman.

Eclipse is a seedling of Belle self-pollinated. It will take the place of Hiley, but it is yellow, freestone, firm, good quality, medium in size but larger when thinned.

Primrose is a seedling of Belle x Elberta, yellow, free, good quality, ripening with Belle. Meteor is a seedling of Elberta x Belle, ripening just after Belle.

The second line of crossing gave us Buttercup, Oriole, Massasoit, Marigold, which are seedlings of Lola x Slappey and Lola x Arp. These are all yellow fleshed of very high quality, but none of them is a good market variety, because of thin skin. All are suited to the home orchard and Oriole will do for the local market. Although not of market importance, they are of breeding importance as I shall show later. Buttercup is small and ripens just after Mayflower. The others follow at intervals of 4 days to a week. We took a little rest after the breeding work of 1916, as we wanted to see what the results would be. We did dig up some volunteer seedlings from under the Elberta x Greensboro trees and plant them in the nursery row. Among these appeared one that seems, perhaps, the greatest achievement, namely, Golden Jubilee. The parent tree has fruited two years now, and we have propagated from it very heavily. It is an Elberta in shape and color ripening at Carman season. The fruit is a little smaller than Elberta but has better quality. Trees of this will probably be in the open market in the fall of 1928.

We learned many lessons from the foregoing work. It is wise not to use varieties ripening prior to Carman as seed parents, as no seeds will germinate, at least in our climate. It is wise not to use small fruited varieties as the progeny will be small fruited. Although there is locally a demand for white fleshed fruits, the general market demands yellow. Hence, we must use yellow parents or one yellow and one mixed white, as in the former case we should get all yellow fleshed seedlings and in the latter half yellow and half white. While the seedlings from Elberta as a seed parent were large and of good color, most of them were low in quality and had other failings, of Elberta, among them the tendency to drop.

As we were depending upon Elberta for a seed parent, these faults necessitated our finding a new seed parent. Finally J. H. Hale was selected. This variety has three serious faults, its susceptibility to bacterial leaf spot and to winter injury and its imperfect blossoms necessitating cross pollina-

tion. But its semi-dwarf tree habit, the large size of fruit, the firmness and quality of its flesh and the bright color of its skin overbalanced all the faults in our minds and we decided that it would make an acceptable parent. The sterility of the blossom, a detriment in the orchard, proves a blessing in breeding, as it is not necessary to emasculate, thus saving considerable tedious labor.

In 1923 three trees of J. H. Hale were covered and a total of about 18,000 blossoms were crossed on these trees. As pollen varieties we used our own seedlings, mainly Marigold, Massasoit, Oriole and one or two more that were good but not quite good enough to name. From these about 900 seedlings were set in the orchard in the spring of 1925, and we expect that some will bear fruit this year. But we learned a lesson from our long wait for the earlier seedlings to fruit, so we top-worked some of this group, taking the buds while the trees were in the nursery row in the seedling year. These were top-worked in old trees that had previously been prepared, and from 10 to 20 were budded on one tree. The detailed work necessary to keep these straight is not easily comprehensible. We were able to bud only 40 to 60 from each group, and the groups ran from 100 to 250, so we can get only a fair indication of how the seedlings will behave. All of the buds did not take, of course.

A few of these top-worked sorts fruited this year, and those of this society who visited the New Jersey Station this past summer saw a few of them.

The results, as indicated, will be beyond our expectations. We were justified in our selection of J. H. Hale as a parent, as most of this small cross-section of our large population had fertile blossoms. More than that, they all had inherited J. H. Hale characters of flesh texture, size and color. While we naturally expect a good proportion will be worthless, yet we have reason to expect we shall obtain many varieties similar to J. H. Hale but of different seasons and having perfect blossoms. A few of these that fruited this summer we budded, so that if nothing better appears we shall have a few more trees with which to work.

In 1924, we again covered the three trees and crossed about 150,000 blossoms, but only 67 seedlings were secured, frost catching them in bloom. This was a very discouraging happening.

In 1925, we covered the same trees, and there are now growing in the nursery about 1,700 trees, nearly all seedlings of Hale crossed with our own seedlings, but some were with other varieties. That year we used Hill's Chili as one of the

pollen parents. This variety is the hardiest yellow variety known and is much later than Hale, and so we are on the way towards developing later sorts.

In 1926, we covered two trees and most of the crossing was with late maturing varieties.

### Conclusion

What are the net results of our peach breeding work?

In Pioneer and Cumberland we have developed varieties to precede and Radiance at the same season as Carman, all far superior.

Eclipse, being yellow, and more certain of bearing, should readily replace Hiley.

For the home orchard or local markets, we have disseminated Buttercup, Oriole, Marigold, Massasoit, Rosebud and Delicious.

Primrose is a yellow substitute for Belle for the local market and Meteor for a little after Belle.

We are introducing, this year, Golden Jubilee, similar to Elberta, but of better quality ripening at Carman season.

Above all else, however, we have gained knowledge. Our journey into the unknown is gradually being illuminated and the knowledge that we are obtaining is pointing us to the light.

Progress is naturally slow. At the earliest, four years must elapse between the time of making the cross and the first fruits on the seedlings. A year is lost in propagating, and the testing of the varieties in different localities to secure information as to its climatic likes, hardiness, resistance to disease, etc., takes time, although we now have a selection of orchards where we are able to top-work seedlings for test and observe them. At the best, then, 7 or 8 years are required from the time the cross is made until the variety is ready for introduction. This job is not for the impatient man.

With all due modesty, we firmly believe that in the course of the years we shall be able to plant varieties similar to J. H. Hale that will mature from Greensboro season up to frost.

## APPLE POLLINATION

by

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About five years ago, one of the most prominent plant breeders in this country said to me, "Connors, the horticulturists of the country are going to look to the plant breeders for the solution of some of their orchard problems." He did not mean in actual breeding work, but referred to the interpretation of orchard problems from the standpoint of the breeder. Incidentally, this gentleman has since been called in on two big crop plants which were not producing as they should, and by studying them with a plant breeder's eye worked out a solution, which happened to be pollination at the proper time with the proper sort of pollen.

