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THE APPLE FROM ORCHARD TO MARKET

By C. I. LEWIS.

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INTRODUCTION.

ALL over our state we are realizing an awakening along horticultural lines, and more especially in fruit growing. Many questions are being asked in regard to the various problems concerned with growing and packing fruit, and the formation of associations. This clamor for information is doubtless due to a number of causes—prominent among them the valiant efforts of our leading horticulturists and station workers—and the realization of fancy prices with the accompanying increase in land value. Whatever the cause, we are just beginning to realize what wonderful opportunities are at hand if we will only grasp them.

It is taken for granted that we must grow a good article. The problems connected with this phase of fruit culture are not dwelt on here. But, it is one thing to grow a fancy product and an entirely different one to dispose of the same. Yet the easiest and largest profits in any business are those made by handling a strictly first class product put up in first class condition. For the expenditure of a few cents one may often realize an increase in price of from fifty to two hundred per cent. Again, no matter what the conditions and the market may be, this kind of fruit will always be the most in demand. The question is sometimes asked, What will become of the prices when we all handle a first class product? The answer is easy: We never shall. Human nature does not seem to be constructed that way. Work as hard as we may for that end, many will still keep on in the old way. But, with a very large percentage of our growers handling their product more carefully we can and always will realize a very fair profit, making fruit growing one of the most lucrative occupations, and at the same time placing the fruit within reach of the great mass of people.

To help the growers who are desirous of putting a better pack on the market is the province of this bulletin. Thanks are due to many of our progressive growers, and more especially those of Hood River, who have shown me every courtesy and gladly given freely of their valuable experience. To the managers of the Hood River Apple Growers' Union I extend thanks for kindly suggestions as to matters concerning organization. And lastly, the publishers of "Better Fruit" have kindly loaned me certain cuts, namely, figures 1, 2, 12, 17 and 24.

PICKING.

TIME TO PICK.—No set rule can be given for the time to pick apples as that will vary according to variety, season, distance to be shipped, etc. As a rule, we gauge the time to pick red apples by

their color, and yellow apples by the darkening of their seeds. Some varieties, for instance Northern Spy, are generally left quite late in the season before picking. On the other hand, great care must be taken with Jonathans to pick them before they get overripe, or there is danger from core rot. Red Astrachans if left on the tree tend to crack. And so on. The early apples, as a rule, especially those to be sent any distance, are harvested before they are thoroughly ripe. This practice is even sometimes adhered to with fall and winter varieties and especially if they are to be shipped long distances and to cold countries such as Siberia, as they must be shipped early to avoid severe weather which would injure the fruit. Apples like Spitzenberg should be picked as soon as they have the proper color. This means, in ordinary cases, several pickings to

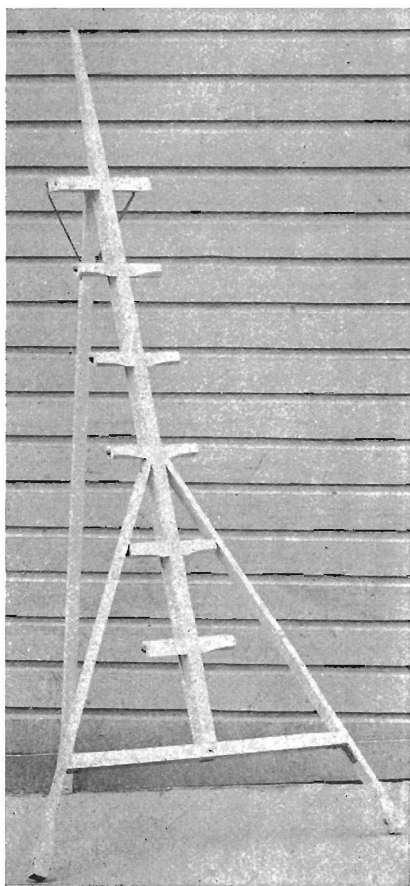


Fig. 1—A Light Ladder.

a tree; but only in this way can you get the best results. Every day the fruit is left on the tree after it has assumed its color, it approaches just so much nearer its final maturity and deteriorates to a marked degree in its shipping and keeping qualities. Then again, when the tree is relieved of part of its load it gives the remaining

fruit a better chance to become large and well colored. The apple does not go into abrupt stages of its life history from the green apple to the natural broken-down specimen. The change is a gradual one. The most vital point in the whole life history is the picking time.

How to Pick.—The methods employed at this time have much to do with the keeping qualities of the apple. To get the best returns, we must handle the apples as tho they were eggs, and use every precaution not to bruise and more especially not to cut the skin of the apple so as to expose it to the germs of the decays that will surely enter through any abrasion in the skin. Recent work in the Department at Washington has shown that the blue molds and other decays start in these specimens, spreading finally to the other fruit. The apple should be picked by a twist of the wrist, giving either a slight upward or downward motion at the same time. If picked this way, few or no stems will be pulled out. In fact, if the apple does not come readily when this is tried, it is a pretty



Fig. 2—Zaun Extension Ladder.

good indication that the fruit is not ready to be picked. This twisting motion prevents, to a large degree, the breaking off of fruit spurs. The best days for gathering fruit are the cool dry days. Picking during excessive heat, or exposing the fruit to heavy rains, are not conducive to good handling. Where the fruit is picked on a cool dry day it is better to get it under cover at once; but when occasion demands that we pick the fruit in warm weather, it will be better to leave it out of doors over night, allowing the fruit to become cool before taking it under cover, using every precaution to prevent heavy sweating of the fruit. The days of piling the fruit

in the orchard in great heaps or of leaving it even in boxes or barrels for several days are gone forever and cannot be resorted to by those who care to handle choice fruit.

LADDERS.—As regards ladders, one has a great variety to choose from. A man who is handy with tools can easily make his own ladders; but to the grower who is rushed it will be much cheaper to buy. It should be the policy as much as possible not to allow pickers to climb into the trees or to use heavy ladders that tend to knock off fruit spurs. Figure 1 shows a ladder that has a good deal of merit. This ladder is patented by A. A. Smith of Paonia, Col., but there are agents in different parts of our state. Its simplicity and lightness appeal to one at once, it being strong enough

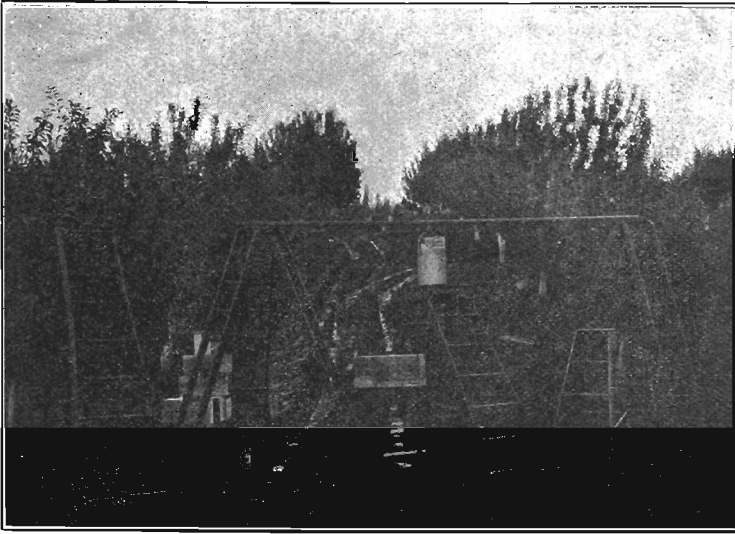


Fig. 3—Ladders used by A. I. Mason.

