BETTER FRUIT

VOLUME VII JUNE, 1913 NUMBER 12

SPECIAL EDITION

on

BY-PRODUCTS · DISTRIBUTION · FINANCING · WASTE IN DISTRIBUTION
RELATIONS OF GOVERNMENT TO AGRICULTURE AND RAILROADS
EDUCATIONAL AIDS TO MARKETING

BIG CHERRIES GROWN NEAR THE DALLES, OREGON

BETTER FRUIT PUBLISHING COMPANY, PUBLISHERS, HOOD RIVER, OREGON

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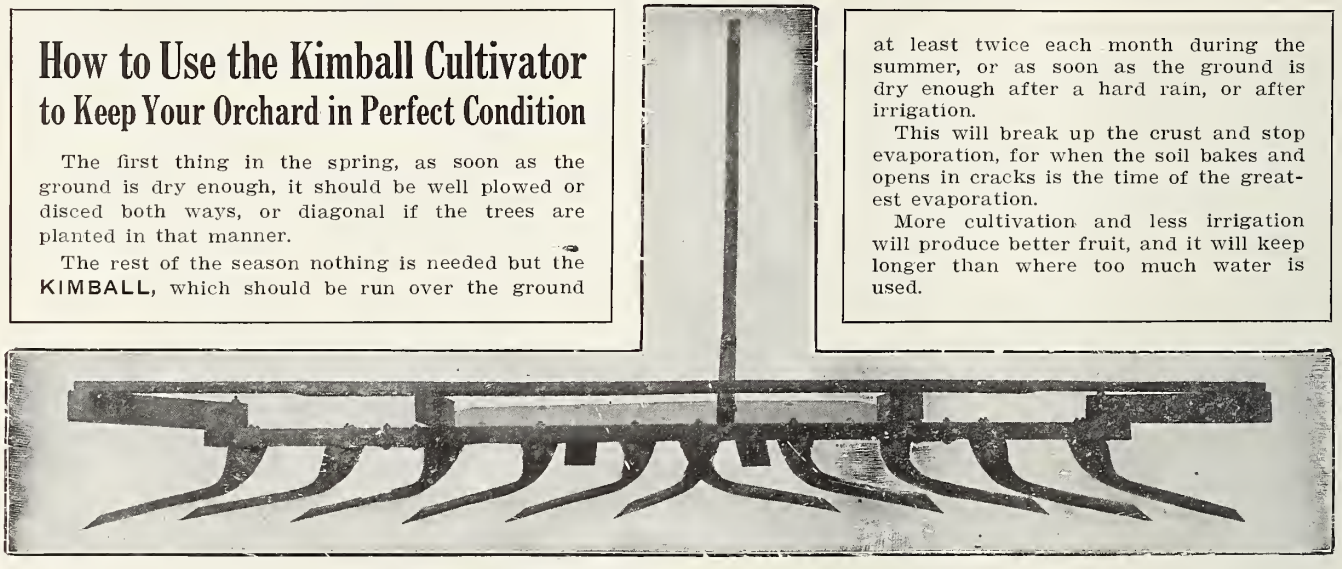

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BETTER FRUIT

AN ILLUSTRATED MAGAZINE PUBLISHED MONTHLY IN THE INTEREST OF MODERN, PROGRESSIVE FRUIT GROWING AND MARKETING

By-Products As Discussed At Spokane Conference

Open Discussion led by Mr. J. L. Dumas, Pullman, Washington

SPEAKING of by-products, there are many things that we ought to take into consideration. Everywhere I go someone whispers in my ear, "But don't you think that we are going to overdo the business?" I heard it when I was listening to Mr. Alderson; I heard it as I came in this morning; I hear it everywhere. Now, gentlemen, I don't want to discuss that subject today, but it seems absolutely impossible to avoid it, no matter what phase of the orchard question comes up. When we consider what we are doing and the way that we are producing fruit there ought not to be very much of waste product. If we prune properly, if we thin properly, if we spray properly, the most that we raise, at least ninety-five per cent of it, ought to go into the boxes. Now, it is true that occasionally a windstorm comes along and blows off some of your fruit, and it is usually the best that blows off. That will do excellently for canning or for drying, and we ought to take care of that. I was somewhat interested in the suggestion a previous speaker gave as to the product of dried fruits. Did not it impress you with the fact that we are not very much of a fruit country up here when you see what a little part we play in the dried products? What was it? I don't know that I remember exactly, but I have an impression that we are quite a fruit country here, but we really do very little in the drying line. It has been my pleasure a number of times recently to be connected with the California apple shows, and I was much impressed with the way they handled the by-products at Watsonville, a small town in the center of a fruit district about twelve miles square, and if I am right I think they produce about half of the dried apples of the United States; didn't they last year?

It is not wise in this day and generation for us to allow anything that is grown to go to waste. Conservation is the order of the day. As long as people are hungry and would eat this fruit, it is our duty to preserve it in someway and give it to them instead of allowing it to waste. It makes one heart sick to see apples lying under the trees some places in the State of Washington where they are not gathering them at all this year. Beautiful apples going to waste, and there are parts of the United States where thousands of children never so much as get a smell of an apple. Now, I say that is all entirely wrong. I believe if we get at this business of by-products the right way we will help in this particular. It ought not to be a difficult thing to install a small drier. I do not know anything about the dried apple business, but I know that there are thousands of plants which are making a great success. It seems to me that the suggestion of the previous speaker, made to the experiment station, is a most excellent one. They ought to furnish us some definite information, some careful directions in a bulletin that the average farmer or fruitgrower can use in installing a drying plant or a canning plant. I believe that a small canning plant would be valuable. Now, for example, we have been shipping some peaches. Some of us have shipped peaches, and sometimes a carload did not pay the freight. It would have been better for us to try to build up a small cannery. I believe that there would be a market in Spokane and other Western cities for a home product of canned peaches that is put up on the farm, you know, "like mother used to put up." We have a lot of this stuff in cans, and we don't like it so well. By the time we get these peaches, even if they are very near to the orchard, they will cost us fifty cents, and if they are nice ones from seventy-five cents to a dollar, and then there are the other expenses incident to preparing and canning them, and a lot of housekeepers do not consider it worth while. Now, there ought to be a great field for the development of a small cannery that puts these things up in a home-like way and offers them for sale. I am sure it would be profitable. And the same is true with the apple.

Now, let us go about this in the right kind of way. Let us plan carefully and we will be able to take care of our crops in times like the present one, when there does not seem to be as great a demand for our fruit as there ought to be. Now on Friday, I am going to discuss that question of supply and demand, and I hope that we may, and the other speakers may give us some light on the question and show us how to market our fruit in the proper kind of way. But in the meantime let us do what we can with the by-products. Did you ever think how much we get ahead of the railroad companies when we evaporate our fruit and ship it in evaporated form? We have been trying to do that for years, you and I, to get ahead of the railroad companies, and if we can reduce the same amount of fruit by about eighty per cent I think it is worth while to do it in that way. Then it is equally valuable and easier kept. We do not have to ice the dried apples when we ship them. We can ship them great distances and we can enlarge our territory greatly, because I think we reduce the weight about eighty per cent, or at least I would, if I were doing it, but these people are in the business and they know how to get more out of it. I think that we ought to develop, as I say, that line, especially because we can enlarge our market. We can then go into foreign territory, the remote places of the earth, when we have the dried apples, whereas we cannot ship the fresh fruit. I would like to hear from the gentlemen themselves something about it; I would like to know if the labor condition is such that we can install a cannery, and is it true that we can employ the labor that is engaged in this business for a much longer period, and we can also employ the capital that is engaged in this business for a longer period? If we can, wouldn't it be better both for the labor and for capital that is employed? Perhaps we can build storage houses and keep the fruit, and then if we are not able to ship out all of it we can put it up in the cans. Wouldn't that be better for labor and for capital also? Now, gentlemen, let us have a free and open discussion of this subject.

A member: I would like to ask Mr. Alderson if he has any information about the expense of installing a private evaporating plant.

Mr. Alderson: I really have no data at hand as to the cost of installing a drying plant, but there are many plants, and I believe that a plant can be obtained for about a hundred dollars. Some manufacturers have made plants especially for that purpose, and at the horticultural convention last winter their names were given, and I think there is an agent for them in Yakima

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and one in Portland. You will have no difficulty in getting the plants, if you want them; they are on the market.

Mr. C. I. Lewis: Perhaps I could give the gentleman some information on evaporation, as I come from an evaporating country, and we have been making a special study this last year of evaporation of fruit. I will say about evaporation that you want to look into it pretty closely. My observation has been that the most expensive apparatus is the poorest. We have evaporators that cost us from five to ten thousand dollars and they show pretty poor products. I have seen but one that operated successfully. You can build an evaporator that will handle prunes, apples, cherries and berries for about $1,200 that would take care of the entire crop of about six acres, that is, if you evaporate the entire acreage. It is possible that you can do a little better than that. You can do better than that if you go into various kinds of fruit. For instance, the same evaporator would put up at least forty acres of dried berries, forty acres of loganberries and forty acres of apples and forty acres of prunes, because the seasons do not overlap. There is another point I want to call your attention to. The building, of course, costs money, and in going into this evaporation business you want to try and use your evaporator as many months as you can. That reduces your interest on investment and gives you a better return for your money. The tunnel plan of evaporator is as good as anything in the market. Some prefer other evaporators for large communities, but for the average community in the Northwest $1,200 will build an evaporator that will work all right and will do all the work that is needed to be done and do it well. You can run your berries through in about sixteen to twenty hours. It takes longer on plums and prunes. To do a good job on prunes takes about thirty-six hours. There is a pretty good chance to improve the dried products of the Northwest. One criticism of the dried products of the Northwest is that no effort has been made to establish uniform grades of our products. For example, there may be a hundred evaporators and one man will not dry his fruit until it is overripe and another will start drying it when it is so hard you can't eat it. The success of a drying plant is to have all the products as nearly ripe as possible. If not some of them will dry thoroughly in two or three hours and some will never dry. Prunes have been slow sellers here all this fall, not because there are too many prunes but because last year, while prices were good, they tried to sell every prune they had. We wouldn't think of selling apples by putting all grades in one box, but that is what the dry products men are doing. They don't grade their stuff. In our by-products work in Oregon we are making a great deal of progress, but have made some fatal mistakes. One is the amount of capital and the kind of machinery that they get in. In the first place I would advise you to find out what you want in the way of an evaporator and then stick to it. For instance, you can go into a community in Western Oregon or Washington, or even in Eastern Washington, and you will find them putting in expensive machinery. They don't remember that they have got to buck Utah and California, where they grow tomatoes very cheap, where only one crop in five is taken off the land, and consequently it is pretty hard to compete with those things, and if they fail in this respect they have only themselves to blame. Many make a failure in that line because they buy lots of useless machinery. The first agent that comes along selling canning machinery generally sells it to them; and a great many of the wrecks that have been spoken about are because they have filled their buildings with material that never was any good instead of taking time to go around and visit successful canneries and find out what was successful. Instead of that they will simply put in perhaps ten thousand dollars' worth of machinery, while if they would put in about two thousand dollars' worth of machinery, using cheap buildings, and have some money for cans and some for working capital, they would get along nicely; but they put every dollar they have in machinery and have nothing to work on. I believe most successful canneries in the Northwest must be co-operative affairs. You must get together and put up your money to keep it going for the first two or three years. We have a little cannery at Corvallis that has done a splendid business. In a general way we loaned money to each other, so to speak, to keep things going. We put up $8,000 worth of string beans this year, and we could have sold ten times that much if we had them. I might say that we found that money just like so much velvet, because we couldn't sell them any other way. I had the pleasure of meeting the director of the Hawaiian Experiment Station a short time ago and he told me a very interesting story concerning the development of the pineapple industry at Hawaii. You know the pineapple is high in sugar, sometimes as high as eighty per cent. That is why you can't ship them very far if you allow them to get anywhere near ripe. They found that they could can these pineapples, but they were throwing away millions of barrels of juice until a fellow came along and said, "We can bottle that juice and make money." They were skeptical, but they tried it and found they could bottle it, and the juice made more money than the slices. Then a fellow came along a little later and saw the great cores going to rot, fermenting there, and said, "Why can't we do something with these?" So they put a chemist at experimenting and he found that he could make a glace, a candy out of them, and now the cores sell for more than the juices and the slices together. Buy some of this product in Spokane and you pay a mighty fancy price for it, and the demand is great. I was reared in a manufacturing district, where their biggest profit is in the by-products which they used to throw away. They used to say at the meat packing plant that they utilize everything but the squeal of the pig, and the last few years they have used the "squeal" against the government and now lose nothing. Now we have found during the last year that the canneries in Oregon have done an enormous amount of good in the way of handling cracked prunes, prunes that cannot be evaporated but be used by the canneries for what is known as "pie prunes," and we have been doing fairly well on that basis. We reverse on the cherry. The cannery doesn't want a cracked cherry, but the evaporator does, especially the black cherry—the Bings and Lamberts. One of our growers in Western Oregon sold thirty acres of Bartlett pears for $7,500 to the canneries. You may say that isn't so good, but when you stop to consider that he had to buy no packing boxes, no paper, no lithographs, hire no pickers, no grading, no packing, no expenses so to speak, that they took the whole crop, you will see that he did pretty well. There has been a mistake made in by-products in some parts of the Northwest by simply thinking the canneries want to take the culls. Not many canneries want to go into business to handle the culls alone, and you can't blame them either, because it is pretty hard to do much with culls only and pay very much for them. What the cannery wants is good stuff, and they can handle it profitably by handling all of it. Certain grades will dry nicely and certain grades will go into vinegar, but when a man puts in his money and capital he can't afford to handle the culls alone. Some Eastern capitalists have offered fifteen cents a hundred for apples. Not very many men want to grow them for that price, but when they handle them on a co-operative basis I believe it will work in pretty good shape. I know a man in Oregon who is doing mighty well, and he has gone into asparagus growing and asparagus raising, and now he is canning it. It doesn't take a very expensive plant, and he is putting it on the market and making a very handsome profit in the business.

Mr. Cass: I never established a cannery myself and made a failure of it, but we had a cannery at our place which ran for two or three years and then quit, not because they didn't make a success of it but because there was more money to be made in the real estate business. The parties put their money into real estate, but I think they made a profit during the time they ran. That has been the trouble all along—too much money made outside; not satisfied with a reasonable return from the investment. I myself established a dryer to take care of my fruit crop some years ago and I ran it five or six years. My product amounted to about fifty tons a year. The drying of the Italian prune is quite different from the apple. The ordinary apple dryer is simply a frame building about two stories high, the lower one being a

furnace room. The difficulty that we had to encounter in drying the prunes is that in certain seasons it is very wet, which commences early; our prunes will absorb water and it takes a very much longer time to dry it out. We had to have a dryer that will produce heat up to nearly two hundred degrees and the fruit must be considerably above the heat, that is, the fruit must be at least ten or twelve feet above the heat and must be constant and uniform in order to make a successful operation for it, so it is a costly operation. I got much experience in it that is most valuable. You can't put any trust in anything; you can't get good results in dried fruit from reading bulletins; they won't take the place of experience. Of course the price of our prunes was pretty low; we had to compete with the California products and the public generally don't understand, don't know a good prune if they see it and don't know how to cook it if they had it. The Italian prune is one of the best products known in the dried prune line, but the public don't appreciate it, so our price has been low and the growers have found it more profitable, under the labor conditions, to ship them green. One large grower has installed an evaporator that takes in twelve tons at a charge. That is a pretty large evaporator and costly. In ordinary cases he would lose about three-quarters of his crop before he could get them dried. I always figure on losing about half of my crop on the average, because some seasons they work up pretty well but other years, if the rainy season commences, prunes when they get ripe will fall to the ground in two or three days because we can't handle them, because it requires twenty-four to thirty-six hours in order to dry them, and so it is a difficult operation. I had experience and therefore gave up the drying proposition down there.

Mr. Bedtlyon: Let me try to answer your question as to why a great many of these small canneries have failed and always will fail. Of course a great many other elements enter into it, but first of all is experience. Granted you have the experience, the rest of it is insufficient volume of business. The season is short. A small plant has six days' time in which to put up a very large amount of goods in order to make it a profitable business. If you are going to get the price for the grower, if you are going to get the Italian prune on a parity with California, if you are going to sell and introduce it, you have got to have capital and organization to do it with. For instance, I spent two years selling California goods. At that time the Italian prune was just coming on the market, that is in any quantity, and the Northwest started to plant about twenty million acres of Italian prunes per year. At the present time they produce only five to ten million. We felt that the Italian prune had us beat and every man in California knew it. The people have been gradually educated that the Italian prune is better than the French prune and sentiment has finally changed over, but still they are not getting the price that they should, for the reason that there is no strong organization to command it and get it. For instance, take the Hawaiian pineapple business that has just been mentioned. About eight years ago I started out one day in Chicago with a sample of Hawaiian pineapple. I said, "Here is a beautiful thing." "Well, we don't handle any Hawaiian pineapple; we handle all Singaporc chunks." That is what the trade said in those days—"We don't handle any Hawaiian pineapple; all we handle is Singapore chunks"—but after eight years of work, with capital and organization, they have made people handle Hawaiian pineapple; and if you go to the trade today with a sample of Singapore chunk you won't be able to sell it to them. Mr. Dumas said something that I intended to have in my paper in regard to the extent of the volume of the apple business that this country should produce. I said once before publicly that the Northwest must eventually turn out one thousand cars of evaporated apples per annum. It is within the range of every-day possibility; and it is also necessary that these thousand cars shall land in Russia, in Siberia and the remotest parts of the world, just as well as New York apples.

Professor C. C. Vincent, University of Idaho, Moscow: This is rather unexpected on my part because I did not know that I was to appear on the program at all. As our friend just stated, we have been carrying on some experiments for the past four or five months with the small home-canning outfit which was installed in September. As you all know, ten hundred thousand tons of by-products go to waste on the farm every year. While we did not install this home-canning outfit to compete with our commercial canning outfits, we installed it in order to make disposition of the by-products. We have not had an opportunity to do very much experimental work as yet, but we have found that this outfit is very satisfactory as a home establishment. Our outfit has a capacity of five to ten thousand cans daily, although you can get them with a capacity of five hundred to a thousand cans daily, No. 2 and No. 3 cans. We have also canned a number of tomatoes, pears, small fruits of all kinds, but as yet we have not had an opportunity to test out these fruits to any extent. We are keeping them there at the station and we intend to test them out this winter, and also intend to place this fruit upon the market. However, I believe that the home cannery is going to be profitable.

A member: What was the cost?

Professor Vincent: The cost varies from fifty to two hundred and fifty dollars.

A member: Is this small plant so that you can increase it to a larger capacity later?

Professor Vincent: There are various forms of these home-canning outfits, with from five thousand to ten thousand cans daily, and come, I think, with a larger capacity than that.

A member: What I mean, is there a plant by which you can increase the capacity from year to year as your business demands?

Professor Vincent: I don't think that there is.

Mr. Alderson: I have a few remarks to make about the vinegar industry. We have at present in our town a commercial vinegar factory, and these men are buying cull products of the orchard for twenty-five cents a hundred, apples they can't place on the market and can't sell commercially, and the manager of this concern is paying twenty-five cents a hundred for these cull apples, and he told me the other day that he was getting eight gallons of cider per hundred pounds, which makes it very profitable from his standpoint; and it is also profitable from the grower's standpoint because it provides a way of disposing of the cull products, which otherwise probably would go to waste. I may add that we are advocating the feeding of these cull apples to the hogs. They come in very handy as roughage, mixed with other material, as the apples are rather acid and the hogs as a rule will not eat very many of them unless you mix them with other feed and use them as roughage.

Professor Lewis: I don't feel like taking up very much more of your time. It seems to me, at this meeting, I have been getting into pretty nearly every discussion that comes up and I am afraid some of you will think I am trying to monopolize things. Professor Vincent has told you the points of interest in the vinegar manufacture. So far as vinegar manufacture on this Coast is concerned it will have to be merely a by-product business for cull stuff, because you will notice the figures he gave you are twelve and a half cents a bushel. Of course it will be out of the question to grow apples for that price. The way your vinegar factory comes in is simply to supplement other business and as a by-product. Cider and vinegar people can handle a certain class of products that no other line of work perhaps can handle to good advantage. I have been trying to preach on that line, that our own association put in our own by-products plant and in that way be able to handle our own stuff. For example, the green apple, or those that are not dead ripe, do not make very good vinegar, and apples that make good vinegar have got to have very little starch and tannin. While green an apple has the largest amount of starch and tannin, especially varieties like the Baldwin, and they sometimes carry from eight to fourteen per cent, according to the degree of ripeness. Now, the higher sugar content an apple has the better vinegar proposition it is. Now, by "sugar content" we do not necessarily mean an apple, because the acid you may have in the apple seems to counteract the sweet taste; but we want an apple of high sugar content and one which is not ripe does not have much tannin. Then if the apples are proper apples and kept clean, a very good grade of vinegar can be made. The

apple has to go through three stages to make good vinegar. It takes quite a long time to make it according to your home system, but where you have a generator you can make it much more rapidly. We cannot interest capital to come in from the East and put in a vinegar plant, but the association can handle it by putting in a competent man. Men from the East want to go into a community and contract for the entire output of apples at twelve or fifteen cents a hundred, and I tell them that is out of the question because you cannot raise apples for that price. You can evaporate apples that don't make good vinegar and they will evaporate finely. You can take an apple which is yet somewhat green and it will evaporate and make a pretty good product, but that same apple makes a miserable vinegar; and such points as that we have got to learn by experience.

A member: I am certainly interested in by-products and I have done a great deal of inquiring along the line of cost. I have asked every man I have met what it cost to put up a cannery. I have looked around the country and I have found one canning factory after another going to the dogs, and I believe the principal trouble with the most of them is that they are trying to do too much. I find upon inquiry in the East that you can put up a cider mill, a jell cooker and an apple-butter cooker and a vinegar generator for about twenty-five hundred dollars, but this simply means the machinery and the setting up of it. The building end of it you can make cost you anything you like, from cement up to a board shack, but you have got to have the necessary machinery to turn out your products. I believe money can be made on by-products. I believe we have got to start very small, with making cider, and possibly jelly and possibly apple-butter, and using the by-products of that to make vinegar. As the professor has told you, the apple has got to go through three processes. The cider business has money in it provided you are willing to study it. You can get some books, like "Cider Makers' Handy Book," that goes into it very thoroughly. You have got to handle your apples just the same as if you were making wine. You can make your cider so you can't tell it from high-grade champagne. That is also a double fermentation. In other words, you first ferment your cider and strain it and refine it, then you sterilize it and then put it in a bottle and put in a certain amount of sugar—I think it is four ounces to the gallon—and put it up in bottles. You let it stand then, gradually bringing it to an upright position until the cork comes out, when you cork it again, and then you have champagne cider. I know you can make money at that, but it is not what the ordinary individual, or most of them, can do. We have got to do the best we can with the talent we have at hand, and there is no question in my mind but you can make money putting up apples in gallon cans, but they also tell me there is more money made in evaporating the apple than there is in putting it up in cans, and that is what I have come here to find out. There is another thing: You can't make cider out of green apples. You have got to let them mature. But I would like to hear some other people talk about the feasibility of the vinegar end of it.

Mr. Bingham: In Pullman we have a vinegar plant, and we are selling to Spokane practically all the vinegar we can make. We are making a good grade of vinegar and we have a man who understands his business. You have first got to get the man who knows how to make the cider because it is an intricate problem, and you cannot learn the business from a year's study. It is a problem of science, and the successful plants are those that have men who thoroughly understand their business. If you can find a man who understands the making of vinegar then put in a vinegar plant. If you don't, stay out of it, because the Northwest is full of failures in the vinegar business, due to the fact that they did not have a competent man to run it.

Waste In Distribution Too Large

Charles R. Van Hise, President University of Wisconsin, before First National Conference on Marketing and Farm Credits, Chicago, April 8, 1913

FOR farm products the waste in distribution is admitted by everyone to be large. There can be no question that the waste in distribution for agricultural products is far greater than for manufactured products, and for the country as a whole is to be reckoned each year in hundreds of millions of dollars. This is partly a consequence of the relatively perishable nature of many of the farm products. Just as there is a difference in the amount of waste in distribution of farm and manufactured products, so there is a very great difference in this respect among farm products themselves. For the relatively permanent products of the farm, which need not be disposed of at a given time or may even he held a year, the wastes are far less than for the more perishable products. Therefore the unnecessary wastes in distribution for wheat and corn and cotton are relatively very much less than for the more perishable products. Here are included vegetahles and fruits. Also for these products there are great variations in the amounts of waste. Potatoes must be marketed before early spring else they are a total loss; but there are several months available for marketing and distribution. In the same position as potatoes are the more stable fruits, such as apples and oranges. But the less stable fruits, such as berries, must be used within two or three days from the time they are taken from the farm. This fact greatly limits their radius of distribution and therefore of available markets. Indeed some fruits are so perishable that they will not stand shipment any great distance even with modern refrigerator facilities.

The perishable nature of fruits and vegetables, combined with the great fluctuations in the acreage from year to year and in the production of the same acreages in different years results in a fluctuation of price for vegetables and fruits even of the more stable kind, such as is not paralleled by any other articles of commerce. The fluctuation in the prices of the same product in the same year at wholesale rates may be from one hundred to more than four hundred per cent. This large fluctuation is one of the factors which tend to make the retail cost of perishable goods very high. When wholesale prices go up, retail prices are promptly advanced. When wholesale prices fall, by informal understanding, the retail prices are frequently held at the old rates; or, if not, they lag greatly behind the falling wholesale prices. This is one of the circumstances which cause a wide margin between the price the farmer receives and that the consumer pays.

Under any system of distribution there will be a certain percentage of loss for perishable articles, and this fact results in a wider margin between the two than would otherwise be the case. However, when we consider the very wide margin which now often exists it is evident that the cost of distribution is excessive. I have no doubt that many delegates to this conference could furnish illustrative instances from his own locality. Therefore I confine my statements to type cases. For some of the relatively permanent products the margin between the producer and the consumer can be diminished by only a moderate amount. For instance, in the case of cheese, which, according to Professor H. C. Taylor, may bring the farmers in Wisconsin 11 to 13 cents a pound, may sell in the South and West in different seasons of the year from 20 to 25 and even 30 cents a pound. There is an average margin of ahout ten cents between the Wisconsin prices and the retail prices. This amount covers paraffining, storage, profits of the original buyer, the wholesaler, the retailer and transportation. While perhaps the service performed by these agencies cannot be secured by other means at a greatly reduced cost, it may be possible by proper methods to reduce the margin by two or three cents per pound; and even if this were done it would mean an increased income to the farmers of twenty per cent or more and a much larger percentage of profit above the actual cost to them.