### Non-Fruitfulness in Apples

Not all failures of apple trees to produce crops are due to lack of pollination. In the older orchards in this and other states, there are so many varieties that plenty of opportunity is given for cross-pollination. There are other causes of non-fruiting.

In the first place, varieties vary in time of maturity or coming into bearing. For example, Yellow Transparent and Wealthy may bear at 3 or 4 years of age, if not heavily pruned or fertilized. On the other hand, Northern Spy may be 20 years old before it bears. Baldwin is a late maturing sort and careless pruning may delay it even more, as a considerable part of its fruit is borne on one year wood.

Then frost may injure the blossoms, and this may be extremely localized in an orchard, so much so that lack of pollination may be suspected as the cause of the blossom drop. Winter killing of the fruit buds may cause unfruitfulness. Frequently, the trees will blossom full but no fruit will set because cold weather has killed the pistils, which are very tender.

A tree may display a good bloom and yet no fruit will set because of the unsuspected presence of apple scab which attacks the stem of the flower or of the little apple.

Nutrition plays a part. Heavy nitrogen fertilization and severe cutting back tend to keep the trees in a vigorous vegetative condition, thus retarding fruit setting. On the other

hand, old trees growing on sod, unfertilized, may have hard wood and slender spurs and this frequently results in unfruitfulness. Proper nitrate feeding will cause proper growth and the result will be that fruit will be set, other conditions being favorable. It may be seen from the foregoing that even if a plentiful supply of bees is present for pollination, a crop may fail to set. It is also true that on older trees which have not been carefully enough pruned, the spurs on the outer portion of the tree may be plump, vigorous and fruitful, while those on the inner, shaded, starved parts are lacking in the ability to produce good fruit.

### Unfruitfulness Due to Pollen Difficulties

There is no doubt that the chief cause of unfruitfulness in apples is improper pollination.

The use of the words sterility and fertility in this instance are incorrect in the main. For example, Delicious may be cited as a self-sterile variety, and yet it is recommended as a pollenizer for many varieties. How can it pollenize if it is sterile? The pistils are able to function, the pollen is good and functions in other varieties. Hence, to call the variety self-sterile is something that is not entirely true. It really is a self-incompatibility, but this is a pretty big mouthful, so some of us plant breeders who are working on the sterility problem are trying to have the words self-fruitful and self-unfruitful used. These are almost as big a mouthful as self-compatible and self-incompatible but are more readily understandable.

The question of relative self-fruitfulness of varieties of apples has been discussed for a generation or more, and some very conflicting evidence has been published. For example, in Idaho, Ben Davis is reported as partially self-fruitful, while in Maine it is reported as self-fruitful. At Maryland, Grimes Golden is reported as completely self-fruitful while in Idaho it is only partially self-fruitful. These differences in results are often due to the methods followed in the work and the interpretation of the results. However, there may very well be a difference in the behavior of varieties under different climatic conditions.

There is one group of apples that comes close to being pollen sterile, and that is the Winesap group: Old-fashioned Winesap, Stayman, Kinnaird, Arkansas, Paragon (or Mammoth Black Twig or Arkansas Black). These will not only not set fruit to their own pollen but the pollen is not able to fertilize any other variety. Hence a variety must be used as a pollenizer that is self-fruitful or else three varieties must be planted, one to pollenize Stayman or Paragon, and one to pollenize the pollenizer.

Delicious has been found to be an excellent pollenizer for most varieties, but is self-unfruitful. Grimes is an excellent general pollenizer, is self-fruitful, but will not pollinize Paragon or Arkansas or Black Twig.

A selected list of varieties is given to illustrate relative fruitfulness. Mainly the chief commercial sorts are listed.

#### SELF-UNFRUITFUL

(Will not set fruit to their own pollen.)

Arkansas Black (Mammoth Black Twig)	Nero
Delicious	Northern Spy
Fallawater	Opalescent
Golden Delicious	Rhode Island Greening
Gravenstein	Smokehouse
McIntosh	Stayman

Winesap

#### PARTIALLY SELF-FRUITFUL

(Will set a light crop of fruit to their own pollen.)

Baldwin	Rome
Ben Davis	Twenty Ounce
Gano	Wagener
Jonathan	Yellow Newtown

#### SELF-FRUITFUL

(Will set a good crop of fruit to their own pollen.)

Grimes Golden	Wealthy
Maiden's Blush	Yellow Transparent

York Imperial

Professor Farley's work with Stayman is of interest. He covered an eleven-year-old tree with a cheesecloth tent and pollinated the blossoms on various branches with pollen from other varieties. He found that Stayman is self-unfruitful. With Delicious, Golden Delicious, Grimes, Rome, he secured a satisfactory set. Starking gave practically a full set also.

#### Summary

Cross pollination plays an important part in fruit setting on apples, although there are other factors, such as maturity, frost, disease and nutrition. Where varieties suitable for cross pollination are adjacent and no crops are obtained, an agency for pollination may be lacking. If there are no wild bees, honey bees should be placed on the ground in the orchard.

Interplanting is important. If there is already a solid block of a self-unfruitful variety, the top grafting of every fourth tree in every fourth row, or at least one tree in 30 will help the situation. Until these grafted trees come into blossom, blossoming branches of a compatible variety placed in pails of water around the hives and among the trees will probably pay.

Select carefully the varieties for interplanting. In the first place, use good commercial varieties. Next be sure that they come into bloom at the same time. For example, do not expect Rome to be a good pollenizer for Gravenstein. Then be careful to select varieties which are fully compatible that is, will pollinize readily. The Winesaps are all poor pollenizers but Grimes and Delicious are excellent. Rhode Island Greening apparently cannot be pollinated by McIntosh nor Arkansas by Grimes Golden. Use Jonathan for the latter.

Plant no more than four rows solid with a variety. Then four rows of another, if an equal number of trees of each variety is desired.

It seems to pay in the quality of the fruit to have even self-fruitful varieties cross pollinated.

Provide plenty of bees, at least one strong hive to two acres and better a hive to the acre.

Cross pollination produces no effect upon the fruits. Pollen of Grimes will not make yellow skin on Delicious and vice versa, nor will it change the shape of the apples.