to hold up anybody who is able to climb a ladder and yet light enough to be handled by any child who can pick fruit. It can be used in and around the branches without knocking off spurs. Figure 2 shows a ladder known as the Zaun ladder, manufactured in Portland. It is a light but durable step-ladder and has the advantage that the back can be turned up so as to form a straight line with the stile part and the wooden rod running through the center of the standard can be used as an additional extension of five feet. These ladders are simply shown as types and not necessarily as any

advertisement of these individuals. Figure 3 shows a group of ladders. One of the most useful of this group is the double tripod ladder. Each tripod consists of three light ladders hinged to a common support. A plank can be thrown across connecting the two tripods, thus enabling the pickers to gather the fruit in the center of the tree without breaking off limbs and spurs. Figure 6 shows this ladder in service.

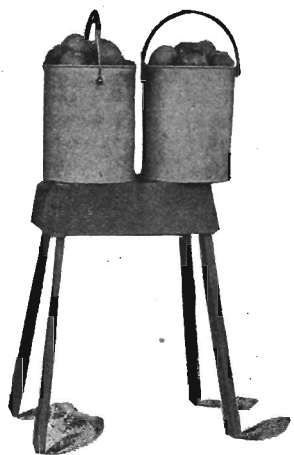


Fig. 4—Mason table and pails.

UTENSILS TO PICK IN.—As regards utensils to pick in there is much difference of opinion. Some prefer bags, some baskets, while others prefer pails. I prefer pails, and under no conditions would use bags. During my observations this fall in the harvesting period I found that the best picking was being done by men who used pails. A good model to use is such a pail as is shown in Figure 4, used by Mr. Mason of Hood River. Other pails very similar to this



Fig. 5—The first group of pickers.

are used by other growers. These pails should be made 10x10, and will just fit into an ordinary orchard box so that to empty a pail

you place one hand over the top of the apples, lay the pail on its side in the box, and slowly lift up the bottom of the pail. Practically no bruising is done under this system. These pails should have hooks. If made with the dimensions given there is no temptation to drop the fruit into the pails; there is not the least danger of bruising against ladders; the hooks allow the pails to be hung on ladders or branches, relieving the pickers of the constant weight that the bag system demands he must carry; and they can be quickly emptied of fruit without bruising. The objections to the bags are that the bottomless bags are generally too deep and there is usually too much temptation to let the fruit shoot out, and also more or less bruising in going up and down ladders. The apron bags afford too much opportunity to bruise the fruit in going up and down ladders. If deep enough to hold a fair basketful there is a tendency to drop the fruit into them; and they also make a constant weight that adds unnecessary fatigue to the work of fruit gathering. They are awkward and slow to empty properly.



Fig. 6—The second group of pickers.

SYSTEM IN GATHERING FRUIT.—It will sometimes be advisable to have some system in gathering your fruit. The gang of pickers might be divided into three groups, in much the same way that Mr. A. I. Mason of Hood River practices. The older and heavier persons are in the first group. They pick all fruit within reach from the ground, as shown in Figure 5. The little tables that they use are very handy, being made about the size of the boxes but having little handles protruding so that one can pick up table and box at the same time and move them around the tree. This has an

advantage in that it practically saves one handling of the apples. The second group, as shown in Figure 6, generally consists of girls and young women, who can use light ladders. The third group, shown in Figure 7, pick the remaining fruit, using the heavier ladders and doing the most reaching.

ORCHARD BOXES.—It is well to have regular orchard boxes in which to take the fruit to the storage house. Some growers use the regular packing boxes but this should not be done as it is almost

impossible to keep the boxes from becoming soiled. Orchard boxes should be made slightly larger than regular packing boxes, with cleats nailed on the ends so that they can be stacked without crushing the top fruit.

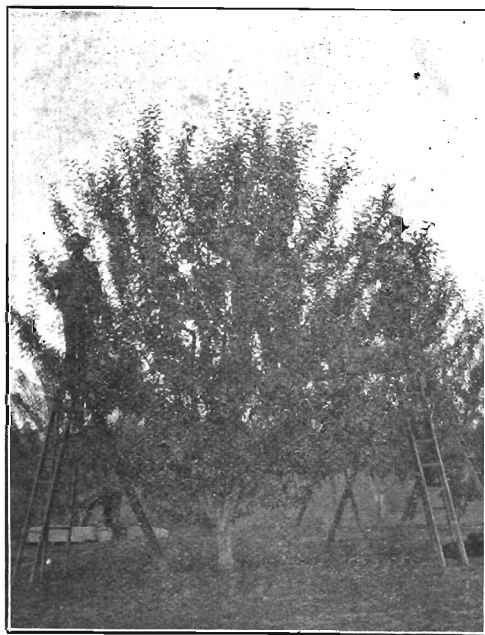


Fig. 7.—The third group of pickers.

VEHICLES.—Many different kinds of vehicles are used for taking fruit from orchard to packing house. The best that I have seen is such a wagon as Mr. E. H. Shepard of Hood River uses for carrying in his fruit, (Figure 8) a low truck wagon. It rides smoothly and is so low that it avoids heavy lifting, and unnecessary shaking of the fruit.

WIPING AND TEMPORARY STORAGE.

SHALL WE WIPE?—The question often comes up,—Does it pay to wipe? It certainly does if the market demands it and is willing to pay for it. The objection is sometimes raised that the keeping qualities of fruit that has been wiped are impaired, and this may be true; but such apples are generally disposed of in the fall, and in the long run we have no figures to show definitely the effect of wiping. Nevertheless, where apples are sprayed late so that they

are spotted with spray mixture when picked, this should be removed in some way and wiping seems to be the best solution. This does not necessarily mean a great amount of polishing. Loose mits can be made easily from flannel cloth and one good twist will remove outside dust and spray spots.

GRADING BOARDS.—Some of the growers in Hood River this year have been using the grading board shown in Figure 9. A common board or piece of paste-board is hung up before the wiper. In this board holes are cut the sizes of the various tiers, such as three,

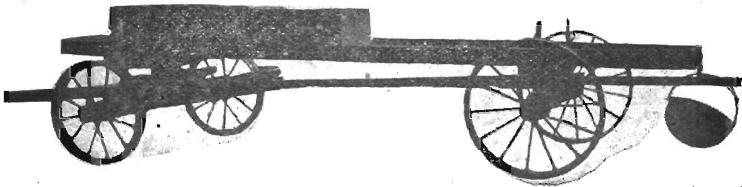


Fig. 8—Orchard wagon used by E. H. Shepard.

three and one-half, and four tier, etc. As the apples are wiped they are properly sized. The average wiper will be obliged to use this board only for the first half day, soon learning to size the apples. The advantage of this method is that the packers have the apples practically graded and can do much more work in a day, and after the first half day the wipers can usually accomplish fully as much as with the old method.