With vegetables and fruits the situation is very different. Governor Francis E. McGovern in a recent message to the legislature of Wiscon-

sin mentioned the fact that at one time when the farmers were selling potatoes for 30 cents a bushel at the railway station in Waupaca County, the consumers in the City of Milwaukee were paying 85 cents a bushel. The expense of shipping was six and one-half cents a bushel. This made the amount which went to the dealers between the producer and the consumer 48½ cents, or a margin of 133 per cent above cost. Governor McGovern gives as another instance that cabbages which were selling at $83 a ton at River Falls, Wisconsin, were selling at $300 a ton in Chicago. The freight between the two points was three dollars. Thus the commission merchant and the retailer in Chicago received as a margin $217 a ton, or 250 per cent beyond cost.

Last autumn a gentleman shipped a carload of apples from Missouri to Madison, Wisconsin, which he sold to the wholesaler at one dollar per hundredweight, or fifty cents a bushel. The wholesaler to whom he disposed of the apples sold them for 75 cents a bushel and the retailer sold at $1.25 a bushel. The amount which the wholesaler and retailer took at Madison was, therefore, 75 cents per bushel, or 150 per cent above the amount which the producer received for raising the crop and transporting same to Madison. With very perishable goods hundreds of instances of extreme wastefulness could be cited in which the farmer not only has a total loss of his product but freight to pay. Thus at various times there come into the markets of the Northern States a larger supply of melons or peaches than can be disposed of at the current prices. The retailers take advantage of the situation to purchase at a lower price from the commission merchants; but not infrequently they find it more profitable to them to maintain existing retail selling prices with smaller sales than to lower the price sufficiently to dispose of the additional material. Under such circumstances carloads, and even shiploads, of fruit or melons may rot when the people—and especially the people in less favorable financial condition—would have been glad to have the products thus destroyed if they could have been obtained at a low price.

After a farmer has had an experience for any year like the above he stops shipping, and the remainder of the material rots in the field. For instance, last summer this was the situation in Colorado with regard to cantaloupes. Vast quantities of splendid fruit were a total loss, and yet prices for cantaloupe at the various markets of the Middle West and East were high. At Madison, Wisconsin, the lowest rate at which good Colorado cantaloupe were selling was ten cents each in lots of ten or a dozen. Every year furnishes many illustrations like the above; not only does this occur, but our distributing system is so bad that sometimes even the semi-permanent vegetables are a total loss to the farmer because of a glut of a certain market. For instance, the April number of The World's Work tells of an instance where a farmer was advised by a commission merchant that the market for onions at Philadelphia was good. After making shipment the farmer received the information that onions were arriving in such quantities that the market might break. When the farmer received his statement from the commission merchant he found that his carload of onions had sold for enough to cover all charges except nine dollars of the freight, and he was asked by the commission merchant to remit that amount. Says the farmer: "I still think he is an honest commission man if there ever was one; and I don't know that anyone was particularly to blame. But I do know that I furnished Philadelphia with a car of good onions free and paid part of the freight; and I have no doubt that the other twenty cars that went in at the same time were furnished free. But I hope the other twenty farmers were not fools enough to pay the freight." With satisfactory methods of distribution situations like the above, which occur in numerous localities and for various products almost every year, would not exist. Certainly we must work out some methods of distribution under which abundant crops will give larger returns to the farmers than small crops; yet the latter is now frequently the case for products which are perishable or semi-perishable, and is sometimes true for the more permanent crops. This must cease to be true else the principle of conservation which demands that we increase the productivity of the soil is wide of the mark.

I understand it is the purpose of the conference to contribute to the solution of the problem of efficient distribution, but no more than general suggestions can be offered in an introductory address. We shall all doubtless agree that its solution rests about the word co-operation—co-operation of the producer, co-operation of the consumer, co-operation of the distributing agency with the producer and the consumer. If this be conceded, one fundamental principle in connection with it should be understood at the outset. Co-operation involves surrender of independence. If two people agree to co-operate in regard to any matter it means that each one of them surrenders some measure of his freedom. If one hundred people agree to co-operate it means that each one of them must largely surrender his independence in handling the matter in question. Co-operation means the rule of the majority and that every man who joins in the co-operation must abide by the conclusions reached. Not only so but the business officials of an association must have delegated to them the necessary power to carry on the affairs of the co-operative society in the same efficient and authoritative way that do those of an ordinary corporation. Co-operation cannot possibly succeed if the officers do not have the proper authority and support.

This surrender of freedom is one of the broad principles which is frequently overlooked and is an especially difficult point in dealing with the American farmer. He prides himself upon his independence in production; he is confident of his business ability; he will decide for himself. But in order to have the co-operative movement succeed the farmer must agree to circumscribe his liberty in many respects; and, furthermore, must live up to his agreement. A second point requiring consideration is the relation of co-operation and combination. The idea of co-operation is everywhere hailed as a desirable thing for the farmer, and this is true at a time when there is equal denunciation of combinations of the kinds commonly called trusts. But it should be fully understood that combination by the manufacturers is for the very same purpose that co-operation is designed to cover for the farmers. The idea is the same in each case; the word is different. Why is it, then, that co-operation is hailed as a great advance step for the farmer at the same moment that combination in industry is assailed?

What are the purposes of combination? They are limitation of output, division of the market so as to avoid cross freights, the maintenance of prices, the securing of transportation at reasonable rates. What are the purposes of co-operation? They are the division of the markets so as to avoid cross freights, the securing of transportation at reasonable rates and the maintenance of prices; and those who are most enthusiastic for the co-operative movement have even advocated limitation of output. Thus, while the combination of manufacturers and co-operation of farmers have the same purposes, it should be pointed out that the danger to the consumers of co-operation for agricultural products is not nearly so great as is combination for manufactured products. In the first place the producers of an agricultural product in the United States are so numerous and so widely distributed that there is not the possibility for combinations which extend to monopoly that there is among manufacturers. The independent producers of an agricultural product may number millions; and from this great number they grade to a few thousand for some products. The vast numbers of producers are widely distributed, and it is not practicable for them to unite in limiting the total output. If one crop has been unprofitable one year the farmer may turn to another the next year, but he cannot cease to utilize his improved land. Thus limitation of output as a whole is impracticable. Again, one food product is in competition with another; and thus if the producer should attempt to push the price of one article too high the consumer will turn to others, and under these circumstances the product, if perishable, may go into the dump. Even where agricultural co-operation has developed so as to become almost monopolistic and the consumers have not been taken into the co-operation, as in the case of citrus fruits and cranberries, the prices

cannot become exorbitant, for, if so, the consumer will refuse to buy.

While, therefore, the dangers of co-operation among the farmers are not so great as they are among the manufacturers the same principles apply, and some of the same abuses may arise if not guarded against. If the farmer could completely succeed in the purposes of co-operation and should wholly ignore the interests of the consumer we should have the same outcry against the farmer that we have against the trusts. This should be fully understood at the beginning in order to avoid this danger. The way to do this is plain. The program for co-operation among the farmers should also include co-operation with the consumers. The program of those who are in favor of reducing waste in distribution should have the twofold purpose of increasing the price to the producer and decreasing the price to the consumer.

There is little question that a system of distribution can be worked out which will accomplish this. Of course such system will vary from place to place and be different for different commodities. As illustrating the possibilities there may be formed in any center a co-operative association which is both a buyer and a seller. This co-operative association would consist of members who produce and members who consume; and indeed many of such members would belong to both classes. The co-operative association would receive and sell the products of all of its members at the current prices. Such portion of the material as possible would be disposed of locally. The material which could not be handled in the local markets would be disposed of in other markets. The ordinary well-known rules for successful co-operative societies should prevail, such as the limitation of dividends on the stock, one man one vote, etc.

It is realized that the above simple illustration by no means fully covers the situation. There has been a marked tendency in recent years for the production of agricultural material of a certain kind to be concentrated in certain districts, just as there has been in manufacture. This has been one of the results of the modern development of cheap transportation. Before the time of the railroad the products of any agricultural district were largely consumed in that district. Each district also aimed to produce as many of the products there consumed as practicable. The export money crop was often a concentrated one which would bear expensive transportation charges. However, at the present time the entire range of the United States, and for many products, European countries are available as a market for the output of a given locality. Thus the cheese of Wisconsin goes to all quarters of the the United States and parts of Europe. The cotton of the South goes to the mills of the world. In consequence of this situation special co-operatiive associations are advisable for the marketing of the money crop or crops in a definite district; and such an organization may be exclusive rather than broadly inclusive. But even where this is the situation the farmers have other products; they also are consumers as well as producers, and there is therefore the need of a co-operative association which buys other than the standard crops and which sells as well as buys in order to furnish the farmers their necessary supplies.

In some instances the work of the special and general associations may be merged, in others separate. Thus the work of buying and selling from the point of view of bettering the circumstances of the farmer may require that the co-operative buying and selling shall be through a single association in some districts, in others through several associations; but the essential point should be insisted upon, that the advantage of the co-operation should not be confined to the farmers alone, but should be shared by the consumers—that is, that the co-operative associations should permit membership of anyone who wishes to do business with the association. If this be done the surplus of profits beyond the limited amount which goes to capital would be divided between the men who did business with the association in proportion to the business done, producer and consumer being exactly on a par in this respect. To illustrate: If the producer contributed $5,000 worth of material, and the surplus which could be declared beyond the necessary reserve at the end of the year amounted to eight per cent, he would receive in addition to his original selling price $500. Similarly, the member who had purchased $1,000 worth of goods would get a rebate of $80. If the same man did both of the above he would get $580 at the end of the year. Non-members who did business with an association might be excluded from sharing in the profits of the co-operative enterprise; or, on the other hand, they might participate to a less extent—say fifty per cent. This latter is believed to be the better plan, since it would result in extending the business of the association and thus increasing the profits. The method of co-operation above advocated has the great merit that all who have any relation with or necessity for the articles handled will be in favor of the success of the movement. The consumer shares in its benefits as well as the producer. In order to complete the program of co-operation it will be necessary to correlate with the above a system of rural credits and rural banking, but this part of the subject is to be considered by other speakers.

I have pointed out elsewhere that there exist almost everywhere in the United States at the present time, notwithstanding the national and state anti-trust laws, contracts and combinations in restraint of trade, either formal or informal, under which the same price is charged for the same article at a given point by all of those who handle it. Thus, for standard articles, it makes little difference from which dealer one buys at a given locality the price is the same—and usually the price is too high and often is exorbitant. This condition of co-operation widely exists, not only among the manufacturers but among the retailers. If the plan of co-operation advocated, which includes both producer and consumer, were substituted for the above the evils would be abated in large measure, for in case the price proved to be excessive the producer and consumer would share in the resultant profits at the end of the year. Therefore the co-operative movement proposed for the farmers would be in strong contrast with the great combinations which have existed, and still exist, among the manufacturers, the purposes of which have been to benefit the producers by levying the highest possible tribute upon the consumers. The amount of tribute which has been levied by the great combinations of industry during the past decade, as we well know, has been enormous. This is illustrated by the incredible profits of the Standard Oil Company, the American Tobacco Company, the United States Steel Corporation, etc. If the co-operative movement among the farmers includes as its fundamental doctrine benefit to the consumer as well as benefit to the producer, the most dangerous rock in the channel of progress will be eliminated; and while there may be many other difficulties in clearing up the channel it is believed that none of these will prove to be insuperable.

Working out methods of proper co-operation will require a consideration of the existing trust laws, national and state. The decisions of the United States Supreme Court under the Sherman act are very drastic in regard to all contracts in restraint of trade. But the members of the co-operative society, to be succesful, must contract to sell all of their products through the society; or, if not, to give the advantage to the society of any increase of price over that obtained through the regular channel. An essential element in the success of the fruitgrowers' exchanges, perhaps the most successful of the co-operattive societies, is that they are selling agencies for all their members, and rigid contracts require the members to dispose of their products through such agencies. Selling agencies of this kind for manufactured products have been declared to be illegal; indeed the decisions under the Sherman act have uniformly held that selling exchanges and combinations, where the commerce was clearly interstate, which fix prices, divide territories or limit output, are illegal. And yet some of these things must be done if co-operative societies are to be successful. Similar decisions have been rendered by many of the state courts under the state anti-trust laws.

The fact that the anti-trust laws are in conflict with the necessary co-operation among farmers has been recognized by the legislatures of a number of states, and in consequence co-operation among the farmers was excepted from the anti-trust acts. This is illus-

trated by laws passed in South Dakota, Illinois, Nebraska and Texas. These laws, however, have been declared unconstitutional by the federal courts under the principle that "no state shall deny any person within its jurisdiction equal protection under the laws." It thus appears clear that to reduce the waste of distribution and to successfully introduce co-operation will require a modification of the existing anti-trust laws, national and state. The farmers cannot hope to claim for themselves the advantages of co-operation without permitting similar advantages to those engaged in other lines of industry. It is true that the privileges of co-operation have been abused by the great concentrations of industry and they have not been abused by the farmers, but the remedy for the abuse in the case of the manufacturers consists not in prohibiting the advantages of co-operation but in prohibiting the evil practices which have arisen in connection with combinations. The rising flood of the co-operative spirit, which is characteristic of this twentieth century, will—laws or no laws—sweep the country and eliminate the frightful wastes of the existing competitive system; but this without destroying competition and at the same time keeping free and open full opportunity for all. With the privilege of co-operation will of necessity go public regulation wherever the market is controlled in consequence of the permitted co-operation. It is not the place here to indicate the methods by which this may be accomplished, but if the principle be agreed to there is no doubt that regulations may be worked out successfully to accomplish this end.

In conclusion, the keywords of the solution of the industrial situation of the farmer are co-operation among themselves, co-operation with the consumer for their mutual benefit; and this in order to eliminate the great wastes of the existing distributing system and thus secure efficiency.

A Government Guarantee Helps Sales

Ex-Consul H. B. Miller, at the State Horticultural Society meeting in Portland, called attention of the fruitgrowers to the fact that Canadian exports of apples were increasing heavily, while the exports of the United States only showed a slight increase. He attributes much of this to the fact that every box of apples going from Canada has the official government stamp as to standard. Mr. Miller advocates a general standard being adopted in the United States and that every package of apples for export should be so stamped.

Editor Better Fruit:

I desire to be one of the many to compliment you on your March issue in particular and all other issues in general. I believe I am going to get all the information I could desire from your publication alone and I feel that I will have a very good idea of the many problems I will have to meet when I enter the fruit business in Oregon. Yours truly, Eugene B. Tinker, Miami, Arizona.

Editor Better Fruit:

Your article in the "Black and White" edition regarding uniform packing and co-operative selling is a very able treatise on a very important subject. Yours very truly, R. E. Hawkins, Minneapolis, Minnesota.

Editor Better Fruit:

Attached find money order for my subscription to "Better Fruit." Kindly let me know how long this amount will keep it good on your books. What a fine publication "Better Fruit" is, and if it has the circulation it deserves every fruitgrower who speaks the English language should be a subscriber. With every best wish. Yours faithfully, Albert Birch, Roxburgh, Teviot, New Zealand.

Statement of Apple Pool Handled by Wenatchee Fruit Growers' Association, to April 9, 1913

From the Wenatchee Republic

	Boxes sold Final payment		Boxes sold Claims pending						Boxes in course	Unsold in hands
Arkansas Black	Boxes	Amount	Boxes	Amount	Total boxes sold	Amount	Average per box	Total boxes shipped	of sale	of agents
Extra Fancy	6,561	$ 9,850.32	741	$ 982.15	7,302	$10,832.47	$1.484	16,622	3,565	5,755
Fancy	205	264.06	.....	.....	205	264.06	1.288	385	180	.....
Black Twig										
Extra Fancy	5,878	2,777.69	6,611	1,255.32	12,489	4,033.01	.322	19,761	3,189	4,083
Fancy	1,415	433.02	1,883	222.70	3,298	655.72	.198	5,553	1,226	1,029
Ben Davis										
Extra Fancy	1,670	840.28	371	132.52	2,041	972.80	.48	36,094	1,933	32,120
Fancy	245	105.37	30	15.20	275	120.57	.438	4,816	501	4,040
Black Ben										
Extra Fancy	2,956	1,507.91	2,490	880.34	5,446	2,388.25	.438	56,420	21,262	29,712
Fancy	323	126.40	137	28.41	460	154.81	.336	6,019	1,314	4,245
Delicious										
Extra Fancy	4,218	5,465.88	573	417.27	4,791	5,883.15	1.227	9,418	4,627	.....
Fancy	1,315	966.25	166	90.96	1,481	1,057.21	.713	2,448	967	.....
Grimes Golden										
Extra Fancy	5,095	3,617.22	1,404	824.63	6,499	4,441.85	.683	12,718	6,219	.....
Fancy	148	78.48	16	7.55	164	86.03	.524	197	33	.....
Jonathan										
Extra Fancy	49,506	37,085.22	7,961	3,403.75	57,367	40,488.97	.705	88,606	31,239	.....
Fancy	18,688	11,091.56	4,230	1,213.60	22,918	12,305.16	.537	35,244	12,326	.....
Missouri Pippin										
Extra Fancy	1,325	1,456.72	366	142.50	1,691	1,599.22	.945	5,225	1,908	1,626
Fancy	289	287.05	105	26.28	394	313.33	.795	1,639	704	541
Rome Beauty										
Extra Fancy	13,536	10,509.62	6,743	3,519.63	20,279	14,029.25	.692	62,096	22,137	19,680
Fancy	3,132	1,544.73	2,221	796.88	5,353	2,341.61	.437	14,621	2,708	6,560
Slayman Winesap										
Extra Fancy	18,842	9,898.09	13,179	4,368.53	32,021	14,266.62	.445	53,254	11,387	9,846
Fancy	2,897	1,135.54	2,090	494.06	4,987	1,629.60	.326	8,936	2,308	1,641
Spitzenberg										
Extra Fancy	14,576	14,423.50	4,527	3,528.19	19,103	17,951.69	.94	43,910	11,660	13,147
Fancy	1,546	1,196.28	490	311.80	2,036	1,508.08	.74	4,673	996	1,641
White Winter Pearmain										
Extra Fancy	3,519	3,166.39	1,911	895.11	5,430	4,061.50	.75	16,529	5,552	5,547
Fancy	7	2.28	2	.99	9	3.27	.36	17	8	.....
Winter Banana										
Extra Fancy	1,873	2,692.03	6	4.49	1,879	2,696.52	1.435	2,164	285	.....
Fancy	454	533.21	.....	.....	454	533.21	1.174	538	84	.....
Winesap										
Extra Fancy	13,785	17,086.60	1,589	876.86	15,374	17,963.46	1.168	82,768	29,833	37,561
Fancy	3,503	3,711.51	196	57.44	3,699	3,768.95	1.01	16,334	5,125	7,510
Yellow Newtown Pippin										
Extra Fancy	2,733	2,569.28	1,504	860.10	4,237	3,429.38	.809	10,991	3,839	2,915
Fancy	71	47.86	.....	.....	71	47.86	.673	432	361	.....
Totals	180,211	$144,470.35	61,542	$25,357.26	241,753	$169,827.61	$0.702	618,428	187,476	189,199
Mixed varieties										
Extra Fancy	19,731	$10,578.38	3,922	$1,233.96	23,653	$11,812.34	$0.50	46,343	17,153	5,537
Fancy	4,013	1,798.50	942	248.24	4,955	2,046.74	.413	10,323	2,602	2,766
Totals	23,744	$12,376.88	4,864	$1,482.20	28,608	$13,859.08	$0.484	56,666	19,755	8,303
All varieties										
C Grade	102,294	$43,567.04	43,549	$6,383.95	145,843	$49,950.99	$0.342	228,831	64,469	18,519

RECAPITULATION

Fifteen varieties										
Extra Fancy and Fancy	180,211	$144,470.35	61,542	$25,357.26	241,753	$169,827.61	$0.702	618,428	187,476	189,199
Mixed varieties										
Extra Fancy and Fancy	23,744	12,376.88	4,864	1,482.20	28,608	13,859.08	.484	56,666	19,755	8,303
All varieties										
C Grade	102,294	43,567.04	43,549	6,383.95	145,843	49,950.99	.342	228,831	64,469	18,519
Grand totals	306,249	$200,414.27	109,955	$33,223.41	416,204	$233,637.68	$0.56	903,925	271,700	216,021

Relations of the Government to Agriculture and Railroads

B. F. Yoakum, New York, Chairman Board of Directors Frisco Lines, before First National Conference on Marketing and Farm Credits, Chicago

THE two biggest factors in America's growth have been agriculture and transportation. These have laid the foundation which has made this the greatest and most powerful nation of the world. The government cannot abandon its regulation over the railroads. Such a course would be unwise; but now that their regulation is in the hands of the government a policy should be adopted that will offer a fair return to the railroads and the facilities which they must furnish to properly take care of the freight and passenger business which they are charged with handling.

Let us look at the relations of the government, agriculture and the railroads from another viewpoint. Since 1905 our population has increased sixteen per cent. The value of the farm products of 1912 was fifty-one per cent more than in 1905, while railroad construction was forty per cent less. During President McKinley's term and the two following republican administrations the average of new railroad construction was 5,000 miles a year until the last two years of President Taft's administration. There are now not over 1,000 miles of new railroads under construction. On June 30 last, it is officially stated by Mr. J. L. Payne, comptroller of statistics, that there were 10,000 miles of new railroads under construction in the Dominion of Canada. This makes our 1,000 miles spread over our vast territory look insignificant.

The country west of the Mississippi River is rapidly becoming the producing territory of our agricultural products and is more in need of additional railroads and suffering greater from a lack of transoprtation facilities than the country east of the river. It would require the construction of 165,000 miles of additional railroad to furnish the same transportation facilities west of the river as there are east of it, on the basis of area. That great area of rich country cannot grow as it should on 1,000 miles per annum of newly-built railroads. Our public men as a rule have not yet realized what confronts us in the way of agricultural development. Their time has been taken up with other matters. The production of farm food supply and its movement from the farm to the market and its relations to the consumer require the same scientific and intelligent consideration as do raw materials to the manufacturer and its relations to the consumer in readjusting our present tariff schedules.

I believe in the readjustment of the tariff, but the importance of the saving that can be made on field products compared with the saving by tariff reform is shown by the following: If congress should wipe out the entire tariff collected on every article that comes into this country from every place in the world, on last year's collections it would only amount to $326,000,000, while the waste which falls upon the farmers of the nation means an annual loss of over five times the entire amount collected by our custom house collectors on every article coming into this country, as is shown by the figures in Table I, on products which decay in the fields and waste under our loose system of distribution.

Two striking news items appeared in the morning papers of the twenty-fifth of last month. One stated that the income-tax problem was being considered at a conference by President Wilson and Hon. Oscar W. Underwood as to the best way to raise $100,000,000 through a tax on incomes. The same issue announced that the committee on markets of the National Housewives' League and Allied Consumers' Committee submitted to the mayor and board of estimate of New York a plan for a direct market system from farm to consumer which would increase the return to the farmers for their products and save the consumers in New York from $60,000,000 to $100,000,000 a year. Here we have the national administration working to solve the best way for raising an additional $100,000,000 annually to pay the already exorbitant and wasteful expenses of the government and a civic organization on the same day presenting better market plans to increase the farmers' profits and save the consumers from $60,000,000 to $100,000,000 annually in the City of New York alone by cutting out unnecessary waste that is nation wide, the importance of which has not as yet apparently impressed the federal authorities.

That a need for a better method of marketing farm products exists let us admit without argument. The important question for this conference to consider is to find a concrete, practical way to get direct and effective results. If a business firm owned a number of farms which produced 5,000 carloads of products annually which must seek a market in large consuming centers they would not ship these cars each day to different markets and trust to luck as to whether their products brought a good profit or whether they came out in debt for labor and freight charges. A firm engaging in such large farming operations would figure interest upon the land and money required in the expense of planting, cultivating and gathering their crops. Knowing that if perishable commodities were not promptly delivered at the market they would deteriorate within twenty-four hours to such an extent they would be reported in bad condition and sold for what they would bring, one of the first things such a firm would do would be to build warehouses and cold storage plants to enable them to hold their products and ship them as the market would take them at a profit. Such a firm would also have a manager who understood the warehouse and cold storage business as well as commercial methods; one who understood where and how to sell to get the best market prices. Such a firm would know every day the stock of products on hand in every big market of the country and the prices that the different products were bringing in the different markets. They would not stop at this. They would arrange with reliable commission merchants at the different markets to handle their business on terms to be agreed upon. This is an illustration of what a business organization producing 5,000 carloads of products annually would do. The facts are that 5,000 carloads of vegetables are produced in the section of country between Houston and Brownsville, Texas, by 1,250 farmers. These 1,250 farmers are shipping over the country without much system and without warehouse and cold storage facilities to properly take care of and hold their fruits and vegetables. They have no warehouse of their own at the producing end nor agents at the consuming end, and thus place themselves at a disadvantage at both the point of origin and destination, contrary to all commercial rules and regulations. These farmers are forced to ship their products every day regardless of price or see them rot in the fields because they have no cold storage warehouses which would save their fruits, melons and vegetables.

When you consider that the City of New York alone receives 250,000 carloads of perishable products annually, you can form an idea of the great magnitude of this business in the United States, and also the enormous loss to the farmers under the existing methods of handling their business as against a business system which would insure to them a larger proportion of the price paid by the consuming public for their products. This business is now being conducted in a manner by which many thousands of cars are being dumped on congested markets, causing one of the greatest wastes of the age. In considering the question of profits of all who handle foodstuffs from the producer to the consumer a fair division of the profit should go to each interest in proportion to the service rendered. There are three important factors which enter into this question of waste and the proportion of profit which goes to each interest: First, the man who produces; second, the railroad which transports the products to the markets; third, the cost of selling and distributing after reaching the markets.

The federal government, in its annual report, tells us that the producer receives less than fifty cents for what the consumer pays one dollar. A carefully prepared estimate shows how the cost of foodstuffs is divided. On the basis of a $9,000,000,000 crop, it is estimated that one-third remains upon the

TABLE I

100,000 carloads of fruit and vegetables which rot on the ground from lack of shipping and storage facilities and knowledge of receptive markets, at $350 a car	$ 35,000,000
*Loss in corn stalks, rice, flax and other grain straw, now burned	250,000,000
Additional amount which the farmers should receive if by co-operation they knew when and where to sell their products to best advantage	1,500,000,000
Total	$1,785,000,000

*Professor Kennedy, of the Iowa State College, estimates the loss on corn stalks in Iowa alone at $50,000,000.

TABLE II

Received by the producers	$6,000,000,000	46.1%
Allow for reasonable selling expense, and dealers and retailers' profits	4,945,000,000	38.1%
Waste under existing market methods	1,560,000,000	12.0%
Received by the railroads	495,000,000	3.8%
Total	$13,000,000,000	

TABLE III

	Hours
Mechanics, working on plows, hoes, harvesters and reapers	3
Wagon and harness makers	3½
Railroad employes engaged in transporting products of the farm to market	2½
Farmers, based on farm values last year	10

farms. Therefore the following gives a pretty accurate distribution of the $13,000,000,000 which the consumers pay for $6,000,000,000 worth of products sold by the farmers (See Table II).