#### THE IMPORTANCE OF "PEDIGREE NURSERY STOCK" AND "BUD SPORTS" TO PENNSYLVANIA HORTICULTURE

The possibility of the improvement of horticultural crops by the practice of bud selection has attracted the attention of both commercial and scientific horticulturists for the past quarter of a century.

The revival of interest in hereditary in the closing years of the 19th Century was stimulated by the rediscovery of Mendel's Law. The pure line theory of Johannsen and the mutation theory of DeVries during the first five years of the 20th Century, also created new interest in the possibility of utilizing the variations sometimes observed in a sexually propagated plants, as a means of improving a variety from an economic standpoint.

There are two well recognized kinds of bud variations—modifications and mutations. The former are common to

plants and may readily be detected even in the dormant condition. They are usually variable in size and shape and are probably due to environmental conditions during the development of the bud. They do not usually represent differences which are inherent, hence they are not transmissible. Selection of these buds can have no effect on the production of the orchard.

Fruit bud mutations, in contrast to these, are rare, although when found are distinct and their characteristics are transmissible. Usually they have to do with such characters as size, shape or color. Some claim that they also influence production, but on this not all are agreed.

The leading advocates of the efficacy of bud selection are those who are concerned with the growing of citrus fruits. In California, Shamel and his co-workers have found very diverse types of fruit on the same tree. When cions were taken from these branches and budded on other stock, these characteristics were transmitted. Furthermore, they have observed that certain trees vary materially in their productivity. Some are regular, profitable bearers, while others are practically worthless; these have been termed "drone" trees. It is claimed that this ability to bear or not to bear is also transmissible through budding. This has led to a general practice among growers of citrus fruits to propagate only from trees of known bearing habits. However, not all who are working with citrus fruits agree that the differences in yield which Shamel (14) and others have obtained can be attributed to cion selection; it is thought that other factors are almost equally important.

While most of the work on bud selection has been done with citrus fruits, the subject has not been without interest to the growers of deciduous fruits. In 1899 the Indiana Horticulture Society established an experimental orchard for improving the apple. Various methods were to be practiced, but chiefly bud selection. In the words of Joe A. Burton, (2) who for sixteen years was in charge of the work, "Every selection would give us an improved apple. We could carry that on until we could get anything we wished. So enthused was I with this that many times in my dreams I saw red apples as big as pumpkins hanging on the trees." Later he admitted that these dreams never materialized.

That wide variation exists among our deciduous fruits cannot be denied. Nearly every grower will recall having seen trees or plants which were notably productive and profitable, and others which were equally conspicuous as shy bearers or producing fruit of undesirable quality. Several theories have been advanced to explain these facts.

One of the reasons most frequently advanced as the cause of shy bearing is the general practice of propagating from trees which have not, as yet, reached the bearing age, or propagating from water sprouts. Fortunately, a number of carefully conducted experiments have been made on this subject. Burton notes that he obtained cions from a nursery where trees had been propagated from cions taken from nursery stock for forty years. These were grafted on young trees together with cions from bearing trees. He also grafted water sprouts and bearing twigs on the same trees, likewise cions from a Grimes tree that had borne consistently for twenty years in comparison with cions from another Grimes that did not bear a full crop until it was nineteen years old. In no case was there any material difference in productivity between the various lots.

Other workers in this field have been Whitten (16) of Missouri and Macoun (9) of Canada. Whitten selected cions from an especially poor Ben Davis tree and others from the best Ben Davis tree in the orchard. There was no significant difference in the performance of the progeny of these two extreme types. Macoun selected cions from a heavy bearing, a regular bearing and a very unproductive tree in a row of eighteen Wealthy apples. The yield of the progeny showed no significant difference for five years. In fact, the trees from the most productive parent produced slightly less fruit than either the progeny of the regular bearing or the unproductive trees, but in no case was the difference important.

Cummings (3), at the Vermont Agricultural Experiment Station, carried on similar experiments. The work was started in 1910, the aim being to test the relative merits of cions obtained from trees of high and low cropping power, whose record had been kept for many years. In the case of Northern Spy, the cions were from a superior tree, specimens from which had won a blue ribbon at the New England fruit show. Not far from this tree grew another of the same variety which was decidedly dissimilar in both quality and quantity of product. This tree was said to never have produced more than a peck of fruit in any one year, and that was of poor quality. The tree was over fifty years old and grew in good soil. The cions from both the desirable and undesirable tree were grafted on Rome and Oldenburg. Similar tests were made with other varieties. His conclusions are as follows, "The cions derived from productive trees have done no better, as a whole. In fact, up to date they have done scarcely as well as those secured from unproductive trees. The outcome favors the productive cions in the case of two varieties, Pumpkin Sweet and Red Astrachan; the unproductive cions, in the case of two varieties, McMahan and Patten; inter-

mediate with respect to two varieties, Rhode Island Greening and Wealthy; and no results were secured from Northern Spy, as they had not borne at all to this date.

Gardner (6) reporting work on bud selection of apples and strawberries, which was begun at the Missouri Station in 1895, and a corresponding series at the Oregon Station in 1913, notes that the apple trees propagated from the high yielding parent averaged almost the same in quantity and grade of fruit produced as those propagated from the low yielding parent. Similarly, ten successive generations of runner selections from high yielding and from low yielding strawberry plants at the Missouri Station failed to produce plants that yielded higher or lower than the average of the variety.

All varieties of fruit, some more than others, behave differently under different environmental conditions. It is frequently claimed that new types originate in this way. There is, however, practically no evidence to sustain this contention.

Howe (7) reports some work conducted at the Geneva Experimental Station to secure information on this point. In 1911 this Station purchased eighty-four Baldwin apple trees from forty different locations in the United States, involving a range of fifteen states. From the forty nurserymen it was learned that, with but four or five exceptions, all these trees were propagated from nursery stock. A Pacific Coast nursery, long an advocate of "pedigreed trees," which selects its buds only from bearing wood whose past behavior is fully recorded, was one of these exceptions. All trees were planted forty feet apart and received uniform care. Observations were taken on general behavior, habit of growth, and character of fruit produced. There has not been any difference in tree growth and each tree is similar, in every respect, to the Baldwin usually grown in central and western New York. The trees have bloomed at the same time and have produced apples exactly similar in size, shape, color, season and quality. Comparisons of trees and fruit for the past six years have failed to reveal any facts upon which to base an opinion that there are different strains of Baldwins due to differences in environment.