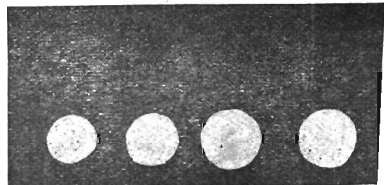


Fig. 9—Grading board.

STORING BEFORE PACKING.—

Where apples are to be wiped this must be done shortly after they are picked, for if left very long they tend to sweat a trifle, and become gummy, making wiping a difficult and costly process. The apples should be stored until packed, and packed in some cool, well ventilated building. The natural moisture conditions in our climate in the fall are such that if the apples are stored where it is cool their keeping qualities do not deteriorate. Houses that can be well opened at night and closed in the daytime will furnish the best conditions as regards temperature. Never heap the fruit in immense piles or store in bins, as such methods invite sweating, and bruising in handling; but preferably use field boxes, having end cleats so that they can

be piled one on top of the other and still allow for plenty of ventilation.

PACKING HOUSES.

NECESSITY FOR.—A well built and well equipped packing-house should be found with every orchard. Unfortunately we have very few good houses in the state. Open sheds, old barns, and various other buildings, are used as makeshifts. This is not due to negligence nor to a lack of interest, but largely to the fact that many of our growers started in with little or no capital and have had to pay for their land, build homes, buy tools, horses, etc. But a large majority of them are rapidly getting to the point where they can

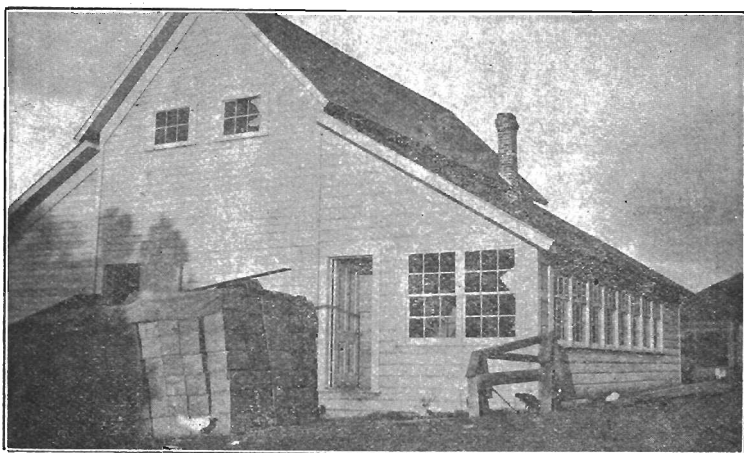


Fig. 10—Packing house owned at "Beulah Land".

afford to put up good packing houses. In fact, if a man has the means, he cannot well afford not to do this, as better packing can be done in a well constructed house, and generally more of it.

REQUISITES OF A GOOD PACKING HOUSE.—One of the best packing houses I have seen in the state is that shown in Figure 10, in use in the Beulah Land orchards of Hood River. The great advantage of this house over most others is that it has plenty of light and enables the packers to do good work. On cold raw days such a house will keep the packers comfortable. The open sheds will not, and most of the barns are too dark. Some builders make the mistake of making the packing house too large and thereby they lose a lot of labor in handling boxes and materials. The packing house

should be just large enough to work in comfortably, with the least possible waste room. It should have adjoining it a room where fruit can be stored to be packed, and also some sort of storage room where it can be kept in a cool temperature until shipment. Those growers living a long distance from the railroad may find it an ad-

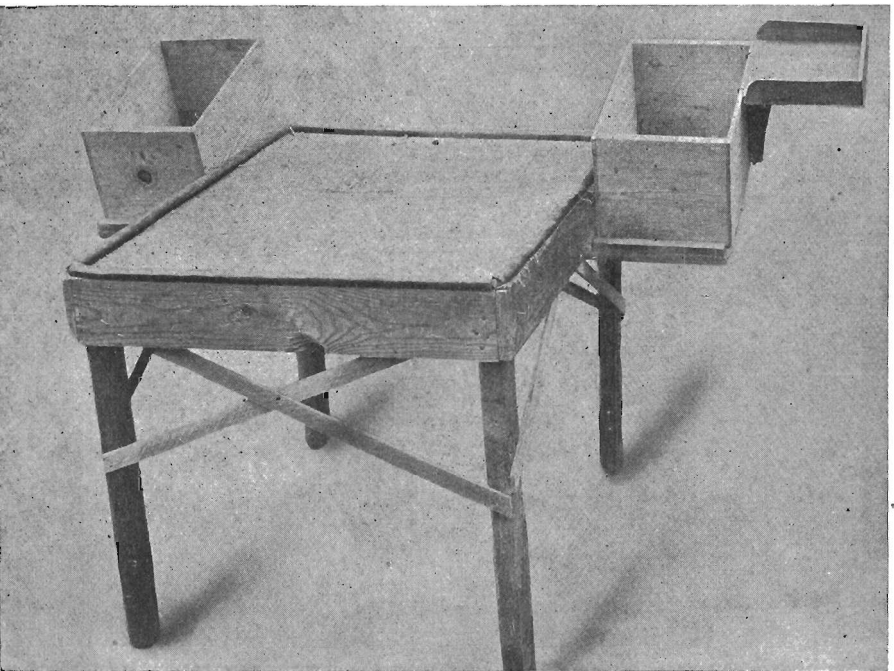


Fig. 11—Table in general use at Hood River.

vantage to have their packing houses located in the town or near the railroad rather than to try to transport the packed fruit over rough and muddy roads. To get best results in thus hauling packed fruit, it must be handled with great care and kept protected from mud and rain by means of canvas.

PACKING TABLES.—In some regions of the state packing is done from benches that are built up beneath the windows, but I believe,

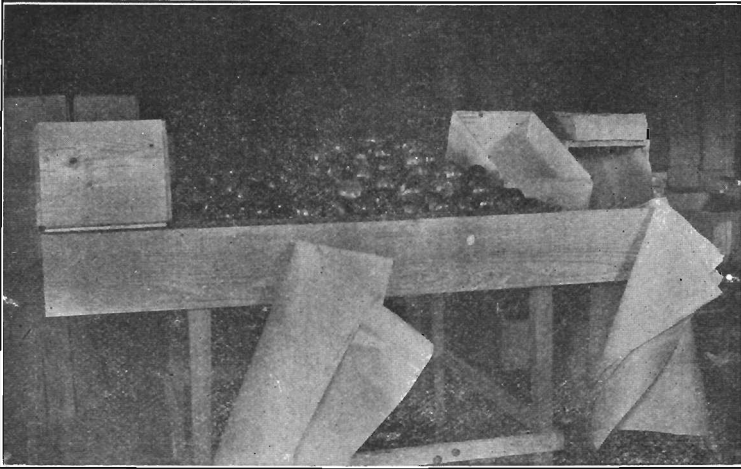


Fig. 12—Packing table used by Davidson Fruit Co.