Through this analysis we can determine if the time has not come for congressmen to awaken to a neglected duty and aid in a readjustment of methods in marketing the foodstuffs produced by the American farmers and sold to the people.

The problem of distribution of farm products comes under three grand divisions: First, storing and packing at the shipping station; second, transportation facilities and freight charges to the market; third, selling and distributing at the market centers. They all have important relations to each other, and one cannot be given practical operation without consideration of the other two. We are now squarely up against the plain question of what is to be done. The problem is not as simple as increasing crops or livestock production. It is as complicated as it is immense in volume and calls for treatment different from what has ever been given in this country. From other countries we get some good suggestions as to what we should do, but our country is nearly as large as all Europe and conditions are so different that we cannot get as much help from across the sea in the way of business methods in marketing our crops as we do about soil, breeding and other lessons which we are learning from the older countries.

One of the large actual wastes is caused by decay of fruits and vegetables in the fields. To prevent this rotting on the farms when the food is needed in the cities the government, through a national market bureau, should encourage the construction of warehouses for holding perishable fruits and vegetables and for packing and shipping farm products. The government is now spending $16,000,000 a year and most of the states contribute large sums of public money in addition for the benefit of agriculture, to pay for experiment stations, to restore the soil, increase the yield, improve breeding and dairying, reclaim by drainage, study plant life, protect trees and many other kinds of excellent work. Inadequate marketing facilities and impossibility of distribution hurts every one of the above efforts. It is therefore the plain duty of the government to aid in pioneering work for better market conditions. Proper packing and shipping are as necessary as successful farming. It will probably be charged by some of our congressmen that such educational work will be expensive. It certainly will be, but it is worth the money. This winter cabbages were rotting in Texas because farmers could not get five dollars a ton for them and at the same time hungry people in cities were willing to pay at the rate of fifty dollars per ton. Apple eating is going out of style because orchardists cannot get fruit to the flat dwellers and poorer people at prices they can afford to pay. The government pays large sums of money to show how to spray apple trees. It should pay something to show how to market the apples.

A representative of a truck growers' association recently wrote a letter to me from which the following extracts are taken: "At shipping stations of sufficient importance there should be a real packing house with a warehouse for storing and packing the products. Then the association would be able to say to the farmers, 'Bring your produce to the warehouse in bulk and the association will do the packing and shipping.' The farmers would undertake to build these warehouses and begin it tomorrow but for one obstacle—lack of funds. The farmers have not the funds. They recognize the necessity, but have no means of meeting the issue." The manager of this truck growers' association wants to find a way to provide $50,000, as he puts it, not for any individual or selfish interest but to help the farmers to properly equip themselves for storing, packing and shipping their products in the most merchantable way. Under such conditions they would be able to change their farming operations from a doubtful business to one of profit. This is only one illustration of hundreds throughout the country.

The average farmer does not receive enough net return from his capital and the labor of himself and his family in raising his crops. After allowing for taxes, insurance, rents, interest on investment or farm mortgage, wages of hired labor, feed for animals, fertilizer, repairs to buildings, fences, wagons, harness and tools, horse shoeing and all other like expenses, figures carefully prepared for me show that the average net return for each one of the 6,500,000 farms in the United States is less than $700 a year, or less than two dollars a day per farm. This means that the average farmer has less than two dollars a day with which to support himself and family, an average of four and one-half people. Less than $700 a year to provide for clothing, food, sickness, life insurance, church, charities, travel and pleasures for a whole family. Food is included as a part of the expense, for although much of it comes off the farm nevertheless it has a certain farm value and reperesents the money into which it could be turned if not used to support himself and family, and should, therefore, be included in the farm cost of living. While gross returns from farms have increased during the past few years expenses have also increased, so that farmers are obliged today to pay from thirty-five to one hundred per cent more for their clothing, implements and tools, wagons, harness, etc., than they were twenty years ago. During the same time hired farm labor has gone up over fifty per cent in cost. When we consider that there is an average of two workers on each farm, aside from hired labor, and that the average net earnings per day of each of these two is less than one dollar, it needs no further argument to prove that the farmer is not getting a reasonable net return for his investment and labor, and that it is a business not calculated to attract others to engage in it or to keep sons and daughters of farmers on the farm.

As I understand it, this conference is for the purpose of analyzing and getting at the facts as to where the farmers of this country stand in relation to earning power made from the profits of the farm, which we will compare with the earnings of others employed in other lines of business; the business of the farmer is much more hazardous and risky, as he must take chances on all kinds of weather, storms, and disasters that often wipe out his entire year's earnings. Let us consult the government reports for a moment and see how many hours those engaged in different occupations work to earn one dollar. (See Table III.)

To make this clearer, the mechanic who works in factories making the plows, hoes, harvesters and other implements which the farmers use, to earn one dollar, works three hours. The automobile, wagon and harness maker for the farmers' use works three and one-half hours. The railroad employe who runs the trains which haul the products of these farmers to market works two and one-half hours to earn one dollar. The farmer, who does all the work of producing, takes all the risk of drouth and other hazards that go with farming, works ten hours to earn one dollar. Is such a division of the product of labor fair? Have the men whom these 6,500,000 farm owners elected to represent them in Congress and State Legislatures given them due consideration?

The railroads are an important factor in this question, and there is nothing to be gained, but a lot to be lost, by grinding the railroads to a point where they cannot make sufficient money to do their share towards cutting out the farm waste. The better the railroads are, the more expeditiously they can haul the business, but they must have the money to put their roads in proper condition for safe and economical operation. Vegetables cannot be hauled in coal cars and fruit cannot be transported in cattle cars. The vegetable and fruit business must have the best up-to-date cars to handle the business from the farms to the markets in the best condition. The railroads want to do their share in providing economical and extensive means of handling food to the different markets of the different cities, but the cost of doing these things and many others not enumerated is very large and will call for hundreds of millions of dollars. As things now stand, the railroads are unable to do as much as they would like to do. The reason they cannot do this is that they cannot find the money to pay for additional facilities and aid in many ways to build up the agricultural interests.

On most all big economic questions, the public jumps at conclusions rapidly. In many cases it acquires only a superficial knowledge, rather than an intelligent understanding of subjects under consideration. Many have talked and written of the disadvantages that American farmers have in financing their requirements, as compared with the farmers of other countries, which to a large extent is true. Under foreign co-operative organizations, farmers of the different communities place their lands and property back of their credit for the benefit of the different individual members of such societies. Such a system probably never will be as successfully accomplished in this country as it is in the older countries. Economic students of this question tell us that we should study methods of other countries in respect to the subject of financing the farmer. The fact is that we should improve upon them, especially those initiated seventy-five years ago.

Of the foreign institutions which make loans on land and land mortgages the Credit Foncier la France has done much good and been very successful. This is a semi-governmental institution organized in 1852 with a capital of $2,000,000, since increased to $40,000,000. The governor and two sub-governors of the Credit Foncier are appointed for life by the President of France, and three of its directors must be officers of the Treasury Department of France. The remaining twenty members of the board of directors are elected by the stockholders. The Credit Foncier has outstanding debentures amounting to $1,500,000,000 and its 3 per cent debentures are selling in Paris at 96 per cent of their par value. Recently they made a public offering of a loan of $100,000,000, which was many times oversubscribed. In Germany there is an institution—the Landschaften—which loans the farmers of Germany on favorable terms, and which has been very successful in aiding the farming industry of that nation.

In my study of this and kindred questions in connection with agricultural development I have talked with many people in the West and in the East, and there is a general consensus of opinion that the formation of a company to operate under a federal government charter authorized to engage in agricultural development would be a move in the right direction and would form the basis for building up an institution which would be vastly beneficial in aiding the farmers in getting their money at better rates of interest and for long periods. The farmer's difficulty is not altogether in the fact that he must pay from 6 to 10 per cent for his money, but also that he must renew his loans every six or twelve months, burdening him with an additional expense through lawyers' fees for examination of titles, discounts, etc., all of which, however, he can usually meet except when drouths and other unavoidable disasters cause a loss of crops, which frequently occur and force many small farmers into bankruptcy through which they lose their homes, and, becoming discouraged, give up farming and seek other employment.

An institution in a general way similar to the Credit Foncier could be organized in this country under a federal charter. It could be made semi-governmental in character, with the Secretary of the Treasury, the Secretary of Agriculture and two other government representatives as members of the board of directors. It could be made a stock company of $50,000,000 capital, $5,000,000 to be sold at not less than par, with an additional amount not exceeding $5,000,000 to be issued in any one year, as approved by the board of directors, consisting of the above-mentioned government representatives and others selected by the stockholders. It could also be authorized to transact business in foreign countries to get the benefit of a world market for its securities. Under such a charter, branch organizations in different states could be authorized where the state laws did not conflict with the policy of the parent charter; the board of such state organizations could be represented by a board of directors, the Governor and such other state officials as might be deemed best. A thorough organization to ascertain values of property offered for loans would be an important part of the plan.

The objects of the company should be to loan money on mortgages not exceeding in any case 50 per cent of the ascertained value, in amounts to be repaid either in installments or long terms; to purchase and sell land mortgages, bonds or land debentures, with authority to loan produce growers' co-operative associations where properly organized and incorporated under the laws of any state or states giving safe protection to lenders. Such loans to farmers' associations should be confined to warehouses, elevators and cold storage plants, all of which should be constructed under rules and specifications approved by the federal company. The loan in no event should exceed 50 per cent of the actual cost of the property, which should be located on land owned by the agricultural association applying for the loan, or on land under lease for a long term of years owned by or adjacent to a railroad, where track facilities could be had to expedite the movement of products to and from such warehouses. Loans should be made only on such warehouses, elevators or cold storage plants as conformed to the requirements of the banking laws in the issuance of negotiable warehouse receipts, either in the forwarding warehouses, elevators or cold storage plants, or warehouses constructed at market centers from which distribution of the products were to be made.

In going to the public and to Washington, it should be made clear that you are not asking the government for funds to build up agricultural credit, but only for its friendly co-operative interest in building up a financial institution which will, with proper security, enable those engaged in farming to find money at lower rates for a long period on installment payments. Nor should your action be antagonistic to present banking methods, banking interests or any national monetary system that may hereafter be adopted. You have the friendship of those now engaged in banking business. They can and will help in any work that means more to the producing class. In fact, you should go with well developed, concrete plans specifically stating what is wanted to accomplish definie results in the interest of better farm credit and market facilities. Otherwise it will result in a repetition of what the farmers have had for the last twenty years, which consists of a long string of talk from public men telling them of their unfortunate plight as tillers of the soil, and of their sufferings under the grinding monopolies of the country, and all such rot that has been successful in getting the farming vote, but which has never added a dollar to the bank account of the farmers. They have received lots of "advice" for their political support, but what they need and should have is substantial aid, something that means more real cash.

Editor Better Fruit:

I am glad to say that I find "Better Fruit" just as many of the other men have found it—a mighty valuable copy—and am delighted to know that the April and May numbers will also contain information upon the marketing of fruit. Very truly yours, W. S. Thornber, chief horticulturist, Lewiston, Idaho.

Editor Better Fruit:

Enclosed find one dollar bill to pay my subscription for a year, as I believe it is due. I cannot get along without it, as I am intensely interested in the production and marketing of the Northwest apple crop. You are certainly giving your readers a fine view of the situation and its requirements. Very truly yours, B. A. Miller, Newtown, Iowa.

Editor Better Fruit:

I have been a subscriber for your magazine for three years, and I consider it the best magazine of its kind I have ever seen and never fail to recommend it whenever I am asked to recommend a fruit journal. I am having your magazine bound in volume form. Yours truly, Chas. A. Short, Bellingham, Washington.

The Rosy Apple Aphis (Aphis Sorbi, Kalt) Serious Pest

By H. F. Wilson, of Oregon Agricultural College Experiment Station, Corvallis

OF all the plant lice attacking fruit trees in Oregon at the present time the rosy apple aphis is by far the most serious pest. A native of Europe, this insect, probably imported into North America on nursery stock, has sprcad to most of the apple-growing sections of the United States. No orchard section of Oregon appears to be free from its ravages, although some sections scem to suffer more than others. The various forms which this species assumes during a season has occasioned no less than four common names which are used in different sections of the Northwest. Each of the stages are so different in color and general appearance that they might each be designated as a different species by the fruitgrower. In the early spring we have the greenish-blue stem-mothers covered with white powder; following these we have the pink forms which begin to occur about June 1. These are the pupae, and later change to the brownish or black so-called spring migrants. In the late fall we have the whitish egg-laying or oviparous females. These continue on the trees until killed by the late frosts, usually in the latter part of November. This pest has the disagreeable habit of attacking only the leaves surrounding a fruit cluster, except in years when the crop is light, when they may be found almost anywhere on the leaves.

Since under normal conditions the fruit itself is not attacked, the layman fails to associate the aphis with the small, gnarled, gall apples which appcar as a result of their work in the fall at picking season. We do not know just why the apples become deformed, but apparently the juices which would naturally go to produce growth in the fruit are drawn into the leaves and absorbed by the aphids. In extreme cases, when the leaves are caused to become curled and more or less functionless, the juices fail to extend themselves except in a limited way; hence, even after the lice have left for the summer, the fruit fails to receive a sufficient food supply. In an orchard where the aphis has been bad during the early growing season many gall apples will be found hanging on the trees long after the leaves have fallen. These gall apples vary in size according to the amount of injury, from as large as hazelnuts to nearly full-grown apples. The injury to the fruit, no matter how little, is so definite that it is apparent on fully matured apples which have belonged to a cluster on which a half-dozen aphis have worked on a single leaf. The injury will be on that side of the apple next to the infcsted leaf. This injury, when slight, is found on the crown of the calyx and will appear as small depressions barely discernible to one familiar with any certain variety of fruit. This louse seldom attacks the young growing shoots, as in the case of the green apple aphis, but we have noticed that when all the leavcs of a certain terminal shoot are covered the lice will gradually work down the shoot until many hundreds of individuals will be found working along the new growth. The entire life history of this insect has not been worked out, although for two seasons an cffort has been made to do so. We are working on this pest in the interest of the fruitgrower, however, and probably would not be benefited by any additional information.

This louse spends the winter in the egg stage and the little dark-green stem-mothers hatch out just as the buds begin to open in the spring. In 1911 this was about the first of March. In 1912 the first young stem-mothers were observed February 22. They cluster on the green tissue of the opening buds and gradually work down among the leaves as they open out. At first they arc hard to find, but as the buds open and they increase in size they can be very easily located. The number present in a single bud may vary from one to twenty-six, with an average of less than ten. By April 15 of an average season the colonies are well established on the under side of the leaves, and the leaves have become so curled as to make spraying unprofitable. About June 1 a pinkish or salmon-colored form appears. Thesc are all pupae and produce the brown migratory females, which soon after maturing disappear from the apple and probably locate on some one or more unknown plants, where the summer generations are produced. Beforc the final molt, in which the pupae change to the adult form, many pupae migrate from the leaves, and crawling down to the larger limbs and the trunk, collcct under the loose bark. They remain there for a few days, molt and as soon as their wings have hardened leave. There seems to be no apparent reason for this unless it is to get away from the various enemies which attack them on the leaves. Most of the migrants have disappcared by July 5 and do not appear on the apple again until latc September. At that time scattered individuals of the fall migrant form begin to appear on the under side of the leaves, and more and more appear during the month of October, so that by November 1 they are quite abundant. They continue on the leavcs, apparently feeding, but not producing young, until late October, when numerous little light-colored objects begin to appear in the vicinity of the migratory forms. These develop later into the whitish egg-laying females, and November 1, 1911, a few mature forms were found depositing eggs about the buds on young shoots. No males could be found at that time, although a few must have been present. Specimens collected on November 8 proved to be migratory females, males and egg-laying females. Evidence is not yet conclusive, but the sudden appearance of the males without the previous appearance of pupae would indicate that the males are migratory and are produced on the summer host plant. The eggs of this species are not nearly as abundant as thosc of the green apple aphis, are more scattered and are usually deposited on the older growth. When first deposited they are light green in color, but soon change to a shining black. They are deposited mostly about the buds; occasionally one may be deposited on the open bark.

During the spring of 1911 a series of experiments were carried on for the control of the brown apple aphis, in which lime-sulphur, "Black-Leaf 40" and lime-sulphur and "Black-Leaf 40" in combination were used. All three of these sprays were applied at two different datcs in order to find the most suitable time for the best results. The first application was made in March, and at that time the leaf buds were just opening. The second set of sprays were made April 25, at the time of the first scab spray. The fruit buds were just showing pink, the leaves were nearly all out and many were already curled by the plant lice. Several rows were used for each experiment and the results obtained were quite conclusive. The "Black-Leaf 40" and combined spray of lime-sulphur and "Black-Leaf 40" were equally efficient. The lime-sulphur alone failed to have any effect on the aphids. The lime-sulphur was uscd winter strength (1-10). In the case of this insect, spray applicd after the leaves have curled is almost worthless owing to the fact that the leaves arc so tightly curled that the spray cannot be made to penetrate to where the lice are feeding. Spray thoroughly applied at the time when the buds are just opening will prevent 95 to 100 per cent of aphis infestation.

The sprays in common use against plant lice at the present time may be placed under four common heads. These arc, in order of importance, tobacco sprays, emulsified oil sprays, soap sprays and lime-sulphur. Thc tobacco sprays are more commonly used than the others and are generally more effective. "Black-Leaf 40," a commercial spray manufactured by the Kentucky Tobacco Products Company, Louisvile, Kentucky, has been found quite satisfactory alone and in combination with lime-sulphur. Directions for use are usually given on the containing vessels. When combining with lime-sulphur, first dilute the lime-sulphur to the required strength and then add the "Black-Leaf 40" at the rate of one part to 800 or 900 parts of the diluted solution. The proper time for the use of the combined spray in the case of trees which produce blossoms prior to the opening of the leaf buds is in the spring just as the buds are opening. Trees upon which the leaf buds open first may be sprayed to advantage

New Brick and Concrete Warehouse of the Portland Seed Company
This substantial and commodious five-story building, constructed of brick and concrete, is the new warehouse of the Portland Seed Company of Portland. It has been erected to facilitate the handling of their Diamond Quality reeleaned seeds and other stocks that are ready for distribution. The creetion of this building marks a mile-stone in the progress of agriculture in the Northwest and we are making special mention of it because it is an evidence of the growing demand for seeds for the farm and garden and a tribute to the untiring efforts of this well-known house to give a "square deal." It is houses of this kind, of which we have an abundanec in this Northwest, whieh are going a long way to hoost this part of the couniry, and we congratulate the Portland Seed Company on its steady growth.

just after the leaves are out. When it is desirable to use the "Black-Leaf 40" without the lime-sulphur the addition of a small amount of soap will aid the spray in spreading over the leaves. Our experiments with the combined spray, when used against the San Jose scale and moss, show that the scales die sooner than in the case of lime-sulphur alone and the moss dies just as quickly. After the leaves come out, and it is not desirable to use a combined spray, the "Black-Leaf 40" is effective against all kinds of aphis, and on all plants if it can be made to reach them. Where the leaves are badly curled the spray should be applied with great force in order to force it into the folds where the plant lice are working.

Emulsified oil spray consists of oils emulsified with soap, the most common one being made from kerosene. Kerosene emulsion is usually prepared as a stock solution and then diluted to the required strength for spraying. The necessary materials are as follows: Hard soap one-half pound, water one gallon and kerosene two gallons. The soap should be dissolved in boiling water, and when thoroughly dissolved the containing vessel should be removed from the fire and the kerosene added. The mixture should then be thoroughly agitated until it is creamy-white. This is best done by a hand pump, forcing the mixture through the hose and back into the container. This then forms three gallons of stock solution which can be diluted to the required strength by adding given amounts of water. To get the amount for any given percentage divide the percentage into two hundred and then subtract three from the answer, and we have the amount of water necessary to add to each three gallons of stock solution for that per cent. Example: We desire a 15 per cent solution. 200÷15=13⅓—3=10⅓ gallons of water to be added to three gallons of stock solution to get a 15 per cent solution.

Soap sprays are made from several kinds of commercial soaps, some of which are especially prepared. Whale-oil soap is generally used, and in combination with quassia chips makes a splendid spray for use against the hop louse. Alone, if thoroughly applied at the rate of one pound to six or seven gallons of water, it is quite effective.

Lime-sulphur as an aphis destroyer has, with us, given very poor results, both with the eggs and with the lice. Lice just hatching from the eggs can sometimes be destroyed, but we have observed that although most of the over-winter eggs are destroyed there are enough left to cause a serious infestation in the spring. Adults treated with concentrated and diluted lime-sulphur in most cases fail to show any ill effects whatever. In the case of the woolly aphis of the apple, laboratory experiments have gone to show that ordinary applications of lime-sulphur will not kill it in any stage. On the other hand, orchards that receive one or more thorough application of lime-sulphur are not as badly infested above ground as the unsprayed trees. This seems to indicate that the lime-sulphur is more or less beneficial.

General Recommendations.—To destroy stem-mothers in the spring spray just as the buds are opening with lime-sulphur (1-10) plus "Black-Leaf 40" (1-900), or "Black-Leaf 40" (1-900), or kerosene emulsion 15 per cent solution, or whale-oil soap two pounds to four gallons of water if none of the other sprays can be secured. This applies to all fruit trees and bush fruits. To destroy the lice after the foliage is out spray with "Black-Leaf 40" (1-900) plus one pound of soap to each 100 gallons of spray, or kerosene emulsion 15 per cent solution, or whale-oil soap two pounds to four gallons of water.

Editor Better Fruit:
Your publication is the best of its kind that I have ever read. Respectfully yours, J. F. Care, Bolivar, New York.

Editor Better Fruit:
I consider your paper valuable enough to have bound and indexed and wish to have the current years of 1911-12. Yours truly, Fred A. Record, Weiser, Idaho.

Editor Better Fruit:
Please send "Better Fruit." Would not do without it for ten times the money. Let the good work go on. I am thankfully your reader, M. Schwartzwalder, Point Pleasant, West Virginia.

Coming Features

By R. E. Olds, Designer

From this time on, when you buy a car, these are things to watch for:

Left-side drive—

Center control—

Oversize tires—

Set-in dash lights—

Free entrance in front—

Right-side drive has been abandoned by the leading cars. Hereafter drivers will sit close to the cars they pass.

Skimpy tires are out-of-date. So are projecting side lamps. So is a blocked front door. These features are absent in the best cars now. They'll be absent in all cars soon.

Reo Rod Control

Note that Reo the Fifth has all these new features. And our center control is a one-rod control—an exclusive Reo feature.

All the gear-shifting is done by moving this rod three inches in each of four directions. It's as simple as moving the spark lever.

There are no levers, side or center. Both brakes are operated by foot pedals. So the driver's entrance on either side is clear. He need never dismount in the street.

When you see these features you'll not want a car without them.

Other Advances

Then the Reo marks the latest practice in some other great respects:

Analyzed steel—
Vast overcapacity—
15 roller bearings—
190 drop forgings—
A $75 magneto—
Doubly-heated carburetor—

Roller bearings cost five times what common bearings cost, but they do not break. Drop forgings cost twice as much as steel castings, but they don't have flaws.

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But we save this for you by building only one model. That saves about 20 per cent.

And these things are essential in a car that endures. A car without them may run well for a while, but the second season repairs and troubles come.

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In the years to come you'll save hundreds of dollars by having a car built like this.

Sold by 1,000 dealers. Showrooms almost everywhere. Catalog on request.

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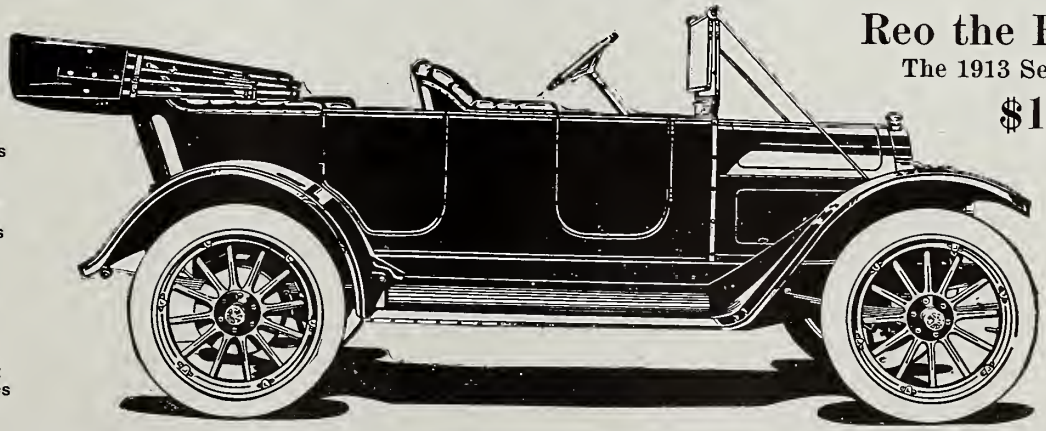

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(203)

The Carton Convenient for Cherries

By Marcus Brower, San Francisco, California

DOWN in Santa Clara Valley there lives a man, Mr. J. H. McGegee, who has a hobby in the money-value of marketing fruit in attractive packages. Being a practical orchardist, he saw with clear vision the coming of the time when "package" goods would be "the thing" and not the exception. As far back as 1900 he began to evolve in his mind various methods to accomplish this result, so that packages could be applied to various kinds of fruit. It seemed to him that if orchardists could be supplied with inexpensive cartons and educated to select the best in their crop for use in the cartons, carefully pack it and use ordinary care in selecting only active markets, the returns obtained would be far in excess of any received for fruit sold in the usual way. The first and most successful package tried and the one described in this article was the cherry carton. This little contrivance, made in one piece without glue or staples, folds easily, so that eight of them fit in the usual wooden cherry box. They are placed in the box bottom up, so that the cherries can be placed ("faced," it is called) in even rows in the top of the box. Layer upon layer is put in until the carton is full and the fasteners drawn together. Care must be taken that the box is full, as any attempt to skimp will be sure to produce a sag as the crates travel in the cars.

Before using the box extensively, the privilege was given to one of the prominent growers of Santa Clara Valley to use the box exclusively, and he in turn showed his appreciation by doing all in his power to assist in perfecting the carton for the purpose intended. It had to be well ventilated, it must have no edges to cut or bruise the fruit, and it had to be made of sufficient elasticity so that the cherries would form a cushion of themselves to keep the "facing" from sagging or the cherries from shaking about, both of which are fatal to high prices. This fruit grower was afraid that his packers would complain, but it was not long before they came to prefer to pack in the cartons. They found it a quicker method, an item to a piece-worker. At first it seemed that if layers of cherries were "faced" in the carton the rest of the box could be filled in with loose cherries, but it did not take long to see that a "solid" pack brought the most money. By a "solid" pack is meant "facing" clear through from top to bottom, layer upon layer.