That high and low producing trees are frequently present in orchards and that their performance from year to year is quite consistent cannot be denied. The question is, how can we account for them? Some very thorough work has been done on this subject by Sax and Gowan (10) at the Maine Agricultural Experiment Station. They have made a careful study of the performance of 881 Ben Davis trees which were about twenty-eight years old at the time the study was made.

They found that there are distinct types of trees in this orchard and that there is a close correlation between type of tree and productiveness. Type I is large, vigorous, with open head, branches often drooping, many laterals and abundant spurs. Type II is characterized by vigorous growth, spreading head, stout, numerous and drooping branches, and has longer laterals and fewer spurs than Type I. Type III is rather small, with upright branches which are slender and have few laterals and spurs. In 1914 the 121 trees of Type I averaged two barrels of fruit each, while 136 trees of Type III averaged less than one-third of a barrel per tree. In another report (1923) the same authors note that the coefficient<sup>1</sup> of variation ranges from 55.2% in 1915 to 89.6% in 1918, a range of 34.4%. These are among the largest known for data on variation.

Similar results, although less pronounced, are shown by Hedrick (7) and Anthony in their work with the Rome apple. The orchard, which consisted of fifty-five trees, was originally Ben Davis and was planted in 1896. The nursery stock was selected for uniformity and planted on uniform soil. Later these trees were top-worked with buds from a single Rome tree. Subsequently they were used for a fertilizer experiment. The trees were divided into eleven plots, each of which received different amounts of fertilizer. It is interesting to note that the effect of fertilizer treatment has not caused much variability; the variations of the individual trees in each plot is much greater than the variation between plots. This fact is significant, since the original Ben Davis trees were selected for uniformity and the top working was from cions of the same tree. The coefficient of variation for the five years ranges from 22.8 to 33.2%, with a mean of 27.7%.

Sax and Gowan (11) and (12) note that this variability in clonal varieties is quite general, regardless of the grade of stock or where it is grown. They found that the average coefficient of variability for yield was 70% for Ben Davis trees in Maine, 28% for Rome trees in New York, 41% for Jonathan trees in Utah and from 36 to 54% for certain citrus varieties in California. Furthermore, the differences in performance of individual trees from year to year was quite prominent.

These investigators attempted to determine what part of these differences in productivity are due to environment conditions and thus are transitory, and those which are due to inherent conditions in the trees, and hence permanent. They concluded that three factors are concerned; first, soil varia-

<sup>1</sup> The coefficient of variation is the mathematical constant which is used by mathematicians for measuring the variability of a population. Incidentally, this range in variation shows to what extent seasons may affect variability in yield.

tion, including the factors of soil moisture, elevation, and exposure; second, differences in the vigor and compatibility of the seedling stocks on which trees are grafted; and third, inherent differences in cion or buds of a clonal variety due to bud mutations.

Since variability in tree yields may exist on uniform soil, and since soil conditions had no effect on the permanence of differences in yield of trees, the authors conclude that other factors must be responsible for the permanence of variability in clonal varieties of fruit trees. One of these factors is the variability of the seedling roots on which the clonal varieties are grafted. The fact that seedlings are exceedingly variable is patent to anyone who has observed them. In the seedling orchard at Maine not top-worked, the 586 trees planted in 1911 vary in circumference from about three-quarters of an inch to seven inches, and the coefficient of variability was 32%. Furthermore, in the "Stock and Cion" orchard at the same station, they found a high correlation between the size of the tree shortly after it was set in the orchard and its size six years later. In this test the buds of each variety were from a single tree, thus eliminating differences from that source.

Doubtless most persons are familiar with the fact that in the past the so-called French crab has been almost universally used for apple root stocks. According to Augustine (1) this is not botanically a crab, but is seed of about fourteen varieties of apple which most commonly find their way into the French cider mills. Naturally, they could not be very uniform as a class. The almost universal use of them in the past is attributed to economic rather than to botanical conditions.

Seedlings of any type of plant which are normally cross-pollinated are exceedingly variable, and it is but natural to suppose that fruit trees that are grafted on these variable roots will produce variable results.

Webber (15), in pointing out the variation in size, vigor and productiveness in citrus fruits suggests that propagation upon unselected seedling root stocks is probably the chief cause. He further observed that the trees in a sixty-acre commercial orchard showed a direct correlation between the size of tree at the time of setting and five years later; the portion set from small nursery trees were decidedly inferior, the individuals being small and variable in size.

Sax and Bowan (11), in summarizing their work, concluded that 38% of the variability observed in apple trees can be controlled by selecting uniform stock, cions and soil. Sixty-two per cent. of the variability is due to causes such as weather, pollination and unknown factors. They consider

that eighteen per cent. of the tree variability is due to soil conditions and that fifteen per cent. is due to factors which cause permanence in difference of tree performance, that is, stock bud mutations and unknown factors. The same authors emphasize the importance of using the best grade of nursery stock. They consider one year old whips to be preferable, if large enough, and that the caliper is the best measure of size and vigor. The trees should be large for their age and for the conditions under which they are grown.

I have attempted to bring together the best research work on the improvement of yield through bud selection. This work was conducted by men who have no personal interest in the outcome and are concerned solely with the determining of facts. Regardless of the evidence to the contrary, some nurserymen continue to advocate the planting of so-called "pedigreed" trees. They cite improvements which have been made in the various breeds of livestock and certain cereal crops through pedigree methods of breeding and assume that similar results can be obtained from asexually produced crops. Possibly they are doubtless sincere in their convictions, but anyone familiar with the principles of heredity knows that the two are not comparable.

The so-called pedigree trees may be superior to ordinary nursery stock in that there may be less likelihood of getting trees not true to name, since the propagation is made from wood from bearing trees. Aside from this, the claim to superiority is doubtful, when all the factors are taken into consideration.

The appearance of Bud Sports in horticultural crops attracts considerable attention. However, according to Dorsey (13), who made a rather comprehensive survey of the origin of the varieties of apple, cherry, plum and grape, among 2,664 varieties studied, only five originated as bud sports. Of the sports which have achieved attention, nearly all have been merely change of color from the original.