all things considered, that better packing can be done from tables, as they give the packer more fruit to choose from and allow him to

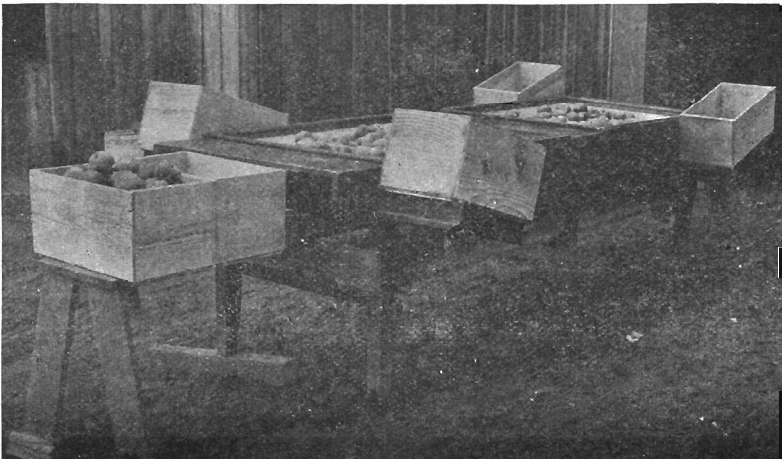


Fig. 13—Packing table for four pickers used by A. I. Mason.

do better grading. At Hood River tables are generally used. Figure 11 shows the common type used there. This table is made to

accommodate two packers. To make such a table, take four standards about three feet high. The top, made of strong burlap about three by four feet, is allowed to hang rather loosely. Therefore, saw off the tops of the legs on a bevel so as not to have the sharp corners push into the burlap, making points that will bruise or cut the fruit. Old hose pipe is generally nailed around the top of the table to protect the fruit. Besides the braces shown in the picture it is also well to wire the legs and braces together firmly as there is a heavy load to support.

The height of table suggested above is only relative, the point be-

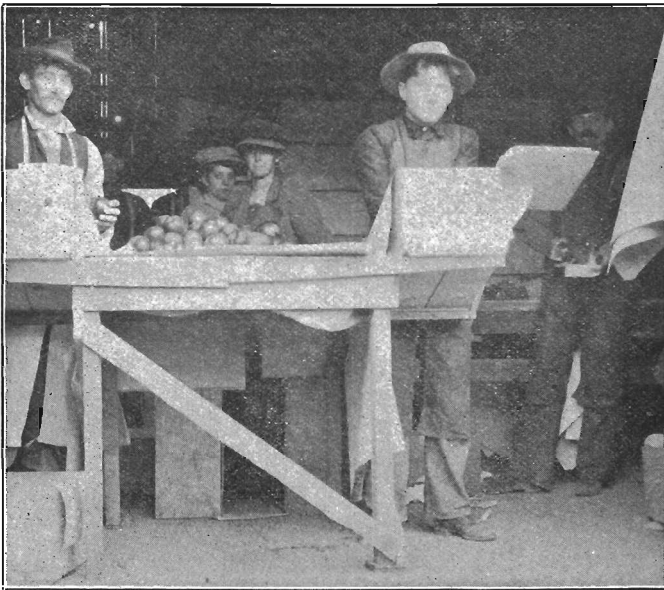


Fig. 14—A packing scene at Hood River.

ing so to construct it as to allow a packer to work with the greatest comfort, avoiding back-bending in all cases. Three feet is generally found to be about right. The surface area of the table should not be greater than three by four feet, as anything larger would not allow two packers to reach all points of it without unnecessary stretching.

In using this table care should be taken to clear off all fruit at least eight or ten times a day; otherwise much fruit will receive hard handling by being continually "pawed over".

Figure 12 shows a table that was used by the Davidson Packing Company this year and which has the advantage that each packer has the privilege of changing hands, packing from either left or right. This table is about forty inches square but it would be better to have the sides on which the packers work a little wider, say forty-four or forty-eight inches, especially where there are rests for two boxes on each side.

Figure 13 shows a table for four packers, owned by Mr. A. I. Mason, Hood River. The horse drawn out on the side is to hold the apples

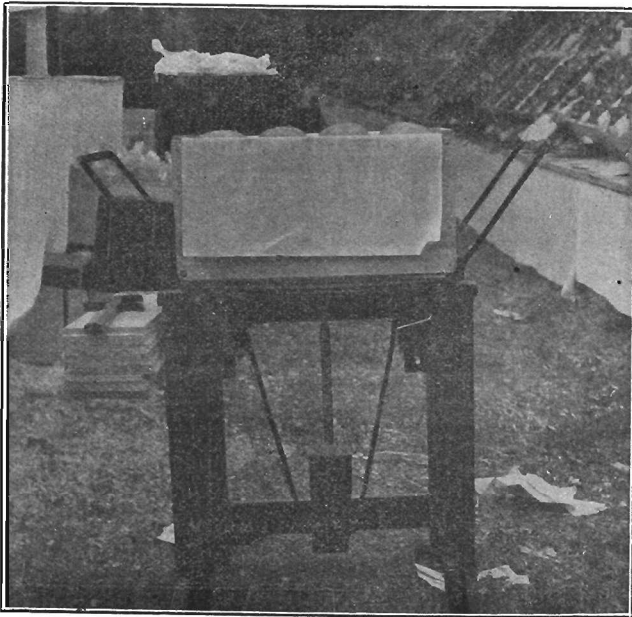


Fig. 15—A press offered to the trade.

for the wiper or grader, but by using the grading board one can dispense with this part of the table.

NAILING PRESS.—One of the most important tools is the nailing press. It is hard to imagine why some packers will still cling to the old one-armed press, when, for the expense of about six dollars, they could make a press that would do twice the work and do it better.

Figure 15 shows a commercial press which is being sold and if it could be improved somewhat it might be of good service; but at

present the clamps are not arranged so as to hold on the cleats while they are being nailed and there is no ratchet at the bottom to hold the lever in case you have misplaced your hammer. In such a predicament you have your work all to do over again.

Figure 16 shows a press in very general use in Hood River.