After the box had been put on the market, many growers who used them had the idea that it was the box that was selling the fruit, and so used it to hide inferior fruit, some even going so far as to put good fruit in the facing and poor fruit in the bottom. But such methods brought quick and disastrous results. Such shippers received very low prices, while others, more honest and farsighted, found to their satisfaction that their care and attention to attractiveness brought very much higher prices than cherries packed in the ordinary ten-pound wooden box. A careful record was kept and it was almost invariably the case that the cartons brought more money—in the same car and the same day; prices in some extreme cases going as high as $1 more per box. Be it said at this point that fruit growers of all classes must be taught to curb the desire to rid themselves of poor fruit on the dear public. They must cull it, and the carefully selected stock will repay for the trouble in more money for everybody, and this will apply to any kind of fruit.

The cherry carton has been well tried in California for several years. The Eastern buyer has the satisfaction of knowing that his fruit comes direct from the orchard and is not rehandled several times. Another advantage which might be mentioned is that when a cherry is bruised in a box of cartons, the damaged carton can be taken out and a good one put in, thus saving the whole ten-pound box; whereas it was the custom to sell the whole ten pounds as damaged, and even the whole shipment was judged by the mashed cherries sometimes. The commission merchant who gets a shipment of cartons can easily avoid any such trouble by taking out the damaged cartons here and there. Besides it has been thoroughly demonstrated that not only will cherries carry better in cartons, but there is much less liability of bruising or mashing them when shipped in this way. The cherry growers of the Northwest will do well to give this clever device a thorough trial.

Editor Better Fruit:
I certainly appreciate your magazine very much and it is worthy a place in every home that is interested in the growing and development of better fruit. Wishing you the best success, John R. Hill, De Moines, Iowa.

Editor Better Fruit:
Just read your article in "Better Fruit." It is splendid—the best I have ever read on the subject. Every fruitgrower, big and little, in the Northwest ought to read it and read it carefully. G. M. Brosfield, Tacoma, Washington.

Editor Better Fruit:
I cannot afford to be without "Better Fruit," which I found to be very helpful to me. My compliments for your helpful and up-to-date publication. Yours truly, Elzear Montreuil B. Agr, Les Saules, Quebec.

WHEN WRITING ADVERTISERS MENTION BETTER FRUIT

Pure Cultures for Vinegar Making

By Walter G. Sackett, Bacteriologist Colorado Experiment Station, Fort Collins

DRIVING through the fruit-growing sections of Colorado one cannot fail to be impressed with the quantities of peaches and apples which go to waste annually, and more particularly during a season when prices are low owing to lack of demand. Such a practice would be condemned, most certainly, by any commercial firm, and rightfully so, as a most extravagant waste and far removed from any principle of scientific management. Talk to any captain of industry and he will invariably tell you that the largest profits in his business accrue from the complete utilization of the waste products. If this is true in other lines of commercial activity is it not equally true for the fruitgrower and farmer? It cannot be otherwise. With a comparatively small investment this refuse fruit could be turned into a marketable product—vinegar, for which we pay forty cents and more per gallon in the retail market, and even at that price we often obtain a very inferior article with no assurance of its being pure cider vinegar.

Successful vinegar making has come to be regarded by those who profess to know as being as much of an art as any of the fermentation industries, yet we continue to try to make vinegar at home by the same uncertain and unscientific methods that have been employed for hundreds of years. It is not at all uncommon to hear the complaint that certain cider will not make vinegar. This failure may be due to a variety of causes, such as unsuitable temperature, lack of sufficient sugar in the cider, vinegar diseases, dirty barrels, etc., but equally important, if not more important than any of these, is the absolute necessity of the presence of the proper micro-organisms to convert the cider into vinegar. This last factor in vinegar making is too often lost sight of and to it alone many failures are directly traceable. In producing cider vinegar of superior quality two distinct changes must take place in the sweet cider before vinegar is formed; first, the sugar must be converted into alcohol and carbon dioxide gas, resulting in the formation of hard cider; second, the alcohol formed in this manner must next be oxidized into acetic or vinegar acid. Both of these fermentations are accomplished by microscopic plants, the former by a yeast and the latter by an acetic-acid germ. Now, under conditions of successful vinegar manufacture these micro-organisms are either supplied by the air or they are added in a pure state by the vinegar maker in forms know as "pure cultures." It goes without saying that when we trust the air for these starters we are very apt to get many undesirable and even detrimental forms, which will result in low-grade vinegar of inferior quality and flavor. On the other hand, if pure cultures, which have been shown experimentally to be particularly adapted to vinegar making, are employed, a high-grade product of extra quality is practically assured, provided the other necessary precautions are taken.

The bacteriological laboratory of the Colorado Experiment Station is supplying pure cultures for vinegar making at fifty cents per set to those who care to give them a trial. Full printed directions for their use are included. No guarantee, either expressed or implied, goes with the cultures, since it is not the purpose of the experiment station to exploit these products, but rather to

distribute them at the cost of production for experimental purposes. Inasmuch as one of the cultures is to be added to the sweet cider they should be obtained a few days (not longer) before the cider is to be made. Requests for cultures should be addressed to the Bacteriological Laboratory of the Colorado Experiment Station, Ft. Colilns, Colorado, and should be accompanied by a remittance of fifty cents.

Apple Chops for Export

The following extract from a recent letter to the editor of "Better Fruit" from Mr. F. W. Manville of Boise, Idaho, will prove of interest: "In pursuance of our conversation at the Idaho horticultural meeting I would like to present a few facts with which I am familiar regarding "apple-chops." It might be of interest to you, in view of the opening of the Panama canal, that the Northwest orchardists might be able to take advantage of the information I gathered in Ontario last year regarding "apple-chops," enabling them to make economic disposal of their cull fruit so as to serve the double purpose of protecting our own markets and relieving us of the necessity of paying the excessive freight tariffs in shipping fancy and extra fancy apples. In Ontario, Canada, apple evaporators put out as by-products "apple-chops." It consists of cores and peelings from the evaporation, chopped to a more or less uniform size, about one-fourth inch cubes, evaporated, and transported in apple barrels. There are some slight classifications in grade, but the average price in carloads, f.o.b. Ontario points, is two and one-fourth cents per pound, and we were advised by one buyer that he bought eight carloads at one small point. He also advised me that the product was used on the continent, principally Germany, and that it was used as jelly stock. The freight tariff on barreled apples from Ontario points to continental seaports, consisting of both the rail and steamship rates, is about ninety cents per barrel; and in view of the readjustment of transportation tariffs imminent in the Northwest, due to the opening of the Celilo locks and the Panama canal, I feel sure that our poorer grade of apples can be turned to a good profit.

BETTER FRUIT

HOOD RIVER, OREGON

OFFICIAL ORGAN OF
THE NORTHWEST FRUIT GROWERS' ASSOCIATION
A MONTHLY ILLUSTRATED MAGAZINE
PUBLISHED IN THE INTEREST OF MODERN
FRUIT GROWING AND MARKETING
ALL COMMUNICATIONS SHOULD BE ADDRESSED AND
REMITTANCES MADE PAYABLE TO

Better Fruit Publishing Company

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In the United States, $1.00 per year in advance
Canada and foreign, including postage, $1.50
ADVERTISING RATES ON APPLICATION
Entered as second-class matter December 27, 1906, at the Postoffice at Hood River, Oregon, under Act of Congress of March 3, 1879.

Work Together.—Fruit growers have been sincere in their desire to boost their respective sections. This is perfectly proper. They should be. Every fruit grower should be loyal to his own section, but jealousy is not a good trait. Knocking is always injurious to all kinds of business, and hurts the other man's business perhaps almost as much as it hurts his own. Apparently fruit growers of the Northwest, and it may be said of the United States, have not realized this. It is right, good and proper to praise and even to boost the quality of fruit in every section, but it hurts the industry, and ultimately your own section, to knock other sections. The customer is told by the Westerner that Eastern apples are fit only for cider and vinegar. The Easterner tells the customer that Western apples are good to look at but no good to eat. Even some Eastern sections are putting out in their literature statements to the effect that people buy Western apples once, but never twice. Some districts are advertising Eastern apples as the "apple of flavor," and saying Western apples are not even fit for cooking, and only good to look at. There must be a greater movement, a broader movement for greater consumption and increased demand. No one section alone can accomplish this. It must be done through organization in large bodies. This line of work must be taken up by the entire United States. If a customer hears that Western apples are not good to eat and has been told by someone else that Eastern apples are only good for cooking, it will probahly result in his buying oranges, bananas or grape fruit, or at least it will have a strong effect in prejudicing him against the apple in general. This is bad. We want to make the apple popular with the consumer, as food and as a diet; in fact, the apple should be used as a staple article of food regularly, just the same as bread, meat and vegetables in season, instead of a luxury.

Any fruit grower in any section who will take pains to invcstigate will ascertain the truthfulness of these statements. "Better Fruit" believes in a policy of working in harmony for the good of the industry. A great many fruit growers in different fruit sections have failed to notice the hroad-minded ideas of "Better Fruit." Some people have an idea that "Better Fruit" is devoted to some particular section or that it is controlled hy a single locality. Such is not the case. "Better Fruit" is owned, edited and published exclusively by E. H. Shepard, who believes in the fruit industry and believes that all fruit growing sections should work in harmony. For the first two or three years after "Better Fruit" commenced publication it must be admitted that "Better Fruit," owing to its limited resources and for the further reason that the editor was at that time manager of the Hood River Associations, was unahle to cover the fruit industry in a general sort of way. For these reasons it was more or less local. It may be added that the advertising was comparatively limited, and naturally articles, illustrations, etc., were largely secured from localities near the home office. But during the last few years the editor has attended and addressed every horticultural meeting of importance in the Northwest, all of the apple shows and many of the institute meetings, forming a large acquaintance among growers of the Northwest. Consequently, during the last three or four years "Better Fruit" has been broad and absolutely general in the field it covers. Its articles have come from not only every section in the Northwest, but from many sections in the East. Its illustrations have represented many of the principal districts of the Northwest and quite a few of the East. Its cover pages during the last few years have been beautiful three-color plates representing nearly every prominent fruit section and nearly every feature of the business.

If any fruit grower who is broad-minded and liheral will take copies of "Better Fruit" produced in the last two or three years, sit down and look over the articles and illustrations, he cannot help but conclude that "Better Fruit" has represented nearly all districts. It is difficult to satisfy some people, and some fruit growers would not be satisfied with any publication unless practically the whole publication was devoted to their particular section, but the publishing business is a business just the same as any other. No publisher can receive sufficient support to put out a first-class paper except by being general. In order to publish a high quality paper like "Better Fruit" the publisher must have the support of all districts, therefore simply as a business proposition in order to be successful the publisher must be broad-minded and faithfully represent the interests of all fruit sections.

The editor has been in several kinds of business, having had ahout thirty years' experience in the mercantile business, and desires to say that the publishing business is about the hardest one he ever tackled. In fact, if the editor had known how difficult it was to build up "Better Fruit" to its present standard a twenty-mule team wouldn't have pulled him into the publishing business.

We helieve the fruit growers want a first-class paper, a paper with practical articles, a paper that is high class typographically, a paper that is clean editorially, in fact, a reliable paper that the fruit grower can depend on. We believe the fruit grower needs such a paper in his business, and we believe the enterprising fruit growers realize the value of such a paper in a publicity way. In accordance with this belief and in order to be entitled to universal support, we desire to assure our readers that every district and every feature of the business will receive our earnest attention. If we are correct in our assumption and the growers have confidence in our assertions, all we ask is that we have help and support from every fruit grower who believes in the prosperity of the fruit industry and wants to see it a success. If you will do your part we will do ours to the best of our ability.

The First National Conference on Marketing and Farm Conditions was held in Chicago April 8, 9 and 10. The idea originated with Colonel F. P. Holland, editor and puhlisher of one of the agricultural papers in Texas, and through his untiring work and ability arrangements were made and the speakers secured. This conference was the first meeting in behalf of social and financial welfare of a general nature for the farmer that has ever been held. The attendance was large, the meeting not only interesting, but enthusiastic, educational and instructive. Over one thousand delegates attended the conference. The press of the country have given the conference wide publicity. The addresses were principally by men connected with the Department of Agriculture, presidents of experiment stations and agricultural colleges, and prominent railway officials, bankers and many others who have for years given much time to various subjects of vital interest to the rural communities, or, in plain words, the farmers.

Elsewhere in this edition are published a few of the important treatises pertaining to the welfare of the farmer on subjects of marketing of farm products, the relation of the government, agriculture and railroads, waste in distribution, distribution of farm

products, and educational aids to the marketing of farm products. These treatises are so highly educational and instructive that "Better Fruit" considers it not only a mission but a duty to publish practically complete some of the more important ones pertaining to certain subjects. Every subscriber of "Better Fruit" should not only read every one of these articles carefully, but should study them thoroughly, because by so doing he can become intelligently informed as to the conditions which exist, which are and have been in the past more or less demoralizing in their effect on the success of the farmer. In addition it may be truthfully stated that the ideas and suggestions incorporated in these various articles are so valuable and practical for the betterment of the farmer's conditions that by possessing a knowledge of the same the farmer and the fruit grower will be able to take part in all local meetings that may be held in behalf of farm co-operation, better marketing and financing of the farmer and fruit grower.

Our Agricultural Colleges. — During the last few years the public, particularly that part residing in rural communities, is just beginning to appreciate the value of our agricultural colleges and the great work they have been doing, are doing and will continue to do. The last Legislature of Oregon passed an appropriation for the agricultural college in such a magnificent way that it indicated the great confidence it had in the ability of this institution to better our rural conditions. The work done by the University

of Wisconsin has perhaps commanded more national attention from the public in general than almost any other similar institution. The value of the work is indicated by the increased yield per acre in the State of Wisconsin. The agricultural college of Washington, located at Pullman, is one of the best institutions of the West and its excellent work is highly appreciated by the farmers and fruit growers of that state. Other states In the Northwest, like Idaho, Utah and Montana, are also doing work that is commanding great appreciation. Among other agricultural colleges that are doing splendid work may be mentioned New York, Missouri, Iowa, Illinois and Minnesota, and many other agricultural colleges with whose accomplishments we are not quite so familiar. Another new field worthy of consideration in connection with agricultural colleges, which we take the liberty of suggesting to all institutions, is the establishment of a research and investigation department on marketing for the farmer. It is with pleasure that we produce on the middle pages of this issue two large illustrations of the agricultural colleges in the States of Oregon and Washington, through their courtesy.

Looking After the By-Products

By Harry Beach, Eversham, England

HOW to better the fruit-growing industry has been discussed at length for some time past, so that an article on what can be done with the surplus fruit should be of great value to all those engaged therein. Although co-operation should be the first thought, it has been proved by one or two energetic fruit growers that fruit growing is not all. The late Mr. T. W. Beach, of London, England, himself a large fruit grower some forty years ago, seeing the waste, owing perhaps to an overloaded market, or fruit a little overripe for market, started boiling down fruit with sugar over coke fires, and finding the demand for these goods greater than he could supply, formed a company known as T. W. Beach & Sons, Limited. Each year the demand increased, until today the business is very large and a modern plant has been erected at Eversham, England, right in the heart of the fruit growing district of England (Vale of Eversham). Their famous jams are being largely exported to the United States, simply because the company uses nothing in the manufacture of its jams but pure fruit and sugar.

The process is a simple one, and why it cannot be adopted in this wonderful fruit growing country has often surprised the writer, who knows the fruit well and has succeeded in making a high class jam in British Columbia, Canada, where conditions are practically the same. Strawberries and raspberries, the softest of fruits, are gathered in the early morning, hulled, brought straight into the factory while the bloom is on the fruit. Jacketed pans of twenty-five gallons capacity are ready, with a plentiful supply of steam; the fruit is examined, sorted, and the bits of straw or poor fruit is picked out. Straightway the fruit is turned into these pans, along with the sugar and sufficient water to cook them and yet not mush them. Steam is immediately turned on and in less than fifteen minutes this combination of fruit and sugar has formed a lovely jam. The pans are then washed and another batch placed in, and so it goes on throughout the day, nothing being left over from one day to another. Cleanliness must be and is the first thing necessary to maintain a standard of quality and purity. From the pans the finished jam is emptied out into smaller ones and the contents cooled and afterwards filled into packages, and thus the process is complete.

To start such a business as this, the financial side of the business is rather a difficult one, a small plant turning out some 5,000 dozen five-pound cans, or about three tons, of jam a day in the season requiring a capital of $50,000, and this is about the smallest paying plant to have. Of course canning may also be carried on in the same factory at the same time, with very little if any more capital. A factory of this capacity would need to have a floor space of 200 by 100 feet. In large factories labor saving devices are added, such as machines for stalking currants, cutting the tops and tails off gooseberries, (the writer has not heard of a machine for picking strawberries yet), but these only pay where large quantities are to be handled quickly.

The writer regrets he is not nearly so well acquainted with United States fruit as with the Canadian, but in Western Canada no vegetables are grown to the extent of needing canneries, except perhaps tomatoes in certain sections. Rhubarb came to the factory the first week in June and kept the staff busy canning until strawberries came in for jam making about June 20, and by the time strawberries were nearly over raspberries, gooseberries, cherries, red and black currants, came in abundantly and kept the staff of from ten to twenty men and girls constantly employed, both canning and jam making, until plums and apples were ready. The canning of apples kept the factory going until late in the fall, then followed mince meat, which the writer found a great demand for, and after all the manufacturing was finished the staff was employed washing and cleaning the different packages, labeling and casing up.

The profits of the business rest entirely with the management, and the quality of goods that are manufactured must be of the very best. No trouble was experienced in disposing of all the jams and canned goods before the end of the year, and three times the output could have been sold, the demand was so great. The writer has always found that no matter what the price of the finished article is, if the quality is good it will sell. In these days of so much adulteration the public seek a pure article of food and never mind paying dearly for it if need be, and there is absolutely no need to use glucose, as so many manufacturers claim is necessary. It has never been used by Messrs. T. W. Beach & Sons, Limited, in their forty years of jam making, and this is a sure proof. The writer mentions this, not to advertise the firm mentioned, but simply to give it as an example, because so many people starting in this particular business feel they must make a cheap article and swell the profits, but it is a mistake, as it always proves, and examples could be given.

The prices paid per pound for the various fruits averaged as follows: Strawberries, 6½ cents; raspberries, 7 cents; red and white currants, 5½ cents; gooseberries, 5 cents; cherries, 5 cents. Apples brought prices according to the variety. Summer varieties, which travel so badly, were plentiful and cheap, but made beautiful jelly, while the fall and winter varieties were best for canning, and only those apples well matured, which perhaps might not be termed "third grade," but large fruit, having small blemishes that cut out in the skin when peeled, were used.

Bottled or preserved fruits in syrup is also a paying business and should be included as a side line, althongh the average American housewife generally puts up her own. There is nevertheless always a demand for well bottled fruits. The process is not altogether a simple one and requires years of practical experience to perfect it. The simplest way is to pack the fruit in the bottles when received; the sooner the better, as fruit deteriorates so quickly, and fill up the spaces left in the bottles with a thick syrup. This is the writer's way. Usually a pound of sugar to a pint of water is used, melting it by bringing it to nearly boiling point and allowing it to cool before pouring in the bottles and putting on the lids. The bottles are then placed in an open tank and kept at a certain temperature for a sufficient length of time to properly sterilize and cook them, after which they are taken out and allowed to cool. Hermetical sealing is necessary. The writer is unable in the space allowed to go into fuller details on the subject (books could be written on such process), but is willing to help all he can in giving advice to any fruit association or farmers' union contemplating starting up, and even went so far as to write a government official asking that an expert jam maker and canner be appointed to give advice to the farmers, help them to organize and set up factories, show them how to manufacture at a profit, etc., and received a reply saying "It was up to the farmers to help themselves and if they wanted such a man they must ask," and further stating that "the government would be only too pleased to do it if the farmers asked."

European Farm Finances

Hon. George Woodruff, President First National Bank, Joliet, Illinois, before Conference on Marketing and Farm Credits, Chicago

AGRICULTURAL credit in Europe is divided into two general subdivisions—first, mortgage and, second, personal credit. The institutions belonging to the first subdivision are of two classes, the first of which is best typified by The Credit Foncier de France and the second by The Landschaften of Germany. The institutions belonging to the second subdivision are of three classes, the first of which is best typified by any of the ordinary credit banks, the second by the Raiffeisen and Schulze-Delitzsch banks and the third by The Credit Agricole of France. There are, of course, in Europe numerous agricultural banks having characteristics somewhat different from those of the above mentioned institutions, but in the main the institutions included in the above outline constitute the real basis of agricultural credit organizations in Europe, and all other agricultural banks are very largely patterned after them.

The Credit Foncier de France, in addition to certain activities that are not strictly connected with agriculture, loans money on farm mortgages for long periods of time on an amortization basis. The chief advantage to the farmer is in the fact that he is allowed to pay off his loan by making small semi-annual payments, will never have to renew the mortgage, which will continue to run until the semi-annual payments have cleared the farm of debt; will never be compelled to pay any renewal commissions; will never have to go to the expense of bringing down his proof of title or having it examined every few years, as under our American system, and in addition will be largely relieved of any anxiety lest he fail to meet the mortgage when due, and consequently lose the farm. The Credit Foncier holds these mortgages as collateral for its debenture bonds, which it sells to the public and from the proceeds of which it obtains the funds to advance to the farmers. The Credit Foncier, while under the supervision of the government, is nevertheless a privately owned joint stock company and pays regular dividends on its capital stock. The rate of interest which is charged to the farmer is not as low as has sometimes been stated in America, where attention has been called to the fact that the Credit Foncier issues bonds bearing three per cent interest. The Credit Foncier three per cent rate is due to the fact that the bonds carry with them a lottery feature by which each bondholder has a chance to win a prize consisting of a large sum of money, but the cost of these prizes increases the actual cost of the bonds to The Credit Foncier from three per cent up to about four per cent, and the money is then loaned to the farmer at four and three-tenth per cent. Therefore the farmer does not get three-per-cent money, as is oftentimes stated.

The Landschaften banks of Germany loan money to farmers on much the same basis as that employed by The Credit Foncier of France, except that they do not make a practice of paying a farmer cash for his mortgage. They simply exchange their debenture bonds with the farmer for his mortgage and the farmer then sells the bonds himself. The Lanschaften are under the supervision of the government and are strictly co-operative organizations involving in many instances the unlimited liability of the members, and not being operated for a profit or paying dividends. Attention has been called in America to the fact that the Landschaften sometimes issue bonds bearing a rate of interest as low as three and one-half per cent, but in actual practice this Landschaften three and one-half per cent rate costs the farmer considerably more owing to the fact that the Landschaften do not pay the farmer in cash, but merely exchange their debentures for his mortgage and he is then compelled to sell the three and one-half per cent debentures below par. The money consequently costs him more than three and one-half per cent.

The ordinary form of credit bank is operated on much the same general plan as the ordinary commercial bank in America. It loans to farmers for fairly short terms on the same general conditions as in our country. These banks are privately owned joint stock institutions and would doubtless be able to do much toward financing the farmer for his needs were it not for the fact that the European banking methods have led to the present existence of but a comparatively small number of ordinary credit banks. These banks are usually large institutions, extending over a considerable territory, and are not small independent community banks as in the United States. The rate of interest charged by them follows to a considerable extent the ups and downs of the money market.

The Raiffeisen and Schulze-Delitzsch banks are small community institutions organized on the co-operative plan, and not operated for profit. The Raiffeisen banks operate more particularly in the country and are purely co-operative, while the Schulze-Delitzsch banks operate more particularly in urban communities and are a somewhat modified form of the purely co-operative type. These banks oftentimes have behind them the unlimited liability of all of their members, and they accept deposits, allowing interest thereon, and loan the money to their members for fairly short periods of time. Each one of the co-operatively owned local banks usually belongs to a co-operatively owned central association which exercises a control over the entire organization, acting as a sort of clearing house and central bank.

The rate of interest charged by these banks depends largely upon the rates of interest paid on savings deposits in each particular locality, for they must, of course, meet competition in order to get the business. While as a general thing they are not able to obtain funds at a cheaper rate than other institutions nevertheless they are able to loan these funds at a somewhat better rate than other institutions owing to the fact that their expenses are very light, their officers usually serving without salary, and due to the further important fact that they are co-operative organizations and are not operated for profits.

The Credit Agricole of France consists of a large number of co-operatively owned local banks which are affiliated with regional banks to which the government advances certain sums of money without interest. The regional banks, which are co-operative in character, lend this free money to the local banks at a low rate and they in turn loan to the farmer. These banks are not operated for the purpose of earning dividends, are in many cases safeguarded by the unlimited liability of their members and furnish the best European illustration of state-aided agricultural credit. Attention has been called in America to The Credit Agricole three and one-half per cent interest rate, and it is an actual fact that these banks really loan money to farmers at three and one-half per cent, but this is due to a government subsidy and would be looked upon as abnormal from the standpoint of Americans. The government has compelled The Bank of France to furnish it a large sum of money without interest, to be used for the advancement of agriculture, and as outlined in the above brief explanation of The Credit Agricole, the government loans this money to the branches or regional banks at three per cent and in some parts of France the local banks loan to the farmer at three and one-half per cent. This system is deplored by many leading bankers in France as tending to develop a false idea of the value of credit and is liable to discontinuance some time in the future. Furthermore, some of the individual banks of The Credit Agricole system occasionally exhaust all of the money that has been allotted to them by the government and in order to continue the extension of credit they are compelled to rediscount farmers' notes with The Bank of France, and as they are loaning to the farmers at three and one-half per cent and sometimes rediscounting with The Bank of France at a higher rate, it follows that the more business they do under such conditions the larger amount of money they lose, and this is an unreasonable and unsatisfactory foundation for any system of banking.

This, in condensed form, is the story of farm finance in Europe, and our people here in America cannot do a greater national service than to study carefully and push forward this great question of farm finance which concerns so directly the financing of the "back-to-the-soil" movement, which in its turn is fundamental and concerns vitally the future prosperity of our nation.

California Fruit Industry

By A. R. Kanaga, San Francisco, California

FULLY sixty per cent of the aggregate wealth of this state is based on fruit, and on nearly every valley farm or mountain ranch will be found an orchard or vineyard and in Northern California I find hundreds of acres in oranges. However, some of the counties are celebrated for their product in this line, and one of them is Solano County, where they have two districts that are known from one end of the state to the other. I refer to the Vacaville and Suisun—Fairfield districts. The yield that each district turns out is large, an annual crop so large that it fills the pockets of the growers with big rolls of bills, and to handle the season's pick they maintain large packing houses at Fairfield and Vacaville, and Solano County ranks third in the state in its cherries and fourth in almonds, though it is one of the lesser in territory compared to other counties, but in figs, prunes, apricots and peaches it ranks high. While figures are said to be dull I must quote a few. For instance, there were 1,357,911 bearing orchard fruit trees that produced 1,747,916 bushels; nut-bearing trees numbered 100,239, giving an annual product of 681,194 pounds; the almond trees numbered 98,270, producing 650,933 pounds; the bearing cherry trees numbered 53,923 and the bearing apricot trees 318,262. The grape product for the year amounted to 16,276,990 pounds. These figures were recently sent out by the Secretary of State but were compiled from estimates made in 1910, and at this date (1913) they have increased at the rate of one-fourth above the numbers just quoted. Very little of this fruit and vintage was grown on irrigated ground, and when considered as a dry-land yield the total is remarkable. In my opinion the orchards are too large for single holdings and ten farmers could live where one is now holding forth. I have noticed that in Colorado and Texas that when a fruitgrower cultivates twenty acres he does better work and thrives from a financial point, while this is not generally true of most men when they cover fifty to eighty acres.