One of the first of these sports to attract attention was the Red Gravenstein, which came into bearing about 1880. It was first noticed and propagated by C. E. Banks, of Berwick, Kings County, Nova Scotia. It has much the same season and flavor as the Gravenstein, of which it is a bud sport, but it is bright red and more regular in shape. The type has become quite widely distributed.

Some varieties seem to show a greater tendency to produce bud sports than do others. The twenty-ounce apple has produced at least three. The *Colamer*, was found as a bud mutation in the orchard of J. B. Colamer, of Hilton, New York. It

differs from Twenty Ounce in that the fruits are more highly colored, less mottled and striped and more regular in shape. The twigs of the sport are more deeply tinged with red than are those of the parent variety. It was first propagated about 1900.

*Hitchings*, another bud sport of Twenty Ounce, and more highly colored than Colamer, was found in the orchard of Grant Hitchings, of South Onondaga, New York. *Anderson*, another bud sport of the same variety, originated about two-thirds of the way up on a tree in the orchard of E. H. Anderson of Hilton, New York. It is a beautiful, well colored apple and should prove desirable wherever the Twenty Ounce is grown.

*Red Spy*, a sport of Northern Spy, originated with C. E. Greene, of Victor, New York. It is practically identical with the Spy in tree and fruit, except that the color is a beautiful, solid, bright red. It is a very promising variety and may replace the common Spy.

The Red Rome was found as a bud sport of Rome Beauty, by L. J. Clifton of New York. It is of average size, dark red, a fine keeper, and excellent for baking, although, like the parent, lacking in quality as a dessert apple.

*Red Duchess* is a more intense color than the common type. There is some uncertainty as to whether it is a bud sport, but in practically all tree and fruit characters it is the same as the common Duchess, except that the skin color is more solid and of a deeper red. The skin of the Red Duchess is not so easily broken as that of the Duchess. This striking variation was found, according to Dorsey (14) in the orchard of William Bradwell, near Excelsior, Minnesota. The tree was obtained from a local nursery about 1902, and was supposed to be Duchess. It has since been purchased by a nursery company and named the Daniels Red Duchess.

*Red Stark* has promise in northern and southeastern Pennsylvania. About 1870, J. H. Dickensied, of Zionsville, Pennsylvania, purchased some unnamed nursery stock from an agent. When one of these trees came into bearing the apples attracted considerable attention because of their color and long keeping qualities. The tree is somewhat less vigorous than the typical Stark and the fruit is somewhat smaller. Otherwise it seems to be identical, except that it is an almost solid dark red. It is a promising variety.

*Starking* is a bud sport which has received the greatest attention. This variation was first observed on a branch of a young Delicious tree in the orchard of Lewis Mood at Ferrel, New Jersey, in 1914. It differs from the original Delicious in

that the fruit colors several weeks earlier, thus permitting harvesting at the proper time for storage, and at the same time for well colored fruit. The official "christening" of this novelty, accompanied by a great deal of publicity, was on August 31, 1925. It is reported that the owner received \$6,000 for the propagation rights of the unusual branch.

Other illustrations of bud sports could be mentioned. Recently I have received from John Shoener of Orwigsburg, Schuylkill County, a red fruit which appeared as a bud sport on a small branch of the Rambo. Its commercial value has not yet been determined. Doubtless some of you may recall the appearance of similar variations.

Since red is a color usually desired in apples, these various bud sports have a place in those localities where color is difficult to obtain. They are variations of plant life, which the progressive horticulturist will not be slow to utilize when practicable.

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## LATEST DEVELOPMENT IN ORIENTAL FRUIT MOTH INVESTIGATIONS

by

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This is a brief summary of a conference held Tuesday, January 18th at the offices of the Bureau of Plant Industry, Harrisburg, to discuss the Oriental Fruit Moth problem. Entomologist from the Pennsylvania State College, the Bureau of Plant Industry, the Federal Bureau of Entomology and adjoining states, Ohio and New Jersey, were present.

The information on the Oriental Fruit Moth was contributed largely by Dr. Alvah Peterson, Dr. J. R. Eyer, Mr. J. R. Stear, Mr. L. A. Sterns and the writer. Much of the information has been published or will be released shortly through various technical publications. The investigations of the past summer have contributed many fundamental facts concerning the habits of the Oriental Fruit Moth, but no single, adequate method of control has been perfected.

The oriental fruit moth now occurs in Connecticut, New York, New Jersey, Pennsylvania, Delaware, Virginia, North and South Carolina and Georgia. It has been found throughout the whole state of Pennsylvania where the peach is grown extensively. Last summer it was found in Erie county. It continues to be most abundant in Franklin, Adams, York and the counties to the East. Early varieties as Carman and Hiley suffer but little while early Elberta and Hale showed only about 2% infestation last summer in Pennsylvania. Late varieties as Krummel, Iron Mountain and Fox seedling showed about 40% infestation last summer. This was slightly less than the preceding summer.

Among new fruits that have been seriously infested by oriental fruit moth may be mentioned the Bartlett pear. Last summer the writer reported infestations in Bartlett pear. Dr. Peterson states that mixtures of Codling moth and oriental fruit were found in pears in New Jersey and threaten to be serious on these fruits.

Certain high points in the life history habits were discussed many of them adding new information to our knowledge of this insect.

In peach orchards the eggs are usually laid on the under sides of the leaves but occasionally on the green twigs. In quince and apple orchards they are laid on the upper surface

of the leaves. Sometimes eggs are found on the stems of quince or peach but never on the pubescent surface of these fruits. When the pubescence of the quince has been rubbed an occasional egg may be laid there.

Records show that eggs hatch in a minimum of 3½ days and a maximum of 43 days. Dr. Peterson says, during the warm part of the summer the period is short but early in the spring and in October and November this period may be considerably prolonged.

Some interesting points were reported in connection with the larvae. Peterson states that in New Jersey there are from four to five stages (instars) in the development of the larvae. The larger number occurs later in the summer. Four broods have been recorded from Pennsylvania, five broods during certain years in New Jersey and seven broods in Georgia. Mr. Sterns has shown that about 2% of the third brood, 24% of the fourth brood and 100% of the fifth brood hibernate during the winter so that interference of any of the broods following the second would not reduce the emergence the following year completely.