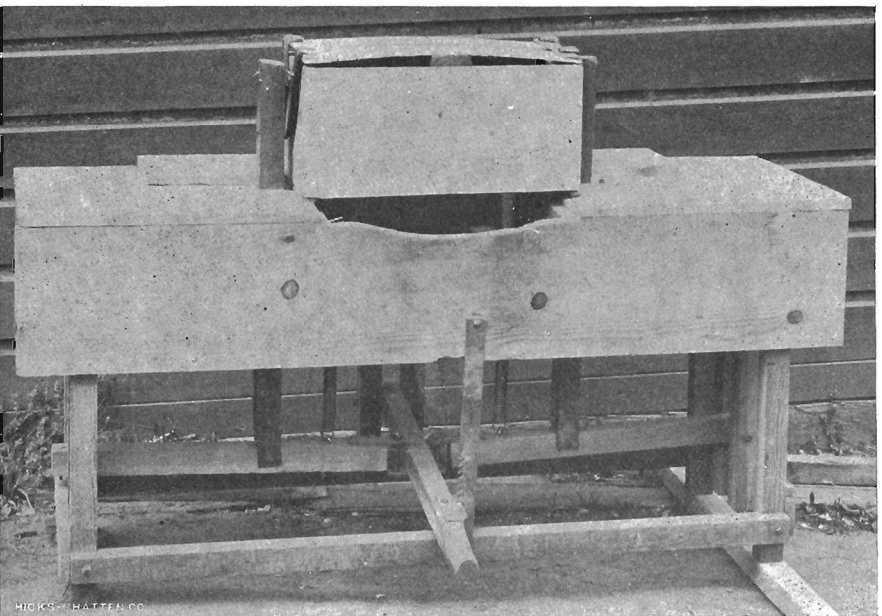


Fig. 16—Press in common use at Hood River.

When the box is put into position, the first pressure on the lever throws the arms forward, adjusting the cover and holding the cleats in position to nail. Further pressure brings the cover down tight where it can be easily nailed. The leverage is brought about by a rope pulley which extends from the lever vertically and then divides,

one half going to each arm. Anyone handy with tools can easily construct such a press for about six dollars and with care it will last for several seasons. The pulleys will tend to wear out and the springs that release the arms will weaken; but these can be renewed from time to time. This press could be improved if some shelves were constructed on the back similar to or a little larger than those in Figure 17, which would make room for cover strips, cleats, and nails.

Figure 17 shows a press made by Mr. Mason of Hood River. It is more durable than that shown in Figure 16 but costs about ten dollars. Instead of the rope pulleys this press has solid iron rods

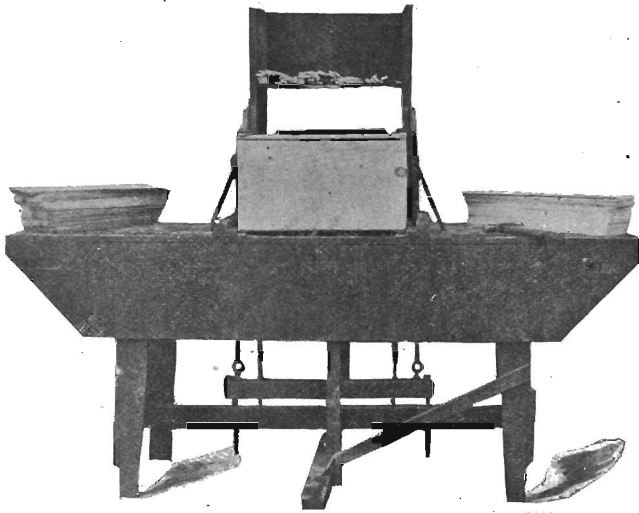


Fig. 17—The press used by A. I. Mason.

connecting each arm with the lower cross-piece, to which the lever is fastened. The same bolt also brings the upper cross-piece in connection with the lever. When pressure is exerted on the lever the arms are thrown toward the box, placing the strips true and holding the cleats in place. Further pressure brings the cover down tight. The advantage of this press is its durability. In both the presses the joints of the parts which clasp the box should be crazy as rigid joints would not work as well.

These presses are simply shown to give ideas and not to act as models. With a little ingenuity one can easily construct a press

which will do good work. Be sure it is so constructed that the covers are adjusted and the cleats held in place by one operation.

PACKING BOXES.—Before the packing season commences one should see to it that he has a goodly amount of supplies on hand. The first thing to procure is the boxes. The cleaner the lumber the better. Spruce makes the best boxes. These can be bought all ready to nail up and a man can easily make his own box machine by which a boy can turn out several hundred boxes a day. A good supply of nails is needed, of which the barbed, or else cement coated, are the best. It will take at least three of these, and better, four,

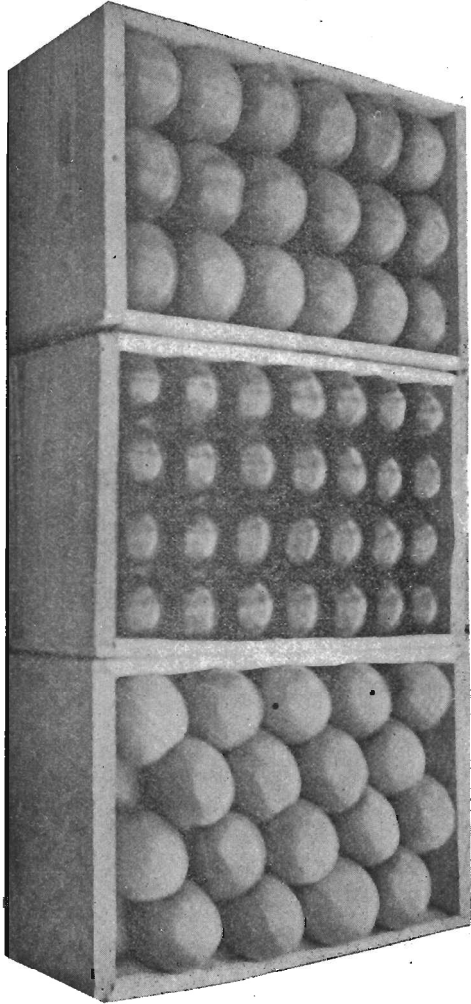


Fig. 18—Attractive lithographs for boxes.

for each end. A good supply of cleats should be secured, as both bottom and top should be cleated to prevent splitting. The cleats themselves often give a good deal of trouble from splitting and most packers soak them in hot water for several hours in order to avoid this. The cost of boxes, of course, will vary according to conditions. Prevailing market prices, number ordered, and a cornered market, will all play their part. This year the prices vary from about seven cents to fourteen cents. Do not think that cheaper boxes are the best; in fact, they are the most expensive, as the material may be so poor as not to hold together well and may be of such low grade

as to cheapen the appearance of the package. Unfortunately we have not uniformity in sizes of boxes. But the Northwest Fruit Growers' Association, by their recommendations, were able to limit

Fig. 19—Three-tier (34), four-tier (112), and three and one-half-tier (72). Apples packed on their sides.



the number of sizes to two. Most of our fruit is packed in what is known as the standard box, which measures in inches $10\frac{1}{2} \times 11\frac{1}{2} \times 18$; but to accommodate certain apples it is sometimes found that a special box is needed which is longer and a trifle narrower, being

10x11x20. Remember that these are all inside measurements. It sometimes happens that boxes are made with these dimensions as outside measurements and it may not be an indication that the grower intends to swindle; but it looks bad. Again, you should always measure your box material before accepting it to be sure