Around Dixon I found the country devoted mostly to grain and stock, but when I looked at the fruit trees they were loaded, and even at this place they could equal any portion of the state in certain lines of fruit, but great changes will be made here in the next three or four years, as these big estates are now being cut up and the newcomers, with twenty to thirty acres, will give much of their time to valley fruits, and when it comes to the grape they can equal Lodi, or Nafa or Sonoma Counties in quality and quantity. Vacaville cherries are the first to reach California markets, due to the warm, protected climate of the foothills. When I stood on the hill that overlooked this fruit center it presented a picture of waves of purple with a foam of white blossoms above it and all was a sea of changing colors. In the Fairfield fruit district they also have a deep, rich loam that holds the moisture through all the long, dry California summers, and all about me showed evidences of wealth and prosperity and the fruitgrowers were contented and happy, so far as I could see, and they predict a good harvest for this coming summer.

I was interested in knowing something about the markets and on inquiry learned that the big packing houses at Fairfield and Vacaville ship their product to all parts of the world. You can find their labels on cans in South Africa, where it is a delicacy among the diamond traders, and in China it reaches the big English shipping houses, and it is then worked out so that it appears on the tables of the mandarins and English and American residents. In Austria it reaches the tables of the nobility and the crowned heads, and dukes have on countless occasions had the opportunity of passing favorable opinion on California fruits. But it is by no means confined to the aristocracy, for I saw some of their canned cherries on sale among the tradesmen a few years ago when in Vienna, and it seemed as common there as Smyrna figs in this country. Apricots, prunes and cherries from this country are found in the dining car service of many of the South American railroads, and they also go north of the Arctic circle, for big shipments go to Northern Alaska every year. Every summer in London the select fruits from Solano County are sold at auction, for the reason that by this means the speculators get a higher price than they could otherwise secure. But when we speak of elegant flavors and big, rich, plump products it must not be forgotten that Hood River, Oregon, stands in the front rank, and their strawberries and a dozen other luscious fruits are so rich and firm in their texture that they reach most of the big markets of the United States in their natural condition, while other similar products must be put in cans to insure shipments. Two years ago I partook of Hood River strawberries in Dakota and in Minnesota where in both states the ground was covered with snow, and on my arrival in New York I found the new, red, plump berries on the table of my hotel, and like our California fruits, Hood River has her fruits on sale in most of the markets of Europe.

But let me again return to my subject by saying that Solano County, California, will make history during the next four years in fruit, for the reason that Patrick Calhoun, the street railway magnate, and his rich associates have

bought 90,000 acres of land in this county, consisting of old farms. This is to be cut up into small farms during 1914 and sold to settlers, and much of this land will be planted to orchards and fruit, and as this county lies less than forty miles from San Francisco it will be close to the biggest market in the West and fruitmen will do well with all they can produce. Probably nothing will be done in selling this vast tract during the coming year, for it will require a long time to get it ready for market, but when the period does come it will be a triumph for fruit raisers, for it is the costliest project of the kind to be found anywhere in all the West. Whatever may happen to crops in the many Western States, nothing ever seems to injure the fruit industry in California, for from year to year the outcome seems to be solid and secure.

Vacuum Principle Applied to Fruit Drying

By A. W. St. Mar

AT this time when fruitgrowers are considering ways and means of turning their surplus produce into profits a brief description of the latest process of evaporation as well as the basic principles may be of advantage. For years fruit dryers have been endeavoring to improve the methods of drying. Almost without exception every man actually engaged in the business has recognized the fact that the evaporators now in use are expensive to operate and the products turned out have not been as satisfactory as could be desired. But all attempts at improvement have been virtually failures because the principles involved in the process have been at fault. That is to say, the method of carrying off the water as it comes from the evaporating fruit has not been right. Nearly all evaporators have been built on the theory that hot air rises and that this air rising from the drying floor carries with it the moisture thrown off by the fruit in evaporating. In actual operation, however, the air becomes so heavy, especially on a damp day, that it is practically impossible to get the hot air to rise out of the kiln without introducing a current of cold air into the chamber. Of course the cold air striking the hot air in the kiln condenses the vapor and forms water which settles on the fruit.

Every fruitgrower is familiar with the above condition and it is not necesary to say more. Rather it is my desire to show the practical remedy for this trouble. As I have said before, the principle on which the usual evaporator is constructed is obviously wrong and the solution lies in the employment of an entirely different law, which is, if a vacuum is created, the air will rush in, carrying with it any moisture with which it is charged. There has recently been perfected, and now in use, an evaporator which works on this theory and the result is startling. For instance, in this evaporator I saw apples evaporated in one hour. The product was far superior to any "dried" fruit I had ever before tested and the flavor was extraordinarily fine. In form this evaporator (or Vacu-Dehydrator, as is more correct) is a cabinet built much like the "cabinet dryer" in common use, but with this exception, on the back and above the cabinet is a small chamber in which, by the use of a very simple device, a vacuum is constantly being created. Following the natural law, the moisture rising from the fruit is drawn into the vacuum chamber, where it is immediately condensed and discharged, automatically creating another vacuum which continues to draw all the vapor contained or being created in the drying cabinet below. So the process goes on continually. In this way what has heretofore been one of the greatest difficulties in successful evaporation is overcome—the instantaneous removing of the moisture from the evaporator after it leaves the fruit and to remove it economically.

While in Spokane I visited the factory of the patentees of this new idea and watched a demonstration as well as examined this latest in evaporator construction thoroughly, and I believe a brief description may be of interest. The Vacu Dehydrator, as I stated before, is built in the form of a cabinet containing several horizontal rows of steam pipes placed about five inches apart, the steam being furnished by a small boiler placed near the cabinet. Trays loaded with the fruit or vegetable to be evaporated are placed in the cabinet so that they rest on cleats between the pipes. There is a decided advantage in favor of the steam as compared with the furnace, which is apparent when one realizes that twenty pounds of steam will hold temperature of 180 degrees in the drying cabinet. In fact, very little fuel is necessary. In a measure this is because no cold air is introduced into the cabinet, as the vacuum attachment draws off all the moisture without requiring any cold air current.

I tested the products by having them cooked and served to several people, and at the same time served fresh fruit and vegetables of the same varieties. I told my guests that one dish was prepared from fresh, the other from evaporated fruit, and asked them to see if they could tell the difference. This they were unable to do, there being no perceptible difference in the taste. I attribute this to the lack of moisture in the drying chamber during the process of evaporation and to the fact that where sulphur had been used in bleaching the vacuum had withdrawn all taste or trace of the bleaching agent. There are many features in favor of this evaporator. In fact I failed to find an unfavorable one. It accomplishes the purpose for which it is designed, namely, the evaporation of fruits and vegetables much quicker and more economically than any other evaporator in use. While the product in reality is in a class by itself.

Cover Crops for Orchards

By O. L. Morris, Horticulturist, Washington Agricultural College, Pullman

AS a cover crop in the orchard hairy vetch has proved itself to be by far the most satisfactory nitrogen-gathering cover crop that we can use here in the Northwest. Coming up as it does immediately after sowing and continuing to grow until cold weather sets in, and in this way forming a low, dense mat before winter, which is capable of holding leaves, trash, etc., and thus preventing washing during the winter, it is a valuable crop. In spring it starts into growth early and by the last of April or first of May it has produced from five to twelve tons of green manure per acre.

The fall or winter injury so common in young orchards in some localities is often in part due to the late growth of young trees, which causes them to go into winter with a full flow of sap and a lot of immatured wood in the stems, which is killed by the first heavy frost in the late fall or early winter. This can be readily overcome by the systematic use of cover crops which will take up the surplus water and available plant food late in the summer and early in the fall, and in this manner cause the wood and buds to mature early. The cover crop should be sown just before the early fall rains or following late summer rains, usually from the middle of August to the latter part or early in September.

The benefits of a cover crop in the orchard are enumerated as follows: (1) It directly improves the physical condition of the soil by the addition of humus and the loosening up of the subsoil by root action. (2) It prevents hard soils from cementing and clay soils from puddling. (3) It makes the soil more moist by holding the snows and rains until they have had a chance to soak into the soil. (4) By drying out the soil early in spring it makes early tillage possible. (5) It serves as a protection of tender roots from frost. (6) It catches and holds the easily lost nitrates of which the trees are not in need at that season of the year. (7) It renders plant food more available by root action and the decomposition of humus. (8) By the addition of humus it makes cultivation and irrigation much easier and more effective. (9) The leguminous cover crops add plant food by appropriating the nitrogen of the air and storing it up in the roots of the plants. (10) It checks the growth in the fall and causes the wood to completely ripen up, thus preventing fall or winter injury. (11) It prevents erosion on steep orchard lands. (12) It keeps weeds down and catches and holds the leaves of the trees.

THE OREGON AGRICULTURAL COLLEGE AT CORVALLIS, OREGON
Its valuation is estimated as follows: Land (upwards of 340 acres), $390,360; buildings, $648,41[illegible] equipment, $232,401; total, $1,271,242. Total number of students enrolled in 1911-12 is 2,868

A FEW months ago this question confronted the apple world: "Can King Apple be so advertiscd as to increase the consumption from year to year sufficiently to provide a profitable market for the great and steadily increasing crops?" The initial work of the advertising committee of the International Apple Shippers' Association has provided an emphatically affirmative answer to this question. The printing of hundreds of thousands of attractive apple recipe booklets, "197 Ways to Cook Apples"; the work of distributing these booklets broadcast to the people of the United States, opening immense avenues for consumption; the enlistment of 20,000 dealers in large consuming centers in the campaign to cut out exorbitant profits on apples, relying instead on increased sales for profit; the publication in papers of wide circulation of interesting articles on the value of the apple as a regular food, thus making the product a household topic among consumers everywhere—these things, accomplished in a brief period with limited funds, conclusively show that such judicious advertising is just what is required to remove from the apple industry the incubus of under-consumption.

Another important question now looms up, "How can this recognizedly successful, imperatively necessary work be continued with adequate funds?" The answer is, "the stamp plan." The idea, since its inception, has been discussed by representative growers, shippers and dealers from coast to coast, and from none of them has aught but favorable indorsements been heard. Everyone recognizes that to move the successive crops profitably and expeditiously the consumption must be made to increase year after year. This necessitates an adequate, continuous fund for advertising. It is also necessary that the expense of the advertising shall be equitably distributed among all who will profit by the advertising so that each will give in a just proportion to the benefits he will individually receive. "The stamp plan" admirably solves these problems, providing the funds by a melhod lhat will scarcely be felt by any grower or shipper, while bringing him, through increased sales, profits that will richly repay the expenditure.

Co-Operative Advertising

Equitable "Stamp Plan"

By U. Grant Border, Chairman Advertising Committee International Apple Shippers' Association

"The stamp plan" is patterned after the method used by the various governments when it becomes necessary to raise large funds. The Spanish-American war, for instance, was financed by our government through special stamps placed on checks, drafts, etc. The details of the plan are as follows: The stamps will be issued in two denominations—one cent and two cent. On every box of apples a one-cent stamp will be placed and for every barrel a two-cent stamp will be used.

The entire issue of stamps will be in the custody of the Equitable Mortgage and Trust Co. of Baltimore, which will act as trustee of the fund. This trust company, through the many banks that are its agents in the various sections of the country, will sell the stamps to every grower, shipper or dealer who applies for them. The stamps can be bought in person or by mail. The money derived from the sale of the stamps will be placed by the trust company to the credit of the advertising fund.

The committee will also have the advice and assistance of advertising experts of unquestioned ability. The fund will be drawn on only through checks or drafts signed by three duly authorized officers and countersigned by the chairman of the advertising committee. The stamps will be placed on sale in the various distributing agencies on August 1, 1913, in time to create an adequate fund for adverlising the new apple crop. Those interested will be notified in due time as to the names of the banks that will distribute the stamps.

In view of the universal indorsement of "the stamp plan," in view of its soundness and feasibility, and in further view of the fact that those who have originated it are working solely to promote the good of every apple producer, wilhout any reward outside of the mutual benefit to be derived from the increased consumption, it is surely asking little of every apple grower, shipper and jobber to see that after August 1 every package of apples he handles bears the official advertising stamp. For further information address U. Grant Border, chairman advertising committee International Apple Shippers' Association, 218 Light Street, Baltimore, Maryland.

STATE COLLEGE OF WASHINGTON, AT PULLMAN, PROVIDING EXCELLENT EDUCATIONAL FACILITIES FOR FOURTEEN HUNDRED STUDENTS
A million dollar educational plant which is doing much for the fruit grower and farmer—one that is recognized as one of the leading horticultural schools in the United States

Educational Aids to Marketing of Farm Products

Sidney E. Mezes, President University of Texas, before First National Conference on Marketing and Farm Credits, Chicago, April 8, 1913

WHETHER willing or unwilling, the universities of this country must assume their share of responsibility for vocational efficiency by extending our educational system so that it will include training for all the important vocations. Until recent times schools and colleges were concerned primarily with literature, arts and science, and training in these fields was intended to develop the reasoning faculties and to broaden the intelligence. Training for the particular duties of a vocational life had not been supposed to have a cultural value. Various forces have brought about a change in the attitude of leaders of thought towards vocational education. The industrial revolution, the rise of machine industries, big business in its various manifestations, have greatly disturbed our old educational ideals. Now we are brought face to face with the growing belief that educational institutions, particularly those that derive their opportunity from a tax on all the people, must fit men and women for specific vocations and must also render back to the people direct and immediate service. The practical problems growing out of our complex civilization demand the best thought of the best minds that our colleges can produce; and we are coming more and more to believe, without attaching less importance to purely cultural studies, that vocational education has a rightful place in any well-balanced system of public instruction. Moreover, whatever affects intimately the lives of the majority of the people must be of vital interest to every reflective citizen; and the study and solution of the problems connected with the production of wealth must be recognized as an important means of culture.

In Texas, which occupies so large a place on the map of the big Southwest and which leads all other states in agricultural production, eighty per cent of the population live in the rural districts. The subsistence of these people comes directly from the farm or the ranch. We feel, and feel strongly, at the University of Texas, that it is our business to be concerned with whatever affects the lives of this eighty per cent of the populalion. We have looked with interest at the efforts to teach the farmer seed selection and crop rotation; the fertilization of the soil, its proper cultivation and conservation. Through organization we now hope to aid him in getting better prices for his products, as well as to secure cheap money to carry on the work of production.

Thus far the education of the farmers in Texas has been carried on principally by the Texas Agricultural and Mechanical College and by the Department of Agriculture in Washington, assisted by the Farmers' Union, the State Department of Agriculture, and by a very efficient organization known as the Industrial Congress for Texas. Some excellent farm papers have likewise furnished valuable instruction to many thousands of readers. Much agricultural enlightenment has no doubt resulted, but I think no one will dispute the statement that there is yet a great work to do. Our people are conservative and the old order changes slowly.

While some progress has been made in teaching the farmer how to grow more crops, little has yet been done to aid him in securing fair prices for his produce. To illustrate the gross injustice of our present marketing system, I may point out the fact that at Laredo, Texas, in our onion growing district, one day a short time ago, onions were sold for two cents a pound; the next morning Laredo onions were sold in the open market at Austin, Texas, at fifteen cents a pound. In this transaction, as you will see, the commission man, the public carrier and the retail dealer divided among themselves 650 per cent of the price paid to the grower. Again, tomatoes were sold one day at two-thirds of a cent each in Palestine, Texas, and the next morning were sold in the markets of Austin at five cents each. In each of the instances cited the producer received only 13 per cent of the final selling price, while 87 per cent of the selling price was divided among the railroads and the sellers of the produce. The glaring injustice of such a system is made more apparent by a comparison with the results of co-operation in marketing farm products in Denmark. In that country, for example, the co-operation society handles, sorts according to size, and packs eggs for 3½ per cent; the shipping and selling cost 4 per cent, leaving the farmer 92½ per cent of the final purchase price paid by the consumer. In Texas, without co-operation, the farmer receives 13 per cent of the final selling price of his produce; in Denmark, through co-operation, the farmer receives 92½ per cent.

The need of co-operation in securing cheap money for the farmers in the Southwest is as great as the need of aid in obtaining larger returns for his produce. In many places in Texas and Oklahoma the farmer is yet obliged to pay rates of interest that range from 10 to 25 per cent, and even these rates are better than buying on time from the country merchant. In some sections without banking facilities, credit from the country merchant is the only recourse. Side by side with the farmer is the cattle man, who is able to secure money at interest rates of from 6 to 8 per cent, and the railroads, which have little trouble in finding capital at much lower rates. The cattle men and the railroad men have flexible and efficient organizations; they work together. The farmers, on the other hand, with loose

organizations or no organizations at all, though possessing in the aggregate much greater wealth, continue to pay ruinous rates of interest.

Such a condition of affairs is arousing the interest of leading editors, bankers, philanthropists, farmers' union officials and students throughout the entire Southwest. At the University of Texas one man is at present employed who is to give his entire time to the study of problems of marketing. The result of these studies will be distributed in bulletins, and, so far as possible, lectures will be delivered to farm organizations suggesting plans for meeting the situation. A course on agricultural economics is given in the School of Economics, where the problems of modern agriculture are studied. The University of Texas has the distinction of supplying a constitution and by-laws for the first credit union to be organized in the Southwest; in fact, the first credit union, so far as is known, that has been organized in the United States, except those in Massachusetts. Responding to the interest aroused by the publication of this constitution and by comments in the leading newspapers and farm journals in the state, the Texas Legislature has just passed a bill authorizing the organization of credit unions similar to those in Massachusetts. Another bill has been considered authorizing the organization of a central credit union similar to the central union or Landschaften in Germany. Still another bill has been considered in Texas providing expenses for a commission which is to be sent to Europe to study the credit union system of France and Germany.

It must be confessed, however, that little has yet been accomplished in the solution of the two pressing problems of agricultural credits and marketing. One man in a state so big as Texas can make but little headway in aiding farmers to secure better prices for their produce; rather there should be twenty studying this one subject. The state and national governments, working through the University of Texas, need at least that number of Darwins to go out into the fields, patiently secure the facts and carefully correlate them. The great universities, free and untrammeled from political pressure, should assume the burden of the investigation and the discovery of secrets that underlie the development of plant, animal and social life. The advance of our civilization will be accelerated or retarded in proportion to the efficiency with which we perform our task. Through bulletins, through public lectures, through the press, through efficient organization and co-operation, the producers should be made acquainted with the facts collected and then should be instructed how to apply these facts to the betterment of their condition. The two practical ends to be achieved should be constantly kept in view, namely, obtaining cheaper money for carrying on the work of production, and securing to the farmer a larger proportion of the fruits of his labor.

The time seems auspicious for undertaking this work on a national scale. In his inaugural address President Woodrow Wilson refers specifically to the need of better marketing facilities and cheaper money for the agricultural classes. The Secretary of Agriculture, Dr. David F. Houston, has long been interested in questions concerning rural life. He brings to his great office excellent training in economics. It may be reasonably hoped that his administration will be marked by distinct advances in the questions considered by this conference on Marketing and Farm Products. Certainly larger appropriations should be expected from the national government as well as from state governments in promoting this immense project; and the progressive universities of agricultural sections of the United States may be relied upon to do their part. Education, the diffusion of information, the arousing of the public conscience, the enlightenment of the people, depend, in the last analysis, upon the happiness and contentment of the great masses of our population. This happiness and contentment again depends very largely on comfortable living; and comfortable living conditions are only possible when a fair return for labor is made available. So far as their resources in men and money permit, the educational institutions gladly assume their share in making the country an ideal place in which to live.

Distribution of Farm Products

Extracts from address of Hon. E. M. Tousley, Minneapolis, before First National Conference on Marketing and Farm Credits, Chicago, April 8, 1913

PERHAPS no one could possibly estimate or approximate in figures the enormous annual loss to the people of the United States through the lack of organization and co-operation. In a statement recently issued by the press it is said that "of the two billion five hundred million dollars spent by the Southern farmers for farm supplies, food, clothing, etc., one billion dollars of this goes each year into the hands of all classes of middlemen, and that all told these farmers are out six billion one hundred sixty-three million dollars a year, much of which they might get if they controlled their own systems of credit, marketing and buying." These figures are furnished by Professor John Lee Coulter, expert special agent for agriculture in the Census Bureau.

The remedy proposed for most of the farmers' ills is organization, education and co-operation. It is proposed that he market his crops co-operatively, buy his goods in the same manner and borrow his money from his own co-operative credit societies. Such a plan, it is contended, would harm no one and in the long run would benefit all classes. By thus adding to the farmers' income he will be enabled to spend more on the pleasant as well as on the useful things of life; to build better roads; double the market for manufactured goods, adding materially to the income of employes of city factories and to maintain better schools and make country living generally pleasanter and more profitable. If this estimated loss of six billion one hundred and sixty-three million dollars a year to the farmers of the South alone is anywhere near accurate, what would the figures be could we have a similar estimate of the aggregate loss to all American farmers and to city consumers as well through the lack of organization, education and co-opera-

tion and just and economic methods of distribution.

Thinking men everywhere are beginning to seriously consider the problem of food distribution by reason of the trend of population to the large cities in recent years. City people are apt to think only of their own ills in relation to the high cost of living without taking into proper consideration the causes of those ills. The problem of economic living in cities is irrevocably tied up with better farming, better rural conditions generally and proper and efficient systems of transportation and distribution. This question divides itself into four general heads: First, marketing of agricultural products at primary point; second, transportation; third, wholesaling; fourth, retailing. These four general heads make up the entire machinery of distribution. If betterments are to be made and the cost of living of city consumers reduced an exhaustive analysis of conditions and systems by which these different steps in distribution are now carried on is necessary.

At the request of a professor of agricultural economics in one of our state universities I wrote him of the necessity for organization and co-operation for the improvement of marketing farm products at primary points and advocated the standardization of farm products for advantageous marketing, and further said: "I think you realize the fact that no large organizations of consumers can be organized and operated in the cities with a high degree of success until such organizations can know exactly where to order this, that and the other farm product in accordance with some uniform standard. Some authority in each state, or, better still, some federal authority should establish and describe a standard for each of the following Northwestern States farm products, assuming that grain, hay and their by-products are already standardized: Garden truck, hog products, celery, cabbage, cheese, onions, poultry, potatoes, apples and fruits, butter, beets, beans, berries, corn meal, carrots, eggs, flour, honey, lard, milk, peas, rice, rutabagas, rabbits, turnips. After a standard has been fixed by some proper authority, the only way to teach the farmers to put the system into practical use is by organization for the raising of standardized products in various communities or in dividing a community into different sections, letting each section devote its principal attention to the raising of a certain product, always keeping the standard of such product in mind. By the right kind of organization the farmers' association can hire its expert to grade the various products brought to its warehouse, and see that packages of the right shape, size and standard are used, properly packed and properly marked, and then see that the goods are shipped to a market which is not already overstocked. By the inauguration of such a system, in the opinion of the writer, the farmers could add to their annual income at least ten per cent, and when a sufficient number of consumers' organizations in the cities are formed to absorb the standard product a like saving can be made by the consumers, thus benefiting both producer and consumer to this extent, and possibly more. Until such standardization is effected the present waste will continue."

The secret of a very large part of the farmer's loss, resulting in enormous profits to middlemen, is in the utter lack of standardization of farm products. When he ships, the farmer imagines his product is all first class, and accordingly expects to receive the highest market price. When received in the terminal markets it is there standardized by the receiver, and the bulk of it perhaps thrown into the second, third and fourth grade, thus materially reducing the value to the producer, while the middleman sees to it that the consumer pays the highest price for each product he buys, in accordance with its quality. The farmer himself is to blame for these conditions.

As affecting transportation, Mr. B. F. Yoakum, chairman of the board of directors of the St. Louis & San Francisco Railroad, has written some very enlightening articles in The World's Work and elsewhere on "The High Cost of Farming" and "The High Cost of Railroading." In his analysis we are told that of each dollar paid by the consumer the farmer receives forty-six cents, the railroads seven cents, the other forty-seven cents going into competitive waste or the pockets of middlemen. It would seem from this analysis that a very small part of the blame for high cost can be saddled upon the railroads generally. There are exceptions to all rules, of course.

The era of co-operation is at hand. Nothing else will save mankind from the selfishness, immorality and the extent of misery it suffers from. Nothing else will prevent a repetition of the decline and fall of nations, of which history is full. Let us blindly close our eyes to the facts as we will it is nevertheless true that only by the sort of equal opportunity and equality and social and business education and the making over which co-operation affords can the foundation be laid for an understanding of practical equality and the possibility of democracy in all the joint affairs of human life. The co-operative system is not created but built up. It is economical and it increases production, because each is distinctly interested. It makes equality of incomes and living conditions in proportion to the industry and intelligence of each in proportion to the under equal conditions.

Trusts, syndicates and combines have set the example of the efficiency and economy of co-operation, but have selfishly converted to their own use all its benefits. Competition can no longer be considered the life of trade. On the contrary, co-operation is not only the life of trade, but it is the very life of national existence itself; but it must be unselfish, equitable co-operation. Are the people ready to assume their share of responsibility in this great making over of our economic system and national life or must we have another century of concentration of wealth in the hands of a few, unless perchance a greater calamity shall sooner overtake us?

"The Stamp Plan" as proposed by the International Apple Shippers' Association as a means of raising funds for a thorough advertising campaign of King Apple should meet with the approval of every grower. This will not only aid in increasing sales, but will go a long way toward placing a value on the fruit itself heretofore unknown.

Editor Better Fruit:

We want to say we could not get along without your valuable magazine, so enclosed please find money order for one dollar, for which kindly renew our subscription and oblige. Harvey N. Topple, Cory, Colorado.

Editor Better Fruit:

Please find enclosed check for one dollar for "Better Fruit" for 1913. It is certainly a great book and one every fruit grower should have. Wishing you continued success, J. R. Conway, Twin Falls, Idaho.