Recent observations by Mr. L. A. Sterns have also shown that about 75% of the larvae are found in the soil during the winter. This varies according to the conditions of the soil and the number of fruit allowed to remain on the ground. Of the larvae found on the tree beneath bark, about 88% were found near the ground. This has an application in control to be mentioned later.

The moths are most active near sun down and are not night fliers. They are therefore not strongly attracted to light traps. Mr. Sterns has found that moths will travel a considerable distance to reach a peach orchard, possibly half a mile. Champlain and Knull state that they were taken not more than 75 feet from orchards. All evidence goes to show that the moths are not present far from the orchards.

### Control

No satisfactory, efficient control measure has as yet been devised for the commercial orchardist. Bagging of fruit and other practices are efficient in the home orchard. Seven methods of control have been tried to some degree, namely: (1) light traps, (2) insecticides, (3) parasites, (4) bait pails, (5) P. D. B. treatment, (6) cultivation, (7) orchard sanitation.

Light traps have been thoroughly investigated by Dr. Peterson, and have netted some interesting results showing that blue or violet rays attract moths to some degree but that

the ordinary yellow light bulb attracts very few moths. Light traps, however, have been discarded as a control measure.

Insecticides have, for the present, been disregarded because only 10% control can be expected from the use of Nicotine Sulphate used to kill the eggs. Dr. Eyer has some promising new insecticides that may upon further trial prove valuable.

While parasites play considerable part in reducing the percentage of oriental fruit moth in New Jersey, they are at present a natural means of control and beyond the control of man. It has been recently proved that the common parasite of the oriental fruit moth is the same as the parasite of the strawberry leaf roller which means that this parasite has been present in this country and may adapt itself readily to the oriental fruit moth in other parts of the country.

Tests during the past two summers have shown that bait pails undoubtedly reduce the number of oriental fruit moths considerably, but workers in various infested districts do not agree as to their effectiveness as a means of control. Bait pails must therefore be placed in the experimental stage for further investigation.

On the whole a combination of the regular P. D. B. treatment of peach trees and cultivation give the most satisfactory control. It was previously stated that a large part of the overwintering larvae are in the soil. Cultivation should be done early in the spring before the moths emerge to kill the larvae and cocoons. Also in view of the fact that nearly 88% of the larvae wintering on the trees beneath bark are close to the ground, a large number may be killed by the regular P. D. B. treatment.

Orchard sanitation should also be practiced. Where it is possible, dropped fruit should be gathered and destroyed after picking. In Adams County we have successfully killed the larvae in such fruit by dumping it on the ground, sprinkling about an ounce of P. D. B. per bushel over the top of the pile and covering the whole with burlap bags to hold the gas. One of our fruit growers, Mr. Oscar Rice, prefers another method, placing the fruit in 50 gallon steel drums or water to smother the larvae. When packing houses are near the orchard, screening might be effective. The fumigation of old baskets, unused baskets and especially corrugated covers would also clean up a lot of the moths.

**Question:** Have you tried dusting with nicotine dust?

**Mr. Frost:** There has been a great deal of work and the conclusion was that the spraying was more efficient in killing the eggs than the dusting.

I consider the Peach Moth the greatest problem the grower has to confront. My opinion is that it will be useless to try to grow the late varieties of peach unless we get control of the moth. I think my orchard was affected about as the average in Adams County last year. In 1925 I estimated that at least 15% of my Elbertas were wormy and the later varieties from 80 to 95%, especially the October Krummel, which were nearly all wormy.

In 1926 I did as much as possible to destroy the larvae of the moth; during the winter I cleaned all the fence rows and rubbish around the orchard. I began cultivation just before the buds opened (I did not want to cultivate earlier on account of pushing the buds for a possible freeze), to destroy the larvae as they were coming out of the ground, and as soon as the first brood began to fly I hung up about 2,000 pails on every other tree in every other row in parts of the orchard that were badly effected during 1925. I used molasses for a bait, refilling the pails 4 and 5 times during the season.

I had a very satisfactory catch of the moth, I calculate I caught more than 50,000 during the first brood, the catch was very regular the whole season through. At periods they did considerable twig injury, and one night I noticed their work especially heavy on my 5-year-old Hiley, where I noticed in parts of the orchard nearly every twig on some trees was stung and where a pail was hanging on a tree it was as bad as with no pail. Sometimes only, one or a few moths were caught in a pail on a tree that was badly damaged and again a pail would have 8 to 10 moths in it and had most of its twigs stung. The fruit damage last year was very light; I think mostly due to the unfavorable conditions during the hatching periods of the different broods. I believe that less than 5% of my late varieties and practically none of the Elbertas were wormy this year.

In conclusion I urge that every fruit grower do everything possible to get rid of the moth by cleaning up the places where it likes to lay eggs, and keep clean cultivation, which I believe is the most effective and inexpensive.

**Question:** What kind of a pail did you use?

**Mr. Rice:** I used these regular apple can pails and hang them up with wires. Invariably I would have no other insects except moths.

**Question:** Do you put the molasses in pure?

**Mr. Rice:** I use one to ten. It takes three men, one man to dip out and two men to put on the pails.

**Mr. Rittenhouse:** Wouldn't it be well during their most active period to always have fermenting molasses in the pail?

**Mr. Rice:** I usually had my molasses fermented.

**Question:** Did you hang them in the tree?

**Mr. Rice:** Yes. Mr. Frost experimented two years ago in my orchard. He would hang some of them as high as possible in different places. At all times I made it a point to refill these pails and study the conditions. We aim to get a pail at a place where the wind does not blow it off. I usually aim to get the pails pretty high so the moths will be attracted. I find the moths do most of their work in the evening before dark.

**Question:** Did you ever use any nicotine?

**Mr. Rice:** No, I never used any of that because I figured it was too expensive.

**Question:** We tried that in a block of 500 trees to see what it would do and in that block you could hardly find a tree that was hit. The rest were all hit.

**Mr. Rittenhouse:** How much of the mixed liquid is it necessary to put into the pails?

**Mr. Rice:** We filled them half-full. Sometimes those half-full pails would last three or four weeks, depending on the atmosphere. If it is very dry, why they evaporate and if it rains your pails fill up.