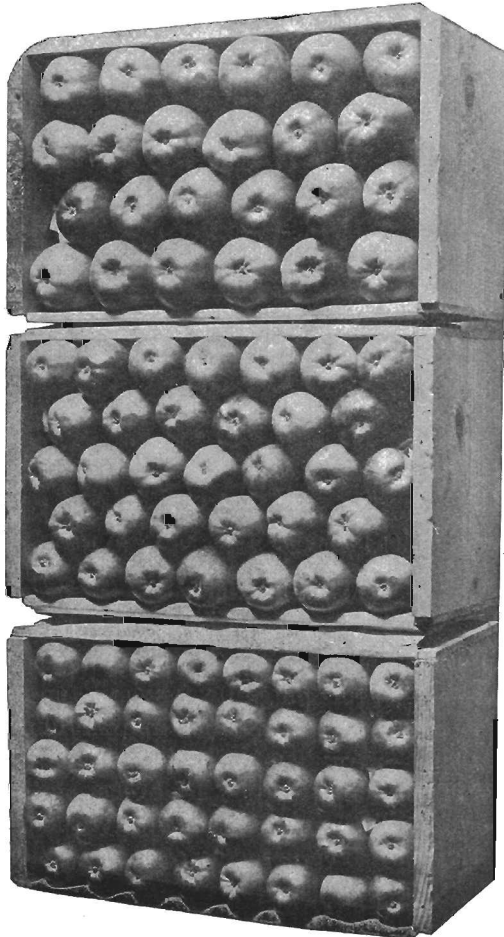


Fig. 20—Five-tier (200), four and one-half-tier (165), three and one-half-tier (96). Well packed, but should have stem end exposed to the cover.

that no mistake is made. While these boxes are the ones used, there is no law that says that we must use either one or the other; but we certainly need some legislation which will standardize our boxes. At present various sections of the United States are using boxes of varying capacity. Experience has shown that as regards

thickness of material the $\frac{3}{4}$ inch is the best for ends; $\frac{3}{8}$ for sides, and $\frac{1}{4}$ for top and bottom. These measurements are the best to avoid splitting, bruising of fruit, and to allow for proper elasticity.

PACKING PAPER, Etc.—A full supply of paper should be ordered. This will include box paper, layer paper, and wrapping paper, as described in other parts of this bulletin. Stencils and ink pads are also needed; and begin this season by putting in a good supply of lithographs. They are cheap and will pay good interest.

STYLES OF PACKS.

In speaking of styles of packs we refer only to those boxes where

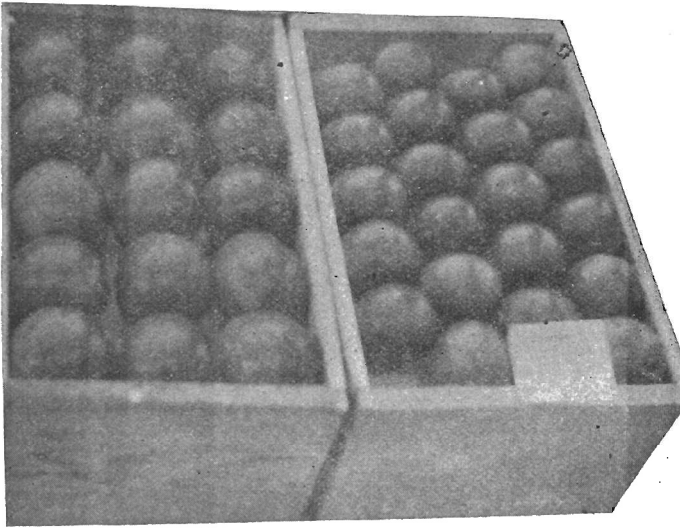


Fig. 21 Three-tier (45), three and one-half-tier (88).

each individual apple is laid in place and where an honest attempt is made to have all the apples in the box as nearly the same size as possible. The packers themselves have a great many terms relative to the various packs but the trade in general understands the packs only when designated as straight or diagonal. Formerly the offset was used considerably but is rapidly going out of favor. More people prefer to designate the packs as three, three and one-half, four, four and one-half, or five-tier, whichever they may be. It would be still clearer and more satisfactory to all parties if the number of apples were stamped on the box.

STRAIGHT.—In the straight pack the rows run straight across the box, parallel to the edges. This pack includes all the three, four, and five-tier apples. The straight pack is very neat in appearance but it is rather severe on the fruit, as each apple tends to be pressed

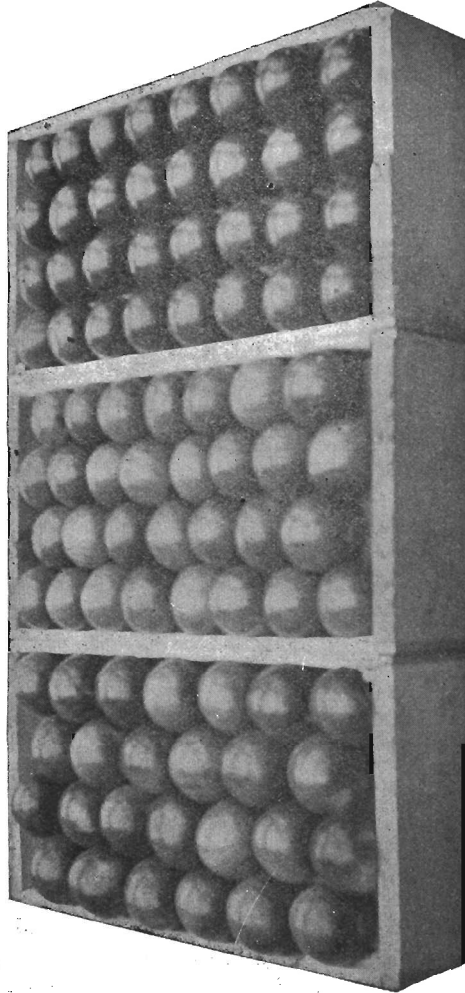


Fig. 22—Three and one-half-tier (104 and 120), four-tier (128). All pack in the "special" box.

firmly against surrounding apples rather than into the spaces. We find the apples in the straight pack, as well as in the others, placed in various ways. Some pack the apple on its side; others pack with the stems up; while some have the calyx up. The best packs

should always have the bottom and top layers with stems toward the outside. In this way the apples do not tend to bruise as badly and if they do bruise are not so badly disfigured for the fruit stands where they are generally arranged with the calyx end up.

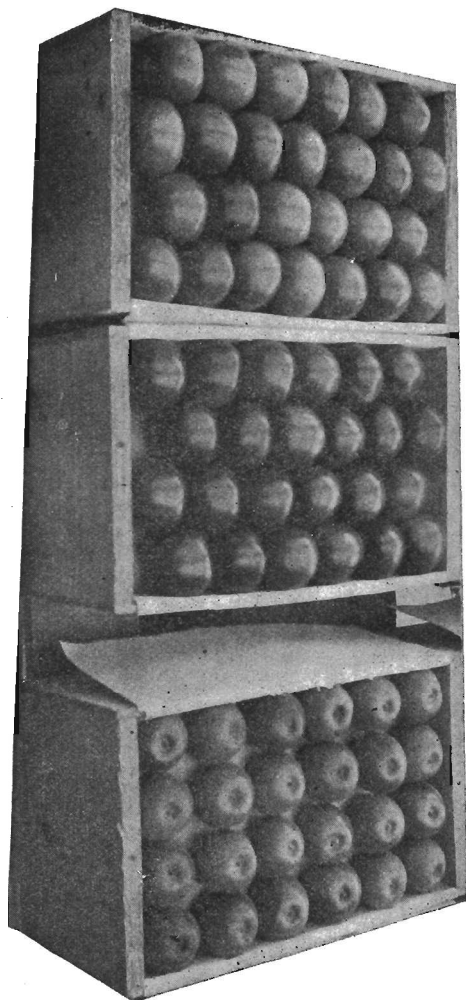


Fig. 23—Three and one-half-tier (104 and 96).