Proper Thinning of Apples Important

Dr. L. D. Batchelor, Horticulturist Utah Horticultural Experiment Station, before Utah Horticultural Society

THE production of fancy apples is dependent upon various factors: (1) Varieties adapted to the local conditions; (2) suitable site and soil conditions; (3) good cultural practice; (4) relentless warfare against insect and plant disease enemies, and (5) proper pruning and thinning methods. Any one of these several factors, if neglected, may prevent the grower from harvesting a first-class crop. No amount of care in pruning, thinning, irrigating, picking and packing the fruit will produce a fancy apple if suitable protection has not been given this fruit against insects and diseases. No amount of spraying will produce high-class apples without a sufficient amount of water to produce the crop. So one condition of culture is dependent on another, and all must be equally good if the best returns are to be realized. Some of us are good pruners but poor sprayers, some of us are careful irrigators but neglect the pruning. How seldom we see an orchard where all conditions are favorable to its maximum efficiency.

Whatever may be said concerning the several factors which promote successful apple production, I believe there is no factor more important than the proper thinning of the fruit. I also believe this is the limiting factor, "the weakest link in the chain" more often than otherwise in the average apple orchard of the Rocky Mountain States. We all know we cannot raise sugar beets as thick as they can stand in the row. We know the crop will be increased many times if a very large per cent of the beets are pulled up and thrown away, thus giving the remaining beets proper room for their development. The same principles apply to the apple crop. The apple tree in its attempt to reproduce its kind strives for the production of the maximum amount of seed. A small apple is as good as a large one with this end in view. The seeds may be as large and as numerous in small apples as in the large ones. It so happens, however, that man covets the apple for its fleshy parts rather than the seed. The larger the apple within certain limits, that is, the larger the edible portion the more highly it is valued. Two perfectly round well colored Jonathan apples below two and one-quarter inches in diameter would be considered culls by any one of us and either fed to the stock, made into cider or thrown away. Yet one Jonathan apple of the same characteristics exactly as the aforementioned two except being about two and three-quarter inches in diameter, would be considered a fancy apple and highly prized by any lover of fruit. The market demands a certain size apple to be acceptable to the trade. Whereas a Jonathan apple two and one-quarter inches or less in diameter is considered a cull and worth about five cents a bushel for cider, a Jonathan two and three-quarter inches in diameter is considered a fancy grade and would wholesale, on an average, for one dollar to one dollar and twenty-five cents per bushel. That is, according to the market standards, by increasing the diameter of the apple one-half inch we increase its value twenty to twenty-five times. Surely, if we are engaged in commercial apple production we cannot overlook an opportunity like this. By the removal of part of the crop at an early stage in its development this increase in size can be obtained, and it is often impossible to obtain it otherwise.

Although the increase in the current year's crop is ample reason for us to thin, it is not the only benefit to be derived. By reducing the tree's crop this year you increase the likelihood of a good crop the following year. Much of the so-called habit of "alternate bearing" in apple trees is directly traceable to the fact that they overbear one year and must recover from this overtax by not bearing the next year. Many broken limbs could be averted by proper thinning and much time and money saved in propping the orchard.

The actual methods to be used in the thinning operations will vary somewhat with conditions, such as soil, age of tree, variety and methods of irrigation. The fruitgrower should experiment and learn the best methods to follow under his conditions. Some people thin to a definite number of boxes on a certain age tree. This may be determined on one or two trees by actually counting the apples. These counted trees may then be used as models, so to speak, and thin the others accordingly. Other growers have learned by experience about the proper distance the apples should be from each other on the tree if they are to reach a marketable size. In our own experience of thinning Jonathans on eight and nine-year-old trees, thinning to a minimum distance of four inches seemed hardly enough. I believe a minimum distance of five or six inches will give better results. Gano trees nine years old, thinned to one fruit on a spur with the spurs a minimum distance of about six inches, gave very good results. I quote our experience merely in a suggestive way, as the maximum load a tree can carry will vary with conditions, such as variety, soil, irrigation water, etc. In the case of our nine-year-old Gano trees they still carried between nine and ten boxes of fruit at harvest time. Certain thinning experiments have been carried on in Ohio thinning mature Rome Beauty trees, in which case the fruit was left a minimum distance of eight inches.

It is often suggested that pruning may be substituted for thinning. To be sure, pruning thins out the fruit buds very materially, but it can hardly be entirely substituted for thinning. Some relief must be had for the crowded clusters on the individual branches, and again such severe pruning as would properly reduce the crop on a bearing apple tree would likely be too severe a pruning otherwise. For the best results, the thinning operations should commence immediately after the so-called "June drop," that is, all this work should be over by the middle of July. It is only natural to expect that the sooner the remaining apples are accorded the entire strength and nourishment of the tree the better the results to follow. If the thinning is not done until August broken limbs may be averted, but the other benefits will not be as pronounced as though the discarded fruit had been removed at an earlier stage in its development, or, in other words, less of the tree's energy will be thrown away and more diverted to the proper channels if the thinning is done early in the season.

Concerning tools for this work, some varieties like the Gano and Ben Davis are easily thinned by hand, while varieties with short fruit spurs are not as readily handled this way, and the work may be hastened by the use of a small shear made especially for this work. The cost of this work is only slight compared with the increased returns. In fact the actual time in thinning will be made up in the sorting in the fall. Even though you are not convinced of this reasoning, the actual cost should not exceed one cent and a half to two cents per box at harvest time. In the case of the Gano variety, which is more readily thinned than some other sorts, the cost will hardly exceed one cent per box.

The best part of the thinning operation is the way it pays in dollars and cents. Work last year on eight-year-old Ben Davis trees paid at the rate of $162.85 per acre. The past year Gano trees nine years old paid for thinning at the rate of seventy-one cents a tree, or a net increase of $81.65 per acre. Our experience with Jonathans was not as profitable mainly because the thinning was not severe enough, that is, fruit was left a minimum distance of four inches, which is still too thick under the existing conditions. However, a net increase return at the rate of $34.50 per acre was realized in 1911 and $69 in 1912. The same trees and the same methods were used both years. The per cent of culls, choice and fancy fruit, on the Gano plot was as follows: Unthinned, culls 17%, choice 53%, fancy 30%; thinned, culls 2%, choice 13% and fancy 85%. In all calculations of net returns per acre two cents per box was allowed for thinning and the actual selling price (f.o.b. Logan) of the fruit was used. There were one hundred and fifteen trees per acre. The trees were set 16 feet by 24 feet.

Experiments in Ohio in 1912 showed a net return on mature Rome Beauty trees of from three to eight dollars per tree, which is at the rate of from $81 to $215 per acre in case of mature trees growing forty feet apart each way (27 trees per acre). Again let me repeat that definite rules cannot be set down for doing this work. Much must be learned by the individual grower. All varieties cannot be handled the same and conditions vary with age of the tree and cultural conditions. Not infrequently certain trees will hardly need any thinning certain years. Again certain other varieties never produce a full crop, but by far the big majority of our desirable commercial sorts have a tendency to overbear. The grower must study his own problems, but if only about twenty per cent of his crop, or even less, can be graded as extra fancy something is wrong. Oftentimes it is an overburdened tree.

By-Products

M. C. Remelin, Manager Yakima Fruit Products Company, North Yakima, Washington

THIS subject has for the past year been the topic of the Northwest, and I think it is a very important one. The number of fruit canneries and vinegar factories in this state are given from 25 to 30. Of this number I venture to say that there are very few meeting with success. I think upon investigation you will see that these factories, in their infancy, were started by inexperienced men and they lacked capital. In an apple-producing country like this

great Northwest we should have the largest by-products factories in the United States; the strongest foundation for same is a cider vinegar, evaporator and a canning factory. I will give you a few figures of what a factory will consume in the way of cull apples. We have here at North Yakima one of the best equipped cider-vinegar factories west or south of New York State, and during the apple season, say from September to the middle of December, we can grind 6,000 tons of apples, equal to 12,000,000 pounds, or 300,000 boxes, and at the price we are paying this year would mean $27,000 distributed among the ranchers; also would mean 700,000 gallons of pure apple-cider vinegar put on the market for the public. At the present writing we have a storing capacity for 250,000 gallons, but hope to have a million-gallon capacity in another year.

Now just a word as to what the apple contains, malic, phosporec, acetic acids, glycerine, potash, lime and magnesia, all in small quantities, blended by nature's own process, and these are the elements on which the brain, bone and muscles are nourished. It has been stated by eminent physicians and chemists that apple cider supplies the blood with a greater abundance of life's actual need than any or all of the fluid products of the garden or orchard. There is a lot of work to be done in order to assure the success of the by-product plants in this great Northwest. We must have favorable freight rates on raw material into the plant and on finished products out. Another important thing is to impress the rancher to support the by-product plants with his cull fruit when there is a short crop.

Evaporating Prunes Very Important

[Written for Better Fruit]

THIS article is written from the standpoint of a grower who has the future of the Pacific Coast prune industry very much at heart and whose entire means are invested in it, who recognizes the fact that only through the excellence of the product both in production of the green fruit and the up-to-date methods of curing and packing can financial success be attained. Most growers understand that a deep, rich soil is necessary for the best growth of trees, and also that only through thorough pruning, so as to limit the production of the fruit in quantity on each tree, can desirable sizes be obtained. Italian prune trees assist the grower in this by shedding in July and August what they cannot well mature. But it is in the drying and packing that the grower and packer falls down. The writer has grown and dired prunes for about twenty years and has tried several kinds of furnaces, and with Italian prunes has found the iron hop furnace totally inadequate to heat the necessary volume of air to the required temperature to finish them in the best manner.

I will narrate some facts that have come to my notice either personally or from reliable information. I have seen Italian prunes returned from the dryer to the owner that you could squeeze water from and three or four pressed together in a grip of your hand would stick together like a ball of mud. Years ago when prunes were generally shipped in sacks a gentleman from New York was at my place soliciting consignments and told me of some carloads that had been received in New York and who had sent them, and stated they were like mush in the sacks. Two or three years ago the papers reported that two carloads of boxed Italian prunes were condemned as unfit for use in Washington, D. C. A year ago last Christmas I was in a city of Washington over night, staying with an old friend. After supper some of their friends came in to spend the evening and it was mentioned that I was engaged in the prune business, and one of them connected with a large grocery store asked me if I knew a certain brand and how it stood. I told him I had never heard anything against it, when he told me that his firm had bought that fall a carload in boxes and that it had all spoiled and had to be returned, and that, too, before Christmas of the year it was packed. A little after New Years this present year (1913) I had a small deal with a first-class family grocery store in Portland and in talking with the proprietor he told me that he generally bought about 10,000 pounds of Italian prunes for his retail trade, but before he got them all sold there would be a remnant that would sour and spoil, enough to eat up the profits of the rest that were disposed of in good condition, and gave it as his opinion that after a scant drying the packers, in processing, injected steam for the double purpose of aiding weight and also to make the prunes look pretty, but he thought it queer that after drying the water out they should introduce more by steaming simply for appearance and at the expense of their keeping properties. These facts that I have narrated have come to my knowledge just as I have written and I have purposely omitted the names of those who were connected with them, for I wish to harm no man.

The prune crop of the entire Pacific Coast was probably not more than one-fourth of a normal crop in 1912; in California about one-third of a crop, the Santa Clara Valley having between 50,000,000 and 55,000,000 pounds as against 175,000,000 pounds, which was a normal crop previous to 1911; Oregon between one-tenth to one-sixth of a crop. As nearly as I can find out the California crop is said to have been less than it was in 1911, and so far as I have been able to learn it is not likely to assume its previous proportions. Until 1912 dealers in the East bought up and stored fruit in the fall, taking large quantities, and sold it out before the following summer, and as Italian prunes have never assumed very large proportions in yield, until 1911 there were but few, if any, carried over, and what there were were put in cold storage. The 1911 crop of Italian prunes were estimated by Mr. Gile of Salem at 24,000,000 pounds. A great many were exported, probably ten to twelve million pounds, and the total export of prunes from the United States was a little in excess of 51,000,000 pounds at a value of a little over six cents per pound average. The 1912 crop of prunes, as reported, was about normal in France, and none were exported from Turkey on account of the war. It was anticipated there would be a large demand in England for dried prunes and there was a very considerable amount of California prunes shipped early in the season of 1912, for which the packers paid four and four and one-half cents (a bag basis, 60-100), but when that demand was filled they immediately cut the price to two and one-half cents, and failing to get them from the growers at that price paid three cents (bag basis, 60-100), at which price they bought up the crop in Santa Clara. In the fall of 1912 it came to me, from a perfectly reliable source as I take it, that there were about forty carloads of Italian prunes held over in New York, which in spite of cold storage were greatly impaired by fermenting, or as I got it, "spoiled," and I take it that means "fermenting," and that the dealers said that they would buy only from hand to mouth, as they could dispose of them promptly. They would not store them as heretofore, and although the Oregon crop for 1912 was small and there were some held over from 1911 unsold there was little or no export demand for them, and I take it that the same conditions prevailed in Europe as were reported from New York. There were but few held over in Chicago and Boston. These are the facts as I have learned them from what I think are reliable sources concerning prunes, especially Oregon prunes. It is unquestionably true that the phenomenal apple crop, the exceedingly low prices and the prolonged season in which they were available for distribution and consumption exercised a great depressing influence on all dried fruits, prunes among the rest. It also appears to be true that an average crop of dried Italian prunes in Western Oregon and Western Washington is far more than the home market demands or will consume and we must look to a foreign source for a market for a large portion of our product. As freight rates will be cheaper by water shipment they will probably go by way of the Panama canal through the tropics, therefore prunes must be cured and packed so they will not spoil en route or after reaching their ultimate destination. This can be done. I will tell you how in my next article, embodying my own experience in the matter.

Estimating A Fruit Crop Very Important

By A. W. Speyers, North Yakima, Washington

ONE of the problems which comes before the progressive fruit grower is the amount of his crop. Applied to the fruit industry as a whole, it is likely the greatest problem. If the crop is light everywhere, the prices are likely to be high; if not, low. Further, the earlier it can be known just what the crop will be, the better to all concerned, as it would to a certain extent do away with the gambling element, at present one of the curses of fruit growing, and enable a fair price to be fixed at the beginning of the season and all concerned to get a reasonable profit. To the fruit grower, if he can estimate fairly close his crop, it enables him to order his supplies in time. The box maker knows approximately how many boxes will be needed. The dealers in paper can place their orders early. The grower, knowing how many boxes he will have to pack, can arrange as to the number of people it will take to pick and pack his crop, haul, etc. The railroad company can arrange for the required number of cars, icing, etc. In fact, it is almost needless to specify the ways in which it affects everyone connected with the fruit industry. To the grower it has even more importance, for knowing what he is going to have to sell, he can frequently contract ahead, and if he cannot do it individually his association or union can do so, and frequently get the benefit of higher prices. So the problem resolves itself to "How to do it in the best way."

The writer is not prepared to say which is the best way, but merely offers this suggestion as one way of doing it, with the hope that it may lead to better ideas and a more accurate basis. We have some 210 miles of apple and pear trees, if measured in a straight line, of all ages, so it is a pretty serious problem with us. The method we have adopted is, at the time of thinning, to pick out individual average trees and count the number of fruits on each of such trees, after it has been thinned. The man in charge of the thinning picks out the individual trees, using his best judgment in selecting fair samples. By picking out one tree, say, in every 150 trees we have a basis. The number of fruits found on this particular tree are entered in a book kept for the purpose, together with the variety and the particular orchard in which it is located, but no attempt is made to keep a record of the exact location of that special tree. When that orchard is finished, by adding the total number of fruits counted and dividing by the number of trees counted it will give us the individual number of fruits on an average tree, and by multiplying that by the total number of trees, about the number of fruits in that orchard of that particular variety. At this time we make an allowance for trees which may be younger. The cost of doing this is not large, it taking only about as long as to thin a tree properly.

Of course this comes back to the thinning. We do not find it advisable to do all our thinning at one time, as we do not feel that we can tell just how much fruit a branch can stand without breaking, or be able to develop into fancy fruit, so our first thinning takes off all fruits (in apples) in excess of two fruits to a spur, and also where there is likelihood of rubbing, etc., or growing too close. Some varieties of apples being yellow or green, the element of color and of getting sun all around them does not enter, and provided you can keep out bugs, we see no reason why, if the tree will stand it, two fruits should not be left on one spur. We go over our trees continuously with a small force of men, cutting out water sprouts, tieing a limb here if likely to be overloaded, or bracing it there, and at the same time, if the apples are not making a fair growth, thinning further. About the thinning time have an approximate count; we can then arrive at an idea of what our crop will be. We have, of course, to take into account the loss by insects, dropping and size. Having done this, we are then ready to place a part of our order for supplies, in fact, the greater part of it.

Some time in August we find it advisable to make another estimate. This is done slightly different. We take the most careful and accurate man we can get and start him off with instructions to go through the orchards. He is

instructed to count a number of trees of an average yield, but this time to divide the trees into several classes. As he comes to each tree he puts it in its class, and keeps count of the number of trees in a book. At the end of the day's work his report comes in about as follows: Class 1, counted six trees; average yield per tree, 533 apples; variety, (say) Jonathan; number of trees of this class, (say) 416. Similar treatment as to Class 2, and if desired, further classes. This gives us a much more accurate count. From then on our principal difficulty is to arrive at the average size, or, in other words, the number of apples to a box. We know from previous seasons about the size the apples should be at a particular time. If desired, one simple way is to caliper a number of apples, keeping a record of the date the measuring is done. By actual test we find that a man will cover about 2,000 trees, say six years old. By careful investigation we find that the 125 size apple is the one most in demand, as usually it can be sold at retail by the fruit stand for two for 5 cents. Consequently we try to have our apples of that size.

If the spraying is thoroughly done the percentage of worms should be extremely small, two per cent being high. However, if the fruit grower, in going through his orchard, finds a number of worms, he should increase this allowance. If the thinning has been done on the lines outlined above there should be very few apples at this time misshapen or rubbed, as most of them have been picked off. However, if there are many, an allowance should also be made for them. The falling is also difficult, as so much depends on variety, exposure, etc., but by comparing previous years' records a pretty close estimate can be made. If desired, another count can be made on similar lines, and this should come closer than three per cent.

Our valley and other valleys have been greatly hurt by erroneous reports sent out as to prospective yields, the figures being greatly exaggerated, with the consequent result of lowering the prices, which would not have happened if an accurate record had been made, and it is with the hope that this will not happen another year that the above article has been written.

Editor Better Fruit:

I enelose postoffice order for one dollar to cover my subscription for 1913 to "Better Fruit." This is the best fruit paper I have ever seen. Very truly, H. Keith Revell, Goderish, Ontario.

Editor Better Fruit:

We are very much interested in the articles in your paper on co-operation among fruitgrowers and believe that fruit growing can only be a success by that method. Yours truly, The Peru Nursery, Peru, Nebraska.

Grand Junction Fruitgrowers' Association

[Report of Mr. Howard G. Fletcher, Manager for the year 1912]

THE report to the stockholders of the Grand Junction (Colorado) Fruitgrowers' Association for the year 1912 shows a very good business done and holds out much encouragement for the future. The report follows:

It is with real pleasure that we are able to submit to you the following financial statement covering the business of the past year and showing the condition of your association at the close of the year 1912. In line with the usual custom, the board of directors appointed a certified public accountant to make a complete check of the books, and the report below was compiled by the accountant after auditing each and every transaction:

FINANCIAL STATEMENT FOR 1912

Assets	
Real estate	$25,658.32
Buildings and improvements	55,569.43
Furniture, fixtures and equipment	11,327.70
Cash on hand and in banks	23,915.97
Accounts receivable	29,558.43
Bills receivable	5,111.12
Freight (on cold storage cars)	9,332.96
Stocks and bonds	81.25
Inventory	
Merchandise	56,718.03
Commissions (earned but not collected)	4,110.00
Interest (earned but not collected)	430.82
Expense (stationery, insurance, etc.)	1,165.35
Bracing lumber	3,649.80
Claims (railroad and express)	3,967.80
Suspense accounts	1,437.80
	$232,034.98
Liabilities	
Capital stock	$136,790.00
Undivided profits	290.70
Accounts payable	57,417.22
Fruit payable	10,972.88
Unclaimed moneys	1,275.05
Profit and loss	25,288.53
	$232,034.98

Our next statement covers the average price per box which was paid to the growers on the fruit settled for up to January 1, 1913, and should enable every grower to realize the efficiency of our selling organization during an extremely hard year. This statement is compiled from the pro-rates covering the different fruits, but does not include those cars which were not pro-rated:

AVERAGE PRICES RECEIVED

Extra Elbertas	$0.31
Fancy Elbertas	.21
Choice Elbertas	.14
Standard cantaloupes	1.40
Pony cantaloupes	.81
Fancy 5-tier Bartlett pears	1.35
Fancy 6-tier Bartlett pears	.89
Choice 5-tier Bartlett pears	.88
Choice 6-tier Bartlett pears	.65
Fancy 5-tier Flemish Beauty pears	.92
Fancy 6-tier Flemish Beauty pears	.64
Choice 5-tier Flemish Beauty pears	.63
Choice 6-tier Flemish Beauty pears	.40
Fancy 4-tier D'Anjou pears	2.54
Fancy 5-tier D'Anjou pears	2.13
Fancy 6-tier D'Anjou pears	1.26
Choice 4-tier D'Anjou pears	1.67
Choice 5-tier D'Anjou pears	1.46
Choice 6-tier D'Anjou pears	1.05
Fancy 5-tier Kiefer pears	1.21
Fancy 6-tier Kiefer pears	.65
Choice 5-tier Kiefer pears	.68
Apples	
Jonathan, Grimes Golden and Blacktwig—	
Extra fancy	1.22
Fancy	.95
Standard	.62
Geniton, Minkler, Baldwin and Newtown Pippin—	
Extra fancy	.80
Fancy	.56
Standard	.45
Missouri Pippin, York Imperial, Lawyer—	
Extra fancy	.95
Fancy	.63
Standard	.45
Rome Beauty, White Winter Pearmine—	
Extra fancy	1.21
Fancy	.96
Standard	.66
Winesap—	
Extra fancy	1.50
Fancy	.94
Standard	.65
Arkansas Black—	
Extra fancy	1.95
Fancy	1.44
Standard	.92

In compiling this statement we have used the actual number of cars shipped, regardless of weight contained. It has been customary to load our apples 504 boxes to the car, conforming to the minimum weight demanded — 25,000 pounds. However, the past year the majority of our cars of apples contained 630 to 756 boxes, which, if figured on the usual basis, would make the total carload shipments by freight of all kinds of fruit 2,384 cars.

SUMMARY OF CARLOAD SHIPMENTS

	Apples	*Peaches*	*Pears*	*Cantaloupes*
Bridges	...	41	...	..
Grand Junction	538	66	166	7
Palisade	40	214	19	..
Clifton	250	125	92	29
Fruitvale	125	27	25	..
Fruita	171	1	2	..
Other points	62	...	...	..
Totals	1,186	484	304	36

CARLOADS IN

Box shooks and growers' supplies	302
Merchandise	82
Total	382

THE BUSINESS AT A GLANCE

Total cars out by freight, estimated on basis of 25,000 pounds to the car, 2,384 carloads.
Total cars out by express, estimated, 200.
Total cars in, 382.
Total cars in and out, 2,966.
Total amount paid growers, $747,865.69.
Total amount of business, $1,303,700.55.

The Grand Junction Fruitgrowers' Association has just passed through the hardest year ever encountered since its inception. With the largest crop ever recorded in the history of this valley and the market conditions unprecedented for inactivity and low values, the association has been confronted by obstacles which made its operation a difficult problem from start to finish. Notwithstanding these conditions the association has again proved conclusively that through proper co-operation and the organization of the best sales force that the brokerage fraternity can produce it is able to secure

for its loyal and efficient growers profitable returns for their fruits, and it has successfully combatted those conditions which have caused weaker organizations and independent shippers to acknowledge their inability to secure results that compare.

The following is a condensed report of Mr. Fletcher's annual address: Mr. Fletcher stated that the crop of peaches was very large in every fruit-producing section, with very few exceptions, and that the quality of Colorado peaches was not up to the usual standard, which accounted for the low price of peaches. He stated that prices obtained for pears were very good in accordance with general conditions, and that satisfactory results were due in a large measure to the excellent marketing system and the splendid quality of Colorado pears. The cantaloupe crop he reported as light, packing and grading exceptionally satisfactory and the quality good.

In reference to prices, Mr. Fletcher stated that the average grower generally determined the price that apples ought to sell for in accordance with his own individual opinion as to the value, without being familiar with marketing conditions, business conditions or yields in other districts. In general, he claimed that the low prices in comparison with previous years was due largely to the large crop of apples throughout the United States in the year 1912, and especially to the increased output of boxed apples. In reference to associations, Mr. Fletcher strongly advocated reducing the number of associations to a minimum in Colorado. Since the annual meeting there has been a strong movement on foot for the organization of a central selling agency in Colorado. In reference to auction markets, Mr. Fletcher stated that he did not believe selling apples at auction was conducive of the best results, and if discontinued would eliminate the possibility of private sale. In reference to pruning he stated that trees should be headed low and strongly advocated maintenance of an expert horticulturist for advising the growers in reference to all orchard problems. Like many other managers engaged in marketing the apple crop, he recommended cutting out all of the ordinary varieties which do not pay the grower the cost of packing and freight.

As stated above, all fruit and produce has suffered materially in price this past season. According to reliable press dispatches even the orange and grapefruit growers of Florida, previous to the freeze in California, were instructed that shipments of these fruits must be curtailed on account of the market prices showing a loss to the producers of from 25 to 50 cents per box. The onion growers of Southern Texas quit the deal heavy losers on account of the poor market and low prices. The potato, cabbage and lettuce growers are finding their products a losing proposition, and so on through the entire year from every district we find the same general complaint.

Notwithstanding the fact that prices have been below normal and fruit left in the orchards for want of buyers, the consumer has been obliged to pay practically the same prices that prevailed the past several years. In other words, the low values have not been beneficial to any extent to the consumers. We are convinced that the blame for this condition does not lie with the wholesale dealers, as the majority of them are equipped to make their profits out of the volume of business done and do not expect more than a reasonable profit from their sales. The competition in most markets is very keen and prices held to the minimum, but by following the article from the retailer to the consumer the excessive profit is easily discernible. However, to a considerable extent, the consumer is responsible for the very wide difference in price between the amount paid the growers and the cost to the consumer. The service which the retailer must provide for the convenience of his customers is elaborate and expensive, covering telephone systems, two or three sets of deliveries, keeping a set of books and carrying of accounts thirty, sixty and ninety days, and sometimes the incurring of heavy losses on account of default of payment by the customers. The profit demanded for fruits, produce and other perishable commodities is necessarily greater than for staple goods on account of the loss which obtains from shrinkage and decay and the fact that such commodities must be handled promptly. Relieve this condition by educating the customer to carry home his purchases and pay cash for them and the results will be astonishing. True, this condition is not wholly the cause of high prices to consumers, but in our opinion it is the greatest cause. There is a class of retailers who believe in operating along the lines of least resistance and who prefer to handle one box of apples at a profit of one dollar rather than four boxes at a profit of twenty-five cents each. Such retailers are a detriment to the industry and the wholesale dealers have been making a concerted effort to show this class of retailers the error of their way and endeavoring to correct the evil, and we fully expect that material improvements will be made.