**Mr. Frost:** A better grade of molasses will catch more moths than a low grade of molasses.

## WINTER CONSTRUCTION OF APPLE STORAGEES

by

M. C. McNary,

Construction Engineer of the Portland Cement Company

The subject "Winter Construction of Apple Storagees" is what is printed in the program but since that construction is no different from any other construction in the wintertime I want to make my talk a little more general. I will speak generally of winter concreting. At first thought the subject of building in the wintertime is that it can't be done and that thought has been so prevalent throughout the country that it was seriously handicapping builders. I believe there are 11,000,000 people interested in the building trades. So Secretary Hoover appointed a committee and investigated that winter building. They found that it is not a matter of climate; it is a matter of custom; because they found that

even down in the Carolinas, where winter didn't mean anything to them, they stopped building in the wintertime. So there really isn't a great necessity for stopping in winter. We realize that adverse weather conditions increase the difficulties, but there are other advantages which overcome those disadvantages and we ought to take advantage of those. Obviously the time to buy any commodity is when no one else wants it.

You have about three things to buy when you build in the wintertime. You have got to buy the time to do it and you have to get materials to do it with. As to the question of time to do it, I don't believe any one on a farm would say that he had more time in the summer. If there be an advantage in the price of materials you will certainly get it in the wintertime because the demand on the material yards is less than in the summer and the deliveries are better. They will deliver you materials just as you want them because their delivering facilities are better. That is especially true if you are going to use concrete block structure. The winter load on a concrete block plant is not very high.

The next thing is labor. If you have ever stopped and looked at fellows working in winter with mittens on you wondered whether they could work as well as they could in the summertime. That may not be as evident to you men as it would be to a man who works in an office, but if he is worth hiring at all that man will be glad to have that job in the wintertime and he will be more alert and move around to keep warm and those things increase his efficiency. The skilled laborers, such as carpenters, will suffer somewhat, but I believe that you could arrange to have the carpenters cut the lumber in closed places.

The next thing is to place this job. If you are placing concrete in the form, I mean if you are casting concrete, that is you are mixing it up with water, etc., there is just one law that you must observe: you must not let it freeze. Concrete which has been frozen is no longer concrete. In order to prevent it from freezing at a low temperature you must keep the sand, gravel and water heated. As the cement is a very small proportion of that mixture, you don't have to heat it. There is no special equipment for that. If you happen to have a steam tractor around in your equipment, you could use that for heating sand, gravel and water. Run a steam line directly into the barrel and raise that temperature as near boiling as you can. Steam pipes may be placed down in a sort of a coil arrangement and spread the sand and gravel over that. You don't want the sand and gravel to go in with ice particles in them. For lack of steam equipment you can use any utensil that will hold water. You may have an old kettle that some

one used to make soap in. That will make a good one, or a steel barrel, or anything that you can heat fairly large quantities of water in will suffice to raise the temperature. You can raise it up as close to the boiling point as you care to.

For heating up sand and gravel, a section of an old pipe or anything that is large enough to get some kind of wood fire under will be sufficient. In mixing concrete you should place it in your forms as near eighty degrees as you can. You should maintain it at that temperature for forty-eight hours and if you have maintained it at 80 degrees for forty-eight hours the danger from freezing is pretty well passed. The added heat that you put in the structure will hasten the time of setting of the cement so that you get over the point of danger from freezing.

The walls in the storage cellar will either be masonry or cast concrete or perhaps a tamped concrete in some special form which is similar to block construction. Concrete in setting up generates its own heat. If you can retain it in there long enough without applying outside heat, you will have accomplished quite a lot towards good concrete. We usually put a concrete slab roof over this storage cellar. I am confining my remarks a little bit to the storage proposition. The slab can be very well taken care of by placing across it any kind of a cover that will hold heat in there, stack covers or tarpaulins or truck covers or whatever you have that will retain the heat. If you don't have canvas, put up building paper. That is a cheap commodity and can be stretched across. Put straw over that or fodder or whatever you will that will hold the heat.

In case of very severe temperatures I would recommend that in designing your forms you leave holes up through this slab and then place the slab salamanders underneath. It is simply a can in which you have a wood fire or whatever you care to burn in there.

On days like to-day, if it were not raining, you could very safely do plenty of concreting. I don't believe I would even go to much trouble to cover it to-night because I would feel quite sure we wouldn't drop below freezing. So if you have three days of this kind of weather you probably would be past the danger of freezing the concrete. It will have set up sufficiently by that time.

These are just the high points in the winter construction of concrete. Masonry, that is, concrete blocks, don't require quite so much attention. You have thin beds of mortar. You should have a warm mortar so the frost doesn't hit it right away, but the danger of freezing with mortar is not a

large question. There are plenty of homes erected in the wintertime with practically no protection unless it is a little additional heat in the water.

The main point in the very early stages of the setting up of concrete is to keep it warm enough so that the excess water that is not required to hydrate the cement will not freeze into crystals and expand and break the bond. It is not a difficult matter. No special equipment is needed and I am inclined to agree with Secretary Hoover that it is a matter of custom and not climate that makes us stop that sort of thing in the wintertime.

There is another point I would like to talk to you about in connection with the quality of concrete. I am going to make a statement which I think perhaps you will be inclined to disagree with, but the amount of sand and gravel that you use with a certain amount of cement has nothing to do with the strength of it. I mean that. I don't care how much sand and gravel you put with a certain amount of cement and water—the strength will be the same, providing you don't change the water, because the water is the thing that controls the strength of the concrete. I think perhaps I can make that a little clearer by saying that if you take one sack of cement and seven and a half gallons of water, which is about a cubic foot, and put them together, make them into a glue, adding nothing, after a time it sets up and if you then crush it under a machine for that purpose, it will have a certain definite strength. If you take the same amount of water and the same amount of cement and add to that a cubic foot of sand and gravel and allow it to set under the same conditions for the same length of time, it will have the same strength as the original without any sand or gravel at all. You can carry that further and add four cubic feet of sand and gravel and you still have the same strength, but as soon as you change the amount of water that you use, you will change the strength of the mixture.