The three-tier pack consists, as the name suggests, of three rows across the box and also three deep, making, in the standard box, 45 apples (Figure 21), while if used with the special box it should contain 54 apples (Figure 19).

The four-tier consists of four rows across the top and four rows deep, including the 96 (6 tiers long), and the 128 (8 tiers long), (Figure 22), which are generally packed in a special box; the 112 (7 tiers long), (Figure 19), is also used.

The five-tier consists of five rows across the box and five deep. About the only pack used is the 200 (8 tiers long), (Figure 20). It does not pay to box smaller fruit than this.

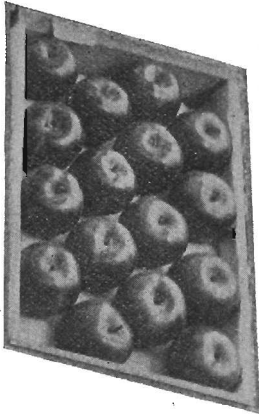


Fig. 24—Three and one-half-tier (64). In this case a poor pack—too many spaces showing.

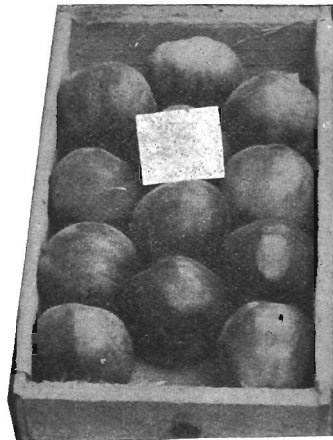


Fig. 25—Two and one-half-tier (36). This is not a commercial pack. Such large apples are undesirable for packing.

DIAGONAL.—The diagonal pack, or diamond

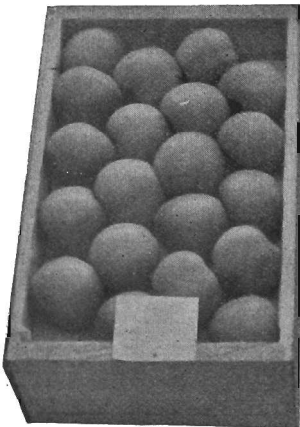


Fig. 26—Three and one-half-tier (80).

pack, as it is often called, is so termed because the rows run diagonally with the edge of the box (Figure 23). Its chief advantage is that it accommodates sizes that do not adapt themselves readily to the straight pack, altho in some cases we find that the diagonal contains the same number of apples as certain straight packs. For instance, we have in the latter the four-tier, 96 and 112. These same numbers also occur in the diagonal. The diagonal pack contains the half-tiers, such as three and one-half and four and one-half (Figure 20). The two and one half (Figure 25) is not a commercial

pack, being simply used to accommodate extra large apples on certain occasions. One of the advantages of the diagonal pack is that it allows the apples to adjust themselves more readily to the space

in the box; for when the pressure is brought to bear the apples tend to find the spaces, whereas in the straight packs each apple is always brought up firmly against its neighbors.

In the three and one-half we find that more than three full rows

and yet not four full rows are necessary to fill the box. One can readily see, therefore, that a good many apples would naturally come in this class. We find more different packs being used with the three and one-half than with any other. In the standard boxes we have the 64 (Figure 24), 72 (Figure 19), 80 (Figure 26), 88 (Figure 21), and 112; while 96, 104 (Figure 22), and 120 are generally packed special.

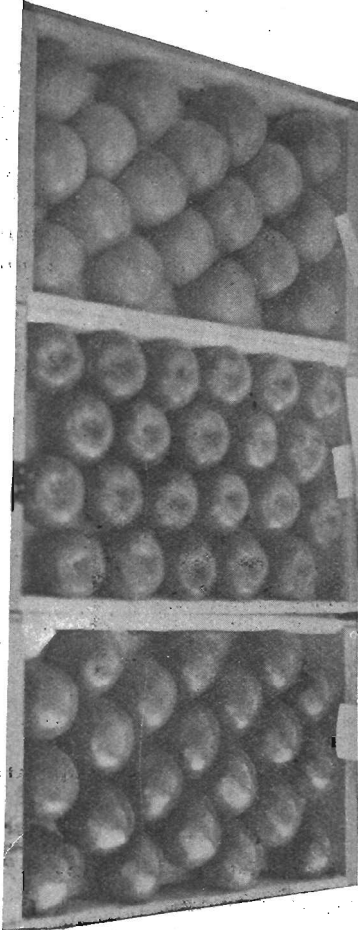
In the four and one-half (Figure 20), we find that more than four full rows, but not five, are necessary to fill a box. This includes the 150, 165, and 175.

OFFSET.—The offset (Figure 27), should be discouraged, as too much empty space is left in the box. Large spaces occur in the side while in the diagonal there are only small spaces at the ends. Thus, in using the offset one sacrifices from four to twelve apples to the box. With fancy apples this means much to the retailer. The tendency, is, and should be, to get as many

apples as possible into the box; in other words, make the best use of the space. The time may come when we will have standard weights for each variety, which will denote the packing.

The packs described are all that are needed; in fact, more than the average man uses or should use. We should strive to do our packing with as few packs as possible, as a large number is confusing.

Fig. 27—Offset pack.



DETAILS OF PACKING.

No matter how good a product may be, unless it is packed in such a way as to reach the market in good condition, and at the same time be attractive, it will not bring the highest prices. But a good product, handled in an attractive package, is sure to be the first in demand and to command a good price even when the market is glutted. A certain grower in our state, by spending a few cents on each box of fine pears, realized seven dollars a box. It is almost a crime to handle some of the choice fruit in the way it is being handled. Of course, a certain percentage of the fruit is too small, too imperfect, to warrant the extra outlay. Nevertheless, an attractive package will often sell fruit that is not of the highest quality. That is, second grade fruit, if well packed, will often bring a profit

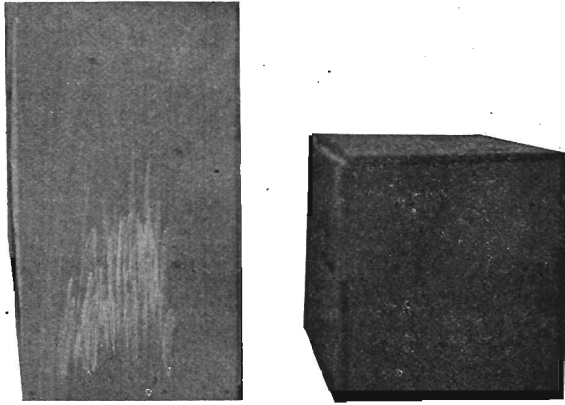


Fig. 28—Showing the proper bulge when nailed. (In making plate the bulge on one half of box was ruined.)

where there might otherwise be a loss; but what we should strive to do is to pack quality fruit in quality packages. In the very beginning it must be clearly understood that to receive the best returns one must not only understand the details of packing, which, after all, are matters of experience, but he must be strictly honest and scrupulously clean. These factors, coupled with correct methods, will surely bring success.