We do not believe that the changing of the present system of marketing and distribution of fruits would eliminate this noticeable difference in what the consumer pays and the grower receives, as no system which eliminates the wholesale dealer and retailer will be sufficiently extensive to dispose of the quantity of fruits which is being marketed under present conditions. Each wholesale dealer has a force of traveling salesmen ranging from three to fifteen to a firm, and without this array of salesmen, each confining his entire efforts to the selling of fruit and produce the disposition of even the present quantity would be impossible. We believe that the exorbitant profit exacted by the retailers is a problem for the wholesalers to solve, and we

certainly could not recommend any marketing methods which would tend to eliminate the wholesale dealer.

We do not consider that there was an overproduction of apples this past season, but do believe that there was a radical under-consumption. It is a difficult problem to solve and during the agitation necessary, before the problem can be solved, the quantity consumed and the prices realized will be materially affected. The agitation along this line which has been indulged in for the past two or three years has materially affected the consumption of all fruit and produce, as the consumers have been impressed with the fact that they were being unjustly taxed and compelled to pay tribute to such an extent that it became obnoxious, and rather than continue this they eliminated from their necessities those things which such agitation affects.

Twenty Reasons for Low Prices

[Written especially for "Better Fruit"]

THE fruitgrowers of the Northwest in 1912 produced the largest crop of apples ever grown in the Northwest. At the same time an immense crop of apples was produced in every apple-growing district in the United States, with large crops in Canada as well. No one condition is responsible for 1912 prices. There are many, among which may be mentioned the following, not named in their order of importance as affecting the situation, which would be a most difficult thing to do:

First. The large crop of boxed apples and the enormous crop all over the United States as well as foreign countries.

Second. The unrest that has to a greater or less extent affected many lines of business, the general condition of business, other crops being affected in prices similarly.

Third. The greater proportion of boxes compared with barrels.

Fourth. Too late picking, poor packing and bad grading.

Fifth. A lack of cold storage facilities caused much fruit to arrive on the market in too ripe condition.

Sixth. Indiscriminate shipping of C grade, a grade too low to justify shipment East.

Seventh. The shipment of ordinary varieties that will not bring sufficient prices to justify packing, freight and other expenses, thus lowering prices of apples and replacing the sale to some extent of the good varieties.

Eighth. Lack of proper distribution.

Ninth. Self competition between marketing organizations at home.

Tenth. The selling of winter varieties and other varieties out of season, when not fit for consumption.

Eleventh. A lack of advertising and proper exploitation of the value of the apple as a diet and an aid to health, the apple being one of the most valuable fruits in preventing constipation, which, we all know, is more or less general, particularly with those living in the city with sedentary habits.

Twelfth. A lack of knowledge on the part of the consumers as to how to cook and serve apples for dessert.

Thirteenth. Lack of co-operation, perhaps prejudice, against boxed apples in favor of barreled apples in some markets.

Fourteenth. The glutting of markets with poor varieties and poor grades which should have gone to the vinegar factory, cider mill or evaporating plant.

Fifteenth. Frequently too many profits between the grower and consumer.

Sixteenth. The exorbitant retail price of apples charged by the retailer.

Seventeenth. The general tightness of the money market.

Eighteenth. Too much indiscriminate consignment to Tom, Dick and Harry.

Nineteenth. A lack of proper salesmen in consuming territories.

Twentieth. A lack of knowledge as to how to conduct our selling campaign in a scientific, businesslike way, according to modern, improved methods of doing business.

Can the Northwestern Peach

It is estimated that Washington has less than 2,000,000 peach trees of all ages. California has 10,803,000 peach trees; therefore California has over five times as many peach trees as the State of Washington, and the larger part of them is in full bearing. Why is it that in the Northwest we fail to get satisfactory returns from our peach orchards, while California conducts the business successfully? The reason is that California has learned that there is a good profit in dried and canned peaches. Today California is supplying the Northwest with nearly all the dried and canned peaches consumed in this immense territory, while the growers of the Northwest allow peaches to rot on the ground for lack of markets.

Editor Better Fruit:
"Better Fruit" is the finest work of the kind that I ever saw and I hear nothing but praise from all who read it that I have a chance to interview. My brother, A. G. Greenman, of Illinois, says your certainly know how to run a paper. Yours truly, D. A. Greenman, Spokane, Washington.

Editor Better Fruit:
Enclosed find $1.50 subscription to "Better Fruit." I am very pleased with your paper and have started several subscriptions this past year. I wish you a prosperous year. Sincerely, F. E. Morrison, Nelson, British Columbia.

Editor Better Fruit:
We have read "Better Fruit" with a great deal of pleasure and we consider that we have profited by the reading, and we will take pleasure in giving our growers sample copies. Very truly yours, Salem Fruit Union, Salem, Oregon.

Editor Better Fruit:
Enclosed please find one dollar, for which please send "Better Fruit" for one year. I've got to have it in my business; the best is none too good and I consider "Better Fruit" the best. Yours, J. L. Reynolds, hortieulturist, Chelan, Washington.

Editor Better Fruit:
We have long been acquainted with the work and appreciate the merit of "Better Fruit" and the influence which it exerts as well as an advertising medium. Yours truly, W. D. Skinner, traffice manager Spokane, Portland & Seattle Railway, Portland, Oregon.

WHEN WRITING ADVERTISERS MENTION BETTER FRUIT

Taking An Interest In Summer Pruning

By Professor C. I. Lewis Horticulturist Oregon Agricultural College Experiment Station, Corvallis

RECENTLY a great deal of interest is being taken by our fruit growers in summer pruning. There is a great demand for information on this subject. Many letters are being sent to the experiment station, and during the short-course sessions the lectures on summer pruning are among the best attended. There seems to be a prevalent opinion that summer pruning is something new, but careful investigation will show that this is not the case, for it has been practiced in Europe for several centuries. It is interesting to read the comments on pruning by Je de le Quintinye, gardener to the French king; and in his revised work John Evelyn, London, and Wise, furnished English experience. From the time of these old writers to the present day, English, German and French writings have contained much on the subject of pruning, and especially summer pruning. The growing of dwarf trees is undoubtedly responsible for much of the information that has been gathered on this subject. It is interesting to read what John Gibson wrote on the subject of summer pruning in 1768 in The Fruit Gardener, a book published in London: "If, during the first growth, any branch becomes too luxuriant in the middle of the tree pinch it or cut it to such buds as point to the places where wood branches are required; and, in the second growth, you may depend on their being produced. Pinching or nipping of branches may be practiced till the middle of June; if it is put in practice later than this the branches produced from it will not become strong enough before the approach of winter. Continue the pruning through summer and autumn; for by taking off ill-placed branches, and destroying luxurious ones, you convert the whole force of vegetation in the tree to strengthen the good branches, as well the wood as the fruit branches. If summer pruning is practiced with care and judgment, there will require little else to be done in the winter pruning but to reduce to regularity the branches that are properly placed, as to provide a new set of wood and fruit branches for the ensuing year." Owing to lack of space I am unable to quote this writer further, but it is interesting to read what such writers have had to say on this subject.

Some of the reasons for summer pruning may be the following: To provide greater shade, by shearing the trees, this shearing forcing out new lateral growth, thus making a denser top (this has been adopted by many growers in California, where the growing season is long and bright sunshine and heat may be expected); to shape and control the habit of growth of young trees, thus causing the formation of desirable laterals, and in this way gaining a year; to remove undesirable growth, as watersprouts; to suppress branches that are growing too rank; to correct undesirable fruiting habits, as in the case of trees that tend to bear fruit on terminal buds, like the Bartlett pear, for example, and to induce fruitfulness. Summer pruning may, therefore, be for wood on the one hand or for fruit on the other hand. There is an old adage which reads: Prune in winter for wood and in summer for fruit. This statement, however, is altogether too general. The amount and time of pruning and the age and kind of trees are the determining factors in summer pruning.

Summer pruning for wood applies especially to the first three years of the tree's life, or, in some cases, to trees somewhat older that have been overpruned in winter and, if allowed to grow until the succeeding spring, will become too rangy. In summer pruning young trees I would suggest that very little of it be done the first year, the pruning this season to consist of the removal of undesirable buds and young shoots which, if allowed to grow, would take nourishment away from the branches that should be retained for the framework of the tree. This pruning should always be light in character. During the second and third years of the tree's growth some growers feel that they can gain an entire season by pruning in June, and in some experience that I have had personally I am inclined to believe that in many cases this is true. As soon as the leading branches have made a growth sufficient to allow the proper formation of the second laterals, these leading branches should be pinched back; and in place of a strong terminal growth there will be secured lateral branches on each leader and by fall they will have made sufficient growth

so that practically an entire season has been gained in forming the framework of the tree. The amount of this pinching or pruning back should depend upon the variety and the growth the trees have made. It is probably better if it can be done without removing large quantities of foliage. Some people believe that such removal devitalizes the tree. However, this is a point which is open for further investigation. Where the pruning is done early, as in May or June, such trees will have ample opportunity to harden up their growth sufficiently before winter. In the case of some pruning that I did with some three-year-old cherry trees last June, I am satisfied that this practice will gain much time in the shaping of the tree and will tend to reduce the very heavy pruning that is necessarily required with vigorous trees in the spring.

When young trees have reached that age that they should bear heavily, but tend to run to wood rather than to fruit, thinning out some of the excessive growth in June, followed by moderate heading-in of the terminal growth after terminal buds are beginning to form, will probably assist in bringing the tree into fruitfulness, especially if one is careful at the same time not to over-stimulate the trees by excessive tillage, irrigation or fertilizing. In fact, in such cases, tillage should cease very early, and in aggravated cases it may pay even to sow a grain crop in the orchard for one season. I am satisfied that many of our fruitgrowers are making a serious mistake by overdoing summer pruning in bearing trees. I have seen trees fairly slaughtered in the summer time, branches six inches in diameter being removed. I have watched several such orchards carefully and must conclude that such pruning is generally injurious to the tree, exposing parts of the tree to sunburn and often unbalancing the tree by forcing out excessive watersprout growth. Another mistake that I feel many growers are practicing is the shearing off of the trees so that the entire top of the tree is practically level, giving the appearance of an inverted Dutch haircut. In cutting back such trees all branches should not be cut back uniformly, but should be cut back according to the vigor of each terminal branch.

Bartlett pear trees have the habit of bearing much of their fruit on terminal buds and spurs. If you have examined the trees this spring carefully you will find that many of the terminal buds, instead of producing wood to continue the growth of the shoot, will, on the contrary, produce fruit. Another condition which often arises is to have the terminal growth soon after starting in the spring produce a secondary bloom, and thus check the terminal growth. It is nothing uncommon to find Bartlett trees at about the age when they are coming into heavy bearing forming most of their fruit buds out near the ends of long, rangy terminals. In all probability a pruning back of some of

the terminal growth in June would have a tendency to force out new lateral growth and thus avoid this undesirable condition. It is interesting to note that this bearing of fruit on the ends of branches of pear trees troubled some of our English growers nearly two centuries ago, for Langly, in his Pomona, written in London in 1729, has the following to say: "And there are some sorts of pears which produce the most of their fruits at the extreme parts of their shoots, and therefore must not be topped, because you not only cut away part of the fruits but the leading bud of the shoot also, for want of which the shoot dies as soon as the fruits thereon are ripened." This quotation evidently referred to the fruiting of dwarf trees. It nevertheless applies to a certain degree to our Bartlett trees of today. A cutting back of these branches may deprive us of some of this year's crop, but it will put the tree in proper condition for better bearing in future years. June is generally a good time to prune the grafts. Most growers make the mistake of allowing the grafts to grow an entire year before they do any pruning. As a result the growth is generally tall and whip-like, and when cut back the following spring gives rise to a second sappy, vigorous growth. Pinch back the grafts when they have reached the point where you desire lateral branches to form. The result will be pleasing to you, as you will build a broad, spreading tree, will keep the tree lower headed, will practically gain a whole year in your pruning and will have less breakage and loosened grafts.

Summer Pruning for Fruit.—When we speak of summer pruning, most growers think at once we mean only pruning to induce fruitfulness, and undoubtedly most of the summer pruning that is done has this one object in view. In glancing over the literature on summer pruning one is impressed by the fact that there seem to be several theories. One is that summer pruning changes leaf buds into fruit buds. Another is that summer pruning causes the immediate formation of fruit buds. These theories are probably incorrect. With most varieties of pomaceous fruits, such as apples and pears, I doubt if summer pruning will give very immediate effects as far as the succeeding fruit crop is concerned. I am inclined to believe that it will affect more the crop of the second and third years and will induce some of the younger wood to come into heavy fruiting earlier than otherwise. Probably in the case of certain stone fruits, like peaches and cherries and those varieties of pomaceous fruits that bear on terminal buds on one-year-old wood, or even on the current year's growth, fruit may follow the pruning of such varieties. But we can also answer that you get this fruit if you don't prune. Until more careful experiments have been conducted and good checks are kept it will be impossible to prove what summer pruning will do for such varieties. Many growers feel that with

peaches it is an advantage to prune in early summer, not so much to induce fruitfulness, because the peach bears only on one-year-old wood anyway, but to control the type of bearing wood. Too vigorous wood on the one hand or too weak wood on the other does not give an even distribution of large fruits.

In summer pruning of pomaceous fruits I have noticed that such pruning thickens up the wood very materially, which means that there is an accumulation of tissue, and an accumulation of this kind is very apt to give rise to fruiting wood; but I will expect it to affect the spurs that are growing next year. If you examine the trees carefully at the time the summer pruning is done you will find that the fruit buds and leaf buds are already there. An accumulation of tissues, however, will in all probability strengthen the fruiting areas. The question arises, when is the proper time to summer prune for fruit? We can set no fixed date. It will vary tremendously. Soil, climate, age of trees, variety, individuality of tree and general care given will combine to determine the proper time. Some sections it may be early in July. In other places it may be in September. The proper time to summer prune is when the terminal buds are forming on the upright shoots. Early in the season you will notice that the tips of the shoots are gray-green and that the leaves are small. Later the shoot takes on the normal green color, the leaves become larger and a plump bud forms at the end. When this occurs it is time to summer prune, and under ordinary conditions moderate pruning at this time will be followed by very little after growth. In fact if there is much after growth it is a pretty good indication that the pruning has been done too early. The question is asked, will not this after growth be weak and winter kill? It often will. But this will have very little influence on the tree as a whole. The question is asked, will this summer pruning take the place of next spring's pruning? In some cases it will, but in others it will not. I should prune the trees the following spring if they needed it regardless of the summer pruning. If a short, brushy growth has been thrown out I would be apt, the following spring, to cut below this.

How much shall I remove? This varies tremendously according to the vigor of the shoot—anywhere from three to fifteen inches. Avoid cutting all branches the same amount, but keep in mind the general balance of the tree. I could cite quite a number of cases wherein such summer pruning has aided materially in bringing orchards into heavy bearing. The best advice I can give to those who wish to take up summer pruning for the first time is to take it up on a limited scale at first. Prune moderately. Prune at several different dates and leave a check plot which you have left unpruned. In this way you will soon learn to adapt summer pruning to your local conditions.

The Orchard Is Healthful and Ideal for Poultry

By G. J. Simmonds, Mannette, Washington

IN the jungles of India and the Asiatic islands still lives the Gallus Bankiva, whose remote progentitors were the ancestors of our numerous varieties of chickens. In these jungles these ancestors found shelter from storms, hiding places from enemies and plenty of food of various kinds. But the jungle was not always friendly. It contained birds and beasts of prey that enjoyed toothsome broilers perhaps as much as any diner in a city restaurant, and frequently found their hiding places. Sudden storms often drenched the young chicks and they died. Other conditions peculiar to the jungle made it necessary for the female to lay an abundance of eggs in order to insure the perpetuation of her kind.

To reproduce those conditions of the jungle that are favorable to chickens, to eliminate those that are unfavorable and to preserve or increase the fecundity of the female is the problem confronting poultrymen who would be successful. As to shelter, all that is necessary is a house on slightly elevated ground, so it will be always dry and built as to be rat proof, free from draughts, sunny, cheerful and providing an abundance of fresh air. There are many plans for constructing such houses, and whatever plan is selected it should be one that will reduce labor to a minimum. As to food, there is no one better able to produce jungle conditions than the fruitgrower. The fowls can find bugs and worms around the roots of trees and shrubbery and will pick up numerous insects that are inimical to fruit culture. They will also find young and tender shoots of grass and newly-sprouted seeds and grains, and if there be some sod in the orchard they can obtain the bulky fibrous food so essential to their well being. In addition, an orchard provides shade and the cultivated ground around the base of trees and shrubberies will afford ideal dust baths, where the fowls can free themselves from vermin. If the orchard have narrow strips of sod running one way between the rows of trees it will be ideal as a chicken range.

Should the orchardist desire to take a fling at a poultry show now and then the shade of his trees will be an essential thing for birds whose plumage he desires to keep in the best possible condition, because under the bright glare of the summer sun colors of feathers fade and become dull and lifeless. This is true of all varieties of chickens, though some assume it ap-

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plies especially to white varieties. However, fowls of white plumage bear their health certificates with them and when dressed for market present a cleaner, more tempting appearance. Moreover, their feathers are worth more than colored ones and they easily "breed to color." These facts have led to the increasing demand for white varieties and the Fawn is giving place to the White Indian Runner; the White Plymouth Rock is more popular than the Barred, and in recent years the Rhode Island White is coming into popularity by leaps and bounds. This variety, with its long deep body, broad back and well-sprung ribs, is a typical layer, as it has proven by performance. It has the distinction of being the only American breed that has game flesh. This characteristic and its white plumage and yellow skin make the Rhode Island White an ideal market fowl in addition to its being a great winter layer. Now that markets are demanding white varieties more and more, and better qualities in chickens just as it has demanded better fruit, the one best able to meet this demand to produce the white fowl in all its snowlike loveliness, to give it size and vigor and quality, to obtain an abundance of eggs where others would fail, is the fruit-grower, for his orchard is a natural home for chickens.

Stop Knocking

A recent letter to the editor of "Better Fruit" from Mr. Benjamin Newhall, 840 Otis Building, Chicago, should prove interesting to a great number of our readers. We heartily accord it space in our columns:

"I have just read 'Better Fruit' for March from beginning to end, every word of every article — something I never did before in any trade paper. I consider it pretty nearly marks the beginning of a new epoch in the growing and marketing (particularly the latter) of the apple, and I believe it is the best number yet issued, and that is saying a lot. But what is the matter with some of those writers? They seem to be frightened to death. I take it that many of them are new in the apple trade. They have not seen the ups and downs of this and that section; one will rise, you know, bloom awhile, and then settle back to follow others.

"Take the Central West: They went crazy in 1891 and 1892. Thought they had the only apple country on earth. Take Michigan before that: Big yields, wonderful quality, good prices. Take the Ozarks in 1901: The only section with a crop; they got the bighead. Take the Virginias: A few big foreign sales of their York Imperials, and *they* went crazy. Western New York: The same there; the growers dictating the price. Then think of the other side of it; everyone of them has seen it. And now comes the Northwest. Higher and higher average prices, $200, $500, $1,000 acre yields; no limit to the price of apples or of orchards! 'Five acres a living, ten a competence, twenty a for-

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tune.' Are they in for an awakening, or can they profit by example? If this rude shock does only one thing, however, it will be worth all it costs. I mean, bring all sections of the West together, and of the East, too, for that matter. There has been too much of 'Yakima apple,' 'Wenatchee apple,' 'Hood River apple'; it should be Western apples, and even that is limiting it too much. It should be 'good apples,' 'poor apples,' no matter where from.

"The Northwest has been running down Michigan and New York apples —'only fit for cider,' etc. Michigan and New York have been retaliating with 'Apples that you buy once, but never twice'; 'Looks, and no flavor or cooking quality,' etc., etc. It is all wrong, of course. We are all guilty; I am, and you are, I think. Let's stop it. Let's arrive at a standard of grade, no matter whether they grow in Hood River or Grand Rapids, whether packed in barrels, boxes or baskets. It can be done, I think, and then let's try to find eaters of apples, not Western apples or Eastern apples, but apples; for after all the consumer is the court of last resort, and all apples must be consumed.

"I am a grower now, not a dealer, and perhaps my viewpoint has changed, but not much, I think. I agree with everything that has been said in this number of 'Better Fruit' as to the needs for advertising, but that is not all. In these articles in 'Better Fruit' are a lot of good suggestions for broadening the markets. My own idea is that the most important feature of all was not brought out clearly enough, namely, getting the fruit to the ultimate consumer in perfect shape, and getting the variety and kind of fruit he can best use. For instance, the street fruit sellers in the large cities want fairly ripe, good eating apples of good appearance, but about one-half of the fruit one sees offered for sale at the street stands or on the fancy fruit dealers' shelves in Chicago, New York and the other large consuming markets are either poor eating varieties of fine appearance, or dull colored or half ripened specimens of good varieties, usually exposed to the filthy dust of the city street, unless occasionally wiped off with a dirty rag or handkerchief. Every apple is eaten with an inward prayer that it is not defiled by someone in some way. Then about half the good looking varieties are sold under false names: Ben Davis sold as New York Pippins, Aristo Blacks, and sometimes for Jonathans and Spitzenbergs; Rome Beauties sold for Kings, etc. (not so bad). Then Western varieties are sold for Michigan grown and vice versa, and this is just as bad. Yesterday I saw on a prominent corner here a large pile of fine looking Lawvers, Arkansas Blacks, Black Ben Davis, York Imperials, etc., all beautifully polished and labeled 'Fancy eating apples,' and they were selling, too. Most of the people who bought them passed by a pile of real eating apples like Western Michigan McIntosh, Wenatchee Stayman Wine-

saps, Colorado Jonathans and Grimes Goldens, for they were not labeled.

"If no apples could be sold, in the large cities at least, excepting under sanitary conditions, and excepting under their true names, said names to be plainly marked on them, the trade in eating apples would increase at once; and if in warm weather they could be shown in refrigerating boxes or compartments with glass sides and tops, such as some florists are using, so that one could bite into a crisp, cool, clean apple in the warmest weather, the trade in eating apples could be doubled and trebled and quadrupled. It would be up to the shippers to show for eating only varieties that are really good to eat, and relegate the Ben Davis family, the Lawvers, Alexanders, Wolf Rivers, Arkansas Blacks, Missouri Pippins, Walbridges, wherever grown, the California Newtowns, Michigan Pennocks and Alexanders to the cooking apple class or worse (for they are not much even when cooked). Then still another thing would help. If some clever Yankee will get up a practical paring tool for apples he will earn the everlasting gratitude of the apple trade. No one wants to eat an apple already peeled by someone else, and yet many go without at hotels and family meals rather than go through the sticky operation of peeling their own apple with an ordinary knife. Your people out there have the brains; they have beaten us of the East all hollow in making the most of existing conditions, and 'Better Fruit' knows how to tell them. Can it be done?"

Almost the whole world knows of Hood River as a place that produces the best fruits, and all of Hood River Valley should know, and could know, that there is one place in Hood River, under the firm name of R. B. Bragg & Co., where the people can depend on getting most reliable dry goods, clothing, shoes and groceries at the most reasonable prices that are possible. Try it. [Advertisement]

Portland Forecast District U. S. Weather Bureau

During the months of April and May, when frost may be expected in the Portland, Oregon, Forecast District, comprising the States of Oregon, Washington and Idaho, the chief of the Weather Bureau, Professor Willis L. Moore, has arranged to have in seven localities trained men on the ground prepared to amplify the district warnings by notifying fruit raisers just what minimum temperatures may be expected on frosty mornings. This, it is believed, can be done within a degree or two, if verified by the temperatures obtained at our "key" stations, liberally distributed in these sections. The fruit raiser should know how the temperature in his orchard varies from the temperature at the nearest "key" station, and thus be able to determine very closely just what to expect in the way of frost at his place when warn-

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ings of frost are issued. The names of the localities where Professor Moore has arranged for this service and the assistants designated for handling the local end of the work are as follows:

Rogue River Valley (Ashland to Grants Pass)—Headquarters, Medford, Oregon; local assistant, Professor P. J. O'Gara.

Hood River Valley (entire valley)—Headquarters, Hood River, Oregon; local assistant, Professor W. H. Lawrence.

Yakima Valley (Naches to Pasco)—Headquarters, North Yakima, Washington; local assistant, T. R. Reed.

Wenatchee Valley (Leavenworth to Wenatchee)—Headquarters, Wenatchee, Washington; local assistant, R. M. Hardinge.

Puyallup-Stuck Valleys (Kent to Orting)—Headquarters, Seattle, Washington; local assistant, G. N. Salisbury.

Lewiston-Clarkston District — Headquarters, Lewiston, Idaho; assistant, W. W. Thomas.

Boise District (Weiser to Boise)—Headquarters, Boise, Idaho; local assistant, E. L. Wells.

Fruit raisers are invited to call or correspond with these men for further information. They can also call upon them to compare their thermometers if in doubt regarding their accuracy at temperatures near the frost mark. In other sections warnings will be issued as heretofore, being classified as light or heavy according to the general meteorological conditions prevailing at the time. When a light frost is predicted it means a frost with no destructive effects except to tender plants and vines in exposed places. When a heavy frost is predicted, the conditions are such as to lead to the belief that staple products will be injured. The recipients of these warnings should distinguish between the two classes; the light frost warning being issued when it is expected that fruit will not be injured, but as a possible forerunner of heavy frost, and also for the benefit of those having crops in low places where frosts occur with greater severity and with more frequency than commonly experienced in the neighborhood. When warnings of heavy frosts are issued, damaging temperatures are expected to be general, and all those prepared to protect their crops should be on the alert for them. In a country with topography so diversified as that in the North Pacific states, much will have to be left to the individual fruit raiser in places where the work has not been localized, and every warning, whether of a light or heavy frost, will most likely need some amplification by the man on the ground.—Edward A. Beals, District Forecaster.

Filbert Culture

Of late much interest is being shown in filbert culture in the Pacific Northwest. The filbert has been grown for a long time in Oregon and Washington, although extensive plantings have never been attempted; most of the bushes being grown in home yards. Years ago it was reported that a sort of blight attacked the bushes and this discouraged some growers. Of late a number of men are reporting success in the growing of filberts. Mr. George Dorris of Springfield, Oregon, has recently contributed an article regarding his success in growing this nut.

We all know that all over Western Oregon and Washington the wild hazel nut grows in great abundance. It would therefore seem that we have the soil and climatic conditions exceedingly favorable for the production of this nut. Improved French strains of filberts are far superior to hazel nuts. Nuts bought in our markets are more like the wild types than the improved strains. The Oregon Agricultural College has an extensive planting of filberts comprising fourteen varieties that are just coming into bearing, and in the next two or three years should throw considerable light as to the best varieties to grow. It will be some time before we will know what are the best soils and conditions on which to plant filberts. We know the wild nuts like a cool, moist soil. The best advice we can give to men who wish to go into the filbert business is to try it conservatively first, on a small acreage with only a few bushes.