Your old thought says that a one-two-four concrete is stronger than a one-three-six. That is true and it sounds like a contradiction to what I said before, but the reason the one-two-four is stronger is because you have had to use less water with that mix to get workability and therefore it is stronger. Nothing else counts but the amount of water used. We could go on here indefinitely on this subject of the strength of concrete and why we use less water here and more water there, but what I want you to do is to keep down to a minimum the water content of any concrete that you place. You will have increased the strength of the concrete.

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Pomeroy, R. S.	Chambersburg
Poorbaugh, J. A.	York, R. D. 3
Potterger, C. M.	Richland
*Pratt, B. G.	50 Church St., New York City
Pratt, L. F.	Chambersburg
Purmeil, D. N.	Doylestown, R.
Rakestraw, Wm. L.	Unionville
*Rankin, Charles C.	West Chester
Rankin, R. R.	Elizabeth, R. 1
Raver, Irwin C.	York, R. 9
Read, F. A.	47 Jay St., New York City
Reider, M. H.	Elizabethtown, R. 2
Reist, A. E.	Palmyra
Reiter, F. G.	Mars
Reitz, Richard	Broadacres, Brookville
Rhodes, C. M.	West Leesport
Rice, Daniel	New Bloomfield
Rice, L. D.	New Bloomfield
Rice, Oscar	Biglerville
Richards, A. C.	1719 Pine St., Johnstown
Richards, Neff E.	Schellburg
Rick, Chas. M.	431 Windsor St., Reading
*Rick, John	West Leesport
Rickey, Marshall	Everett, R. 2
Rife, Jacob R.	839 Market St., Lemoyne
*Rinchart, E. S.	Mercersburg
Rinker, Harvey	Allentown, R. 4
Risser, H. N.	Marietta
Risser, P. N.	Bedford, R. 4
Rittanhouse, Dr. J. S.	Lorane
Ritter, Astor	Allentown, R. 3
Ritter, Henry A.	Coopersburg
*Roberts, Horace	Moorestown, N. J.
*Robinson, A. Blaine	North East
*Rohde, Wm.	Johnstown
Rohrer, Geo. H.	Mertztown
Romig Bros.	Downingtown
Root, J. W.	Manheim, R. 1
Royer, John	Akron
Rozelle, H. E.	Pittston
Ruhl, Dr. H. F.	Manheim
*Runk, J. A.	Huntingdon
*Rush, Perry M.	Sycamore, R. 1
Ruth, B. F.	1109 Franklin St., Reading
Rutter Bros.	551 W. King St., Lancaster
Salsgiver, Andrew R.	Indiana, R. D.
*Satterthwaite, Frederick G.	Yardley
Satterthwaite, L. P.	Newtown
Schieferstein, Wm.	Leesport
Schlegel, Edwin	Stetlersville
Schmidt, Wm.	Berwick, R. 2
Scholl, Paul	Brienigsville
Scholl, Winfield J.	Coopersburg
Schoonover, W. E.	Dallas, R. D.
Schreiber, Harry F.	Zionsville
Schuchman, Geo.	Shermansdale
Schultz, Adam S.	Hereford
Schultz, Chester K.	Barto

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Seybert, Paul	Berwick
*Shank, H. L.	Lancaster, R. 7
Shatzer, H. C.	St. Thomas
Shaw, R. C.	Stewartstown
Shearer, Walter J.	Vinemont
Sheble, Earl	Hamburg
Shenk, D. W.	Lancaster, R. 7
Sheppard, C. W.	Pittston, R. 1
Shirker, Jacob	Akron
Shockey, Luther P.	Chambersburg, R. 9
Shoemaker, C. C.	W. Catasauqua
Shoener, John	Orwigsburg
Shermeyer, Harry A.	York, R. 5
Shoenthall, H. J.	New Paris
Shultz, Eric T.	Dallas, R. 1
Sidler, Anton	York, R. D. 9
Simmons, Daniel	Mt. Oliver Station
Simmons, S. L.	Pittsburgh, Mt. Olive, R. 6
Simpson, J. A.	Indiana, R. 5
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Smedley, S. L. Jr.	Newtown Square
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Smith, C. M.	Lewistown
Smith, Geo. K.	Akron
Smith, James E.	Newport
Smith, S. A.	Yoe
Snaveley, Elmer	Lititz, R. 5
*Snaveley, H. H.	Willow St., Lancaster
Snaveley, Henry R.	Lititz, R. 5
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Snyder, Elmer R.	Masonic Home, Elizabethtown
Snyder, F. A.	Dallas, R. 3
Snyder, Fred	Avonmore, R. 1
Snyder, Fry & Rick	Reading, R. 2
Snyder, R. S.	State College
Sones, J. E.	Thompson Bldg., Pottsville
Spangler, Geo.	Yoe
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Stark Bros.	Louisiana, Mo.
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Stitzer, C. E.	Mifflinburg, R. D. 1
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Swartz, Samuel	Spring Grove
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*Thomas, Edwin W.	King of Prussia
Thomas, John W.	York, R. 8
Thompson, J. H.	Wernersville
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*Tyler, W. D.	Dante, Va.
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*Tyson, Chester J.	Flora Dale
*Tyson, Edwin C.	Flora Dale
*Tyson, William C.	Flora Dale
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Unger, Daniel	Boyertown
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*Weimer, E. A.	Lebanon
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Weinschenk, W. H.	New Castle
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Welshans, M. O.	Jersey Shore, Box 60
Wenger, G. P.	Quarryville
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Wernig, Chas. W.	York, R. 2
Wertsch, Edwin	Lititz, R. D. 5
*Wertz, D. Maurice	Waynesboro
*Wertz, Geo. M.	Johnstown
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Whisler, Robert E.	Etters
Whitcomb, Paul	York, R. 4
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White, J., Mgr.	Co. Home, Indiana
White, Theodore	Darling
Wiant, David	Huntingdon Mills
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Woodward, N. S.	Mindinhall
Wright, A. L.	Springhope
Wright, C. Elmer	Springhope
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Zerphy, Jacob H.	Elizabethtown, R. 1
Ziegler, J. A. C.	1018 N. Locust St. York
Zimmerman, H. S.	La Park
Zook, Amos F.	Lancaster, R. 5

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