The plants grow either as bushes or trees. Many authorities seem to believe that the trees are better commercial propositions. They require about the same tillage and treatment as one would give young fruit trees. For experimental purposes we plant the trees ten to twelve feet apart. The varieties receiving the most favorable comments are the French or Spanish strains of Barcelona and DuChilly. These seem to do better than the English cob nuts. If more people would try the filbert on a small scale it would not be very long before we could determine the exact conditions which favor successful culture of this nut. There is a possibility that we can build up a big industry in the Pacific Northwest in filbert growing.

Campaign of Education

"Better Fruit" always welcomes suggestions from those interested in the fruit industry and gladly gives space to anything that tends toward advancement. The following letter from Mr. C. F. Bley, the well-known fruit tree specialist of Hamburg, New York, will be found well worth its perusal:

"The article in March number of "Better Fruit," "The Apple Market, Evils Shown and Remedies Proposed," is, in the writer's judgment, worth many times the subscription price of "Better Fruit" to any enterprising apple producer, West or East. Setting forth as it does practically every weakness and shortening known and admittedly existing, as well as proposing many unique but practicable means of overcoming faulty, slack practices by which the present depressed market conditions were brought about.

"A systematic campaign of education would perhaps in a general way be the most important measure that could be adopted. A feature of such campaign should be to familarize the consumer with the food and hygenic value of the apple in general and with the merits and chief characteristics of leading varieties in particular. The consumer

WHEN WRITING ADVERTISERS MENTION BETTER FRUIT

should and has a right to know not only the name but the origin as well as well as the technical qualities that makes a certain apple his favorite. He should be made to know the commercial rating of that apple. Size and color alone of an apple are no more a criterion of intrinsic merit than the complexion and bust measure are correlative with the character of a man we may meet casually or whose personage may impress us. A united effort on the part of societies, unions and exchanges is all right so far as it goes, but a large and fruitful field is open to individual efforts.

"Let every enterprising apple grower set aside a certain liberal fund, and beginning with Maidens Blush and Twenty Ounce, next season send free sample packages by parcel post to his friends and business acquaintances and others in large towns and cities. Get him to direct a form of personal letter to each prospective customer stating price at which similar fruit will be furnished, the quantities and style of package. In every box or sample package let him include a good color plate of variety and under it a brief history of the apple and its chief merits. To this should be added a technical description of fruit, based on the locality where grown. The public should be educated, and it can be, to buy apples as freely and readily as it now does oranges, and when it does the demand for the king of fruits will doubled. The pleasing contrasting flavors of the various standard varieties of apples offers a tempting and appetizing change from one to the other."

Country-Wide Interest Aroused In Apple Advertising

The year 1913 will be recorded in the commercial history of this country as the one in which the terms "Apples" and "Advertising" became inseparably connected, for the great and lasting good of the entire apple industry. Mr. U. Grant Border, the hard-working chairman of the advertising committee of the International Apple Shippers' Association, states in a recent interview that the results obtained in the comparatively short time since the committee was appointed have far exceeded his most sanguine expectations, and fully demonstrate that his association is on the right road to removing the bugbear of the apple trade—under-consumption. As an evidence of the results intensive advertising among retail dealers has produced, Mr. Border exhibits a voluminous list containing the names of retailers in all of the large consuming centers who have taken the trouble to write him of their interest in the campaign to educate the public to use more apples, promising their earnest co-operation along such lines as his committee suggests, and indicating their desire to increase the market for apples by distributing booklets of apple recipes to their customers.

Of course, the primary motive behind this action on the part of so many retail

dealers is to increase their own sales and profits, but it is just such a motive that the committee desires to awaken, knowing that through it the ultimate end of the association — moving the apple crops — can be best achieved. (Mr. Border has already impressed upon 20,000 representative dealers in the principal cities the fact that large sales and moderate profits, instead of the present disastrous policy of big profits and small sales will bring unprecedented prosperity to all concerned.) In the course of the interview Mr. Border expressed his gratification at the hearty support apple growers and shippers in all sections were giving to his work. He attributes this largely to the fact that his committee went at its work in a thoroughly businesslike way, spending no money where it did not see that direct, tangible results could be obtained, and avoiding the dangers that come from spasmodic, haphazard advertising methods. Knowing that to get the maximum results advertising must be done steadily from year to year, one of the principal problems that faced this committee was to formulate a plan by which the expense of the advertising could be equitably distributed among all who would profit from the advertising, and in such proportions that the cost would not be burdensome to any one firm. This was indeed a task, for it is apparent to all who have studied the matter that the cost of an adequate advertising campaign would be more than any one firm or even a single group of firms could stand.

The stamp plan, however, devised by the committee after much careful consideration, avoids this difficulty and provides the necessary funds in a way that will be scarcely felt by any grower or shipper and yet brings him, through increased sales, profits that will be distinctly worth while. (As previously explained in this journal, this plan provides that a two-cent stamp be placed on every barrel shipped and a one-cent stamp on every box shipped, the proceeds to be placed in the custody of a trust company and devoted entirely to advertising. Preparatory to asking the adoption of this plan by his association, Mr. Border has discussed it with prominent shippers and growers in many sections, and their opinions have been invariably favorable. Mr. W. F. Gwin, general manager of the Northwestern Fruit Exchange, Portland, Oregon, is one of the most enthusiastic endorsers and promises the hearty co-operation of his exchange in this work. Among the many recent endorsements received by the chairman are the following:

"I sincerely hope you are going to be able to have the stamped packages before we begin to ship again."—Mountain Crest Orchards, Orrtanna, Pennsylvania.

"I think the stamp idea of raising funds for the advertising campaign is a mighty good one, and if it can be worked out right, as I believe it can, I think it will accomplish its purpose in many ways."—J. H. Hale, of the J. H. Hale Company, South Glastonbury, Connecticut.

"I hasten to assure you of our hearty co-operation in the matter of a systematic plan for advertising 'The Apple.' We are willing to open the subscription for stamps or any other basis the committee may determine upon

WHEN WRITING ADVERTISERS MENTION BETTER FRUIT

as soon as you are ready."—Crutchfield & Woolfolk, Pittsburg, Pennsylvania.

"Will use our influence to have every package of apples stamped."—Steinhardt & Kelley, new York.

"The idea of a stamp to be placed on every package of apples shipped is the right way to raise the money."—W. K. Newell, President State Board of Hortieulture, Gaston, Oregon.

"This strikes me as a splendid idea and I for one will be glad to assist as much as possible."—Abram A. Post, Wayside Farms, Stanley, New York.

Among the many other concerns that have pledged Chairman Border their hearty support along whatever lines his committee advises, including the stamp plan, are F. Mertens Sons of Cumberland, Maryland, one of the largest producers of apples in the entire country, who soon expect to have ready for the market a tremendous crop which will be extensively advertised; C. M. H. Wagner & Sons, large marketing agents and jobbers of Chicago; Quincy Market Cold Storage and Warehouse Co., Boston, and S. H. Stanger & Sons, Glassboro, New Jersey.

Many requests have been received from growers and shippers for the "Housekeepers' Apple Book," to be issued by the committee for distribution to consumers. The Northwestern Fruit Exchange of Portland, Oregon, states that it intends to distribute recipe books freely in selected territory. S. H. Stanger & Sons of Glassboro, New Jersey, say that they will place one in every home of their town. Mr. Abram A. Post of Stanley, New York, is planning to send out one in each of his packages next fall. This interest extends throughout the entire trade. Once this booklet is placed in the hands of the housewife her use of apples will be doubled or trebled, for, introductory to the recipes and across the top of every page, the benefits derived from the use of apples are preached in words that compel response. Here is a sample of the profitable doctrine the booklet preaches:

"In buying apples don't overlook the economy of purchasing them in considerable quantity. Yau pay more when you buy them by the quart or quarter-peek. Ask your dealer to make you a special price on a peck, bushel, box or barrel. They'll keep as long as you require them and the saving will be substantial."

Large business for the retailer, better prices for the consumer and unprecedented prosperity for every apple producer. Chairman Border believes that proper advertising will accomplish each of these results. Judging by the work accomplished with small means and little time, thoughtful apple producers must concur in his belief.—Contributed.

Editor Better Fruit:

We look forward every month to receiving a copy of "Better Fruit," as the various items are always of great interest. We wish to congratulate you on the high-class paper which you are publishing and we insure you that from the advertising standpoint we have found "Better Fruit" to be one of the best papers which we advertised in. Wishing you continued success, we are faithfully yours, Sanitary Closet Co., Portland, Oregon.

Editor Better Fruit:

The writer takes pleasure in saying that in his opinion your exposition of the condition in the apple industry and market is probably the clearest that has been written. We are very glad to know that you are taking steps to secure a very wide distribution of this issue. Yours truly, Wenatchee Valley Fruitgrowers' Association.

Northwest Fruit Growers' Unions and Associations

We publish free in this column the name of any fruit growers' organization. Secretaries are requested to furnish particulars for publication.

Oregon

Albany Fruit Growers' Union, Albany.
Ashland Fruit and Produce Association, Ashland.
Benton County Fruit Growers' Association, Corvallis.
Brownsville Fruit and Produce Association, Brownsville.
Butte Falls Fruit Growers' Association, Freewater.
Coos Bay Fruit Growers' Association, Marshfield.
Coquille Valley Fruit Growers' Union, Myrtle Point.
Cove Fruit Growers' Association, Cove.
Dallas Fruit Growers' Association, Dallas.
Douglas County Fruit Growers' Association, Roseburg.
Dufur Valley Fruit Growers' Union, Dufur.
Dundee Fruit Growers' Association, Dundee.
Dundee Co-operative Fruit Growers and Packers, Dundee.
Estacada Fruit Growers' Association, Estacada.
Eugene Fruit Growers' Association, Eugene.
Hood River Apple Growers' Union, Hood River.
Hyland Fruit Growers of Yamhill County, Sheridan.
Imbler Fruit Growers' Union, Imbler.
La Grande Fruit Association, La Grande.
Lincoln County Fruit Growers' Union, Toledo.
McMinnville Fruit Growers' Association, McMinnville.
Milton Fruit Growers' Union, Milton.
Mosier Fruit Growers' Association, Mosier.
Mount Hood Fruit Growers' Association, Sandy.
Newburg Apple Growers' Association, Newburg.
Northwestern Fruit Exchange, 418 Spalding Bldg., Portland
Northeast Gaston Farmers' Association, Forest Grove.
Oregon City Fruit and Produce Association, Oregon City.
Riddle Fruit Growers' Association, Riddle.
Rogue River Fruit and Produce Association, Medford.
Salem Fruit Union, Salem.
Santiam Fruit Growers' Association, Lebanon.
Siuslaw Fruit Growers' Association, Florence.
Springbrook Fruit Growers' Union, Springbrook.
Stanfield Fruit Growers' Association, Stanfield.
Sutherlin Fruit Growers' Association, Sutherlin.
The Dalles Fruit Growers' Union, The Dalles.
Umpqua Valley Fruit Growers' Association, Roseburg.
Washington County Fruit Growers' Association, Hillsboro.
Willamette Valley Prune Association, Salem.
Yankton Fruit Growers' Association, Yankton.

Washington

Apple Growers' Union of White Salmon, Underwood.
Bay Island Fruit Growers' Association, Tacoma.
Brewster Fruit Growers' Union, Brewster.
Buckley Fruit Growers' Association, Buckley.
Cashmere Fruit Growers' Union, Cashmere.
Clarkston Fruit Growers' Association, Clarkston.
Cowlitz Fruit and Produce Association, Kelso.
Dryden Fruit Growers' Union, Dryden.
Elma Fruit and Produce Association, Elma.
Felida Prune Growers' Association, Vancouver.
Garfield Fruit Growers' Union, Garfield.
Goldendale Fruit and Produce Association, Goldendale.
Grandview Fruit Growers' Association, Grandview.
Granger Fruit Growers' Association, Granger.
Kalama Fruit Growers' Association, Kalama.
Kennewick Fruit Growers' Association, Kennewick.
Kiona Fruit Growers' Union, Kiona.
Lake Chelan Fruit Growers' Association, Chelan.
Lewis County Fruit Growers' Association, Centralia.
Lewis River Fruit Growers' Union, Woodland.
Mason County Fruit Growers' Association, Shelton.
Mount Vernon Fruit Growers' Association, Mount Vernor..
Northwestern Fruit Exchange, 510 Chamber of Commerce Building, Spokane.
Peshastin Fruit Growers' Association, Peshastin.
Pullman Fruit Growers' Association, Pullman.
Puyallup and Sumner Fruit Growers' Association, Puyallup.
Spokane County Horticultural Society, Spokane.
Spokane District Fruit Growers' Association, Spokane.
Spokane Inland Fruit Growers' Association, Keisling.
Spokane Valley Fruit Growers Co., Otis Orchards.
Spokane Valley Growers' Union, Spokane.
Southwest Washington Fruit Growers' Association, Chehalis.
Stevens County Fruit Growers' Union, Myers Falls.
The Green Bluffs Fruit Growers' Association, Mead.
The Ridgefield Fruit Growers' Association, Ridgefield.
The Touchet Valley Fruit and Produce Union, Dayton.
Thurston County Fruit Growers' Union, Tumwater.
Vashon Fruit Union, Vashon.
Walla Walla Fruit and Vegetable Union, Walla Walla.
Wenatchee District Fruit Growers' Union, Wenatchee.
Wenatchee Valley Fruit Growers' Association, Wenatchee.
White River Valley Fruit and Berry Growers' Assn., Kent.
White Salmon Fruit Growers' Union, White Salmon.
Yakima Valley Fruit Growers' Association, North Yakima.
Yakima Valley Fruit and Produce Growers' Assn., Granger.
Yakima County Horticultural Union, North Yakima.
Zillah Fruit Growers' Association, Toppenish.

Idaho

Boise Valley Fruit Growers' Association, Boise.
Caldwell Fruit Growers' Association, Caldwell.
Council Valley Fruit Growers' Association, Council.
Emmett Fruit Growers' Association, Emmett.
Fruit Growers' Association, Moscow.
Lewiston Orchards Assembly, Lewiston.
Lewiston Orchards Association, Lewiston.
Nampa Fruit Growers' Association, Nampa.
New Plymouth Fruit Growers' Association, New Plymouth.
Parma-Roswell Fruit Growers' Association, Parma.
Payette Valley Apple Growers' Union, Payette.
Twin Falls Fruit Growers' Association, Twin Falls.
Weiser Fruit and Produce Growers' Association, Weiser.
Weiser River Fruit Growers' Association, Weiser.

Colorado

Boulder County Fruit Growers' Association, Boulder.
Capital Hill Melon Growers' Association, Rocky Ford.
Crawford Fruit Growers' Association, Crawford.
Delta County Fruit Growers' Association, Delta.
Denver Fruit and Vegetable Association, Denver.
Fair Mount Melon Growers' Association, Swink.
Fowler Melon Growers' Association, Fowler.
Fremont County Fruit Growers' Association, Canon City.
Granada Melon Growers' Association, Granada.
Grand Junction Fruit Growers' Association, Clifton, Palisade, Grand Junction.
Kouns Party Cantaloupe Growers' Association, Rocky Ford.
Lamar Melon Growers' Association, Lamar.
Longmont Produce Exchange, Longmont.
Loveland Fruit Growers' Association, Loveland.
Manzanola Fruit Association, Manzanola.
Manzanola Orchard Association, Manzanola.
Montrose Fruit and Produce Association, Montrose.
Newdale Melon Growers' Association, Swink.
Palisade Fruit Growers' Association, Palisade.
Paonia Fruit Exchange, Paonia.
Pent County Melon Growers' Association, Las Animas.
Produce Association, Debeque.
Rifle Fruit and Produce Association, Rifle.
Roaring Fork Potato Growers' Association, Carbondale.
Rocky Ford Melon Growers' Association, Rocky Ford.
San Juan Fruit and Produce Growers' Assn., Durango.
The Producers' Association, Debeque.
Western Slope Fruit Growers' Association, Palisade.

Montana

Bitter Root Fruit Growers' Association, Hamilton.
Missoula Fruit and Produce Association, Missoula.
Woodside Fruit Growers' Association, Woodside.

Utah

Bear River Valley Fruit Growers' Assn., Bear River City.
Brigham City Fruit Growers' Association, Brigham City.
Cache Valley Fruit Growers' Association, Wellsville.
Centerville Fruit Growers' Association, Centerville.
Excelsior Fruit and Produce Association, Clearfield (post-office Layton R. F. D.).
Farmers and Fruit Growers' Forwarding Assn., Centerville.
Green River Fruit Growers' Association, Green River.
Ogden Fruit Growers' Association, Ogden.
Springville Fruit Growers' Association, Springville.
Utah County Fruit and Produce Association, Provo.
Willard Fruit Growers' Association, Willard.

California

California Farmers' Union, Fresno.
California Fruit Exchange, Sacramento.
Fresno Fruit Growers' Company, Fresno.
Lincoln Fruit Growers' Association, Lincoln.
Lodi Fruit Growers' Union, Lodi.
Loomis Fruit Growers' Association, Loomis.
Newcastle Fruit Growers' Association, Newcastle.
Penryn Fruit Growers' Association, Penryn.
Sebastopol Apple Growers' Union, Sebastopol.
Sebastopol Berry Growers' Union, Sebastopol.
Stanislaus Farmers' Union, Modesto.
The Supply Company of the California Fruit Growers' Association, Los Angeles.
Turlock Fruit Growers' Association, Turlock.
Vacaville Fruit Growers' Association, Vacaville.
Winters Fruit Growers' Association, Winters.

New Mexico

San Juan Fruit and Produce Association, Farmington.

British Columbia

Armstrong Fruit Growers' Association, Armstrong.
Boswell-Kootenay Lake Union, Boswell.
British Columbia Fruit Growers' Association, Victoria.
Creston Fruit and Produce Exchange, Creston.
Grand Forks Fruit Growers' Association, Grand Forks.
Hammond Fruit Association, Ltd., Hammond.
Hatzic Fruit Growers' Association, Hatzic.
Kaslo Horticultural Association, Kaslo.
Kelowna Farmers' Exchange, Ltd., Kelowna.
Kootenay Fruit Growers' Union, Ltd., Nelson.
Mission Fruit Growers' Association, Mission.
Okanogan Fruit Union, Ltd., Vernon.
Queens Bay Fruit Growers' Association, Queens Bay.
Salmon Arm Farmers' Exchange, Salmon Arm.
Summerland Fruit Growers' Association, Summerland.
Victoria Fruit Growers' Exchange, Victoria.
Western Fruit Growers' Association, Mission.

"Save-Time"

Patented

Folding Berry Box

Made from Pacific Coast Spruce

Don't Staple. Save Your Time When You Need It.

Pickers Will Set Up This Box. It Is So Easy.

Packed Three Bundles to A Thousand.

Easily Made Up.

No Breakage or Waste.

Solid One-Piece Bottom.

Very Rigid.

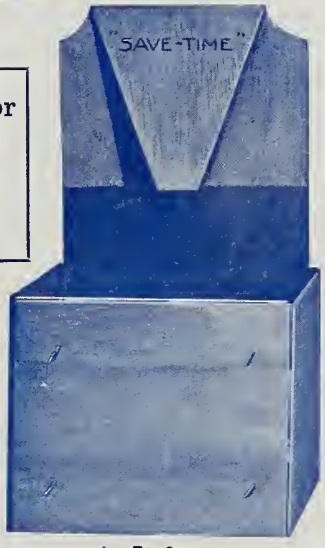
No Staples in Contact with Contents.

Remains in Perfect Position.

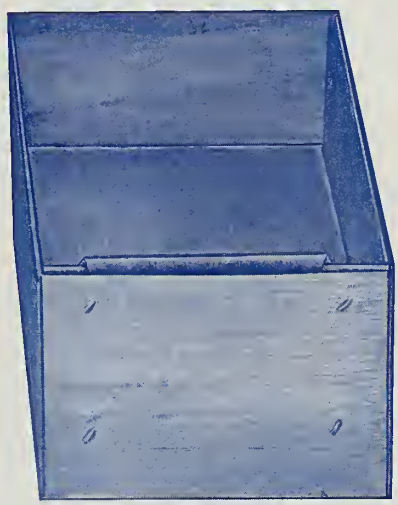
As It Fastens Down

As It Comes Flat

Ask Your Dealer or write our Agents or Us and do it early



As It Opens



As You Fill It

MANUFACTURED BY

C. S. GILCHRIST, President — H. W. McPHAIL, Vice Pres. and Treas. — O. C. FENLASON, Sec. and Mgr.

Pacific Fruit Package Co., Raymond, Washington

DISTRIBUTORS PORTLAND, OREGON, TERRITORY

CHAS. K. SPAULDING LOGGING CO.

Portland, Salem, Woodburn, Oswego, McMinnville, Independence, Newberg

AGENTS SPOKANE TERRITORY

WASHINGTON MILL COMPANY, Spokane, Washington

THE WORLD — OUR ORCHARD

Steinhardt & Kelly

101 PARK PLACE
NEW YORK

TO SHORT-CUT the process of distribution is the constant effort of every Producer and Grower. To the Grower, "Cutting Out the Middleman" suggests reduction of selling cost. To the Consumer it means the reduction of the high cost of living. The Producer must, however, remember that as long as he produces a surplus of any thing he must have someone to market and distribute that surplus and to put it in circulation where and when it is wanted.

The Messrs. Steinhardt & Kelly take pride in the fact that they have done more toward eliminating the high cost of distribution than any other concern in their line of endeavor, entirely due to their scientific and economical system of marketing, made partly possible through the enormous tonnage handled by them.

Most important factors and largest operators in high class fruits in the world

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Purveyors to the most particular consuming clientele on both hemispheres

---

Direct connections in all leading markets and producing sections

THE WORLD — OUR MARKET

General Index to Volumes I, II, III, IV, V, VI and VII

This index is double. Each article is indexed alphabetically, with the author's name following, and also by the author's name, with the name of the article following.

Vol. I—July, 1906, to June, 1907

Note: No reference is made to the number of the volume, as each volume is indexed separately. The first number refers to the number of the magazine in this volume and the second number to the page on which the article is found.

Vol. II—July, 1907, to June, 1908

Note: No reference is made to the number of the volume, as each volume is indexed separately. The first number refers to the number of the magazine in this volume and the second number to the page on which the article is found.

Vol. III—July, 1908, to June, 1909

Note: No reference is made to the number of the volume, as each volume is indexed separately. The first number refers to the number of the magazine in this volume and the second numher to the page on which the article is found.

Vol. IV—July, 1909, to June, 1910

Note: No reference is made to the number of the volume, as each volume is indexed separately. The first number refers to the number of the magazine in this volume and the second number to the page on which the article is found.

Vol. V—July, 1910, to June, 1911

Note: No reference is made to the numher of the volume, as each volume is indexed separately. The first number refers to the number of the magazine in this volume and the second number to the page on which the article is found.

Vol. VI—July, 1911, to June, 1912

Note: No reference is made to the number of the volume, as each volume is indexed separately. The first number refers to the number of the magazine in this volume and the second number to the page on which the article is found.

Vol. VII — June 1912, to ~~July~~ June, 1913

Note: No reference is made to the number of the volume, as each volume is indexed separately. The first number refers to the number of the magazine in this volume and the second number to the page on which the article is found.

We desire to call the attention of our readers that this index occupies the center pages, which can be removed by raising the staples, and placed at the end of Volume 7, if so desired.

Our Splendid Clubbing Offer

"Better Fruit" offers to its readers one of the finest lists of Clubbing Offers ever placed before the public.

These rates do not apply to Canada, owing to extra postage.

American Poultry	$ .50
McClure's Magazine	1.50
Pictorial Review	1.00
"Better Fruit"	1.00
Total	$4.00
All for	3.10

Everybody's	$1.50
Scientific American	3.00
"Better Fruit"	1.00
Total	$5.50
All for	4.60

Youth's Companion	$2.00
Century	4.00
"Better Fruit"	1.00
Total	$7.00
All for	6.35

Country Life in America	$4.00
World's Work	3.00
"Better Fruit"	1.00
Total	$8.00
All for	6.90

Good Poultry	$ .25
Fruit Grower and Farmer	1.00
"Better Fruit"	1.00
Total	$2.25
All for	1.65

Kimball's Dairy Farmer	$1.00
McCall's Magazine	.50
Woman's Home Companion	1.50
"Better Fruit"	1.00
Total	$4.00
All for	2.95

American Bee Journal	$1.00
Good Housekeeping	1.50
"Better Fruit"	1.00
Total	$3.50
All for	2.50

Harper's Weekly	$4.00
Gleanings in Bee Culture	1.00
McClure's	1.50
"Better Fruit"	1.00
Total	$7.50
All for	5.50

Pacific Homestead	$1.00
Review of Reviews	3.00
American	1.50
"Better Fruit"	1.00
Total	$6.50
All for	4.00

Northwest Poultry Journal	$ .50
Good Housekeeping	1.50
Everybody's	1.50
"Better Fruit"	1.00
Total	$4.50
All for	3.35

Oregon Agriculturist	$1.00
Northwest Poultry Journal	.50
"Better Fruit"	1.00
Total	$2.50
All for	1.85

The Etude	$1.50
Century	4.00
"Better Fruit"	1.00
Total	$6.50
All for	5.30

Breeders' Gazette	$1.75
"Better Fruit"	1.00
Total	$2.75
Both for	2.00

Current Literature	$3.00
Scribner's	3.00
"Better Fruit"	1.00
Total	$7.00
All for	5.90

Harper's Monthly	$4.00
Collier's Weekly	2.50
"Better Fruit"	1.00
Total	$7.50
All for	5.45

Home Needlework	$ .75
World's Work	3.00
Garden Magazine	1.50
"Better Fruit"	1.00
Total	$6.25
All for	4.00

Ladies' World	$1.00
Farm Journal (five years)	1.00
Delineator	1.50
"Better Fruit"	1.00
Total	$4.50
All for	3.00

Boston Cooking School	$1.00
Outlook	3.00
"Better Fruit"	1.00
Total	$5.00
All for	4.40

Hoard's Dairyman	$1.00
Woman's Home Companion	1.50
"Better Fruit"	1.00
Total	$3.50
All for	2.90

Western Farmer	$1.00
Northwest Poultry Journal	.50
American Bee Journal	1.00
"Better Fruit"	1.00
Total	$3.50
All for	2.35

Ladies' Home Journal	$1.50
Country Life in America	1.50
Saturday Evening Post	1.50
"Better Fruit"	1.00
Total	$5.50
All for	4.50

Through lack of space we are unable to give a more detailed Clubbing List. Rates on all magazines will be given to any of our subscribers by writing "Better Fruit."