First, be sure the box is clean, and you will have no difficulty in always having clean boxes if you will purchase clean white material and never allow boxes to be used for any other purpose. The box is generally placed on an incline toward the packer, as shown in Figure 14. He is then ready for the lining paper. This paper is generally made slightly shorter than the box and about twenty-

six inches wide; thus two sheets are needed and this will allow for generous overlapping on both top and bottom, and also allow a plait to be made on the bottom corners. This can be easily done by catching the paper on the ends, thus making a fold, and then draw it quickly over the knee, creasing it. This crease is generally

Fig. 29—Three boxes—too flat, just right, too high.



made about six inches from the end. These plaits will fit in the corner and when the box is filled and bulged the paper will not tear. All boxes of high grade fruit should contain this paper as it insures keeping dirt and odors away from the fruit. Layer paper should also be used between the layers, especially for all fruit that is to be shipped a considerable distance. This paper acts as a pad, tends to lessen danger from bruising and skin slipping, soaks up moisture that may gather from sweating or bruising; and, moreover, aids to convey to the buyer the thought that he has a superior article. Both layer and lining paper should be constantly kept within easy reach of the packer and always in the same place to avoid confusion. Wrapping paper should be used for all the better grades of fruit. The 8x10 will answer most purposes. This paper often contains the name or trademark of the grower. It is not necessary to wrap all the apples with such costly paper, but it is a good plan to have the outside layers so wrapped and if the paper is neat it certainly adds much to the attractiveness of the package. This paper can very nicely be placed in little hoods that are made to clasp over the edge of the box (Figure 11). Some packers use a stall on the first finger or thumb to aid in

picking up the paper. Practically no time is lost in using the paper as an experienced packer picks up the apples with one hand while he reaches for the paper with the other. They are brought together very rapidly and a single twist wraps the apple. On the bottom and top layers the smooth side of the paper should be on the outside. Wrapping paper tends to make a firmer package, guards

against bruising, tends to keep the apples better, and certainly gives the package a superior air.

As to just how each pack is put up, the photographs bring that out. The straight packs need no explanation. The diagonal pack is generally started by putting the two or three apples in the lower left hand corner in first and then building up the lower layer on these. Each succeeding layer is made the same way. Experience alone will teach you how to pack so as to have the proper bulge in the center, as shown in Figures 28-30. Formerly our packers made this bulge altogether too great. It should be such that when the box is nailed you have a bulge not greater than three-fourths of an inch. The danger is that beginners will have the pack too flat, or else, in trying to obtain the proper bulge, will injure the apples or have the ends so high as to need extra cleating. If there is any difference at all in size of apples, place the smaller ones at the ends and the larger in the center. Again, if on the bottom layer the end rows are placed on the side and the center rows on end, it will tend to elevate the center. But with a little practice one should learn how to pack each box to the best advantage. These details one must thoroughly master for himself.

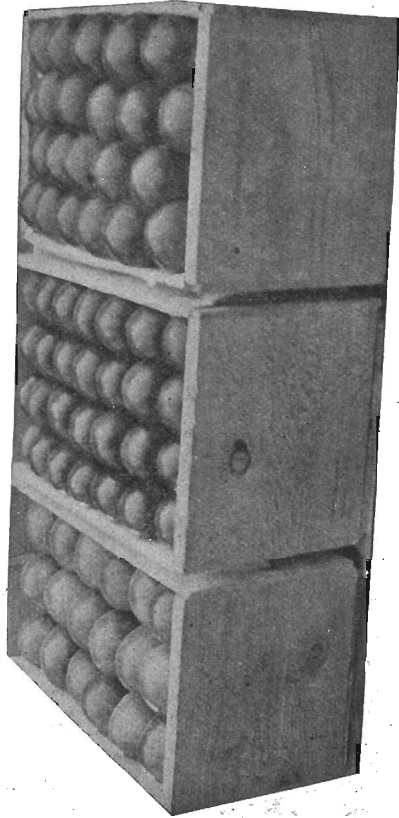


Fig. 30—Same three boxes, Figure 19.

HANDLING THE PACKERS.

The best system of handling packers seems to be that in vogue with some of our associations, where the grower himself is not allowed to pack his own fruit. However, with our independent

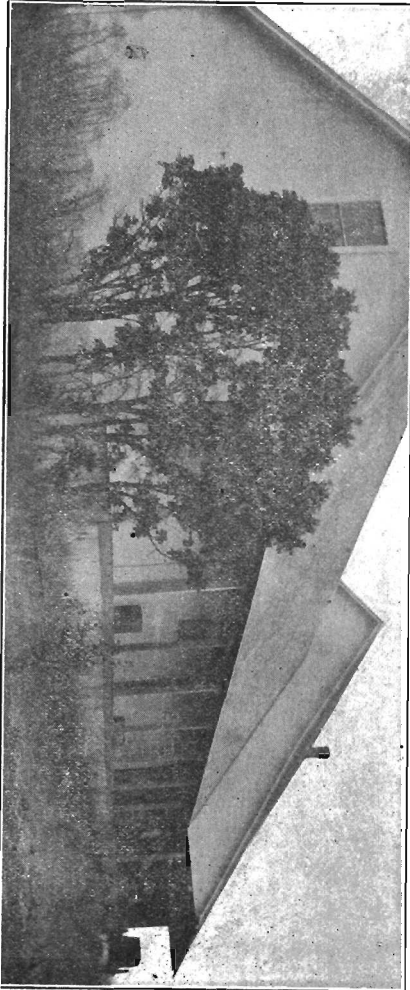
growers this is out of the question. Yet these men could often improve their pack if they would allow only the best packers to do this work, and try to retain the same men from year to year so far as possible. Whether packing is done by associations or by private

individuals, the principles are the same. A very common system is to pay by the day. The reason for the popularity of this method is that under it, so it is claimed, the packers take more pains. Such need not be the case. In fact, it is often quite otherwise. The packers lose interest in their work to quite a large degree and loiter whenever opportunity offers, when packing comparatively few boxes per day. If hired by the day, they should be divided into small groups and closely watched. In fact, better work is generally done where only a few packers are at work than where there is a large force, as it is impossible for one foreman to handle a large force.

The second system is packing by the box, of which method there are several modifications. In some places each packer packs by the box and the foreman is allowed to pack a certain number of boxes per day and for the rest of his time

is allowed a stated salary. Another modification of this method is not to allow the foreman to pack at all, and I believe this is the best way to secure a fancy pack. Everlasting vigilance must be the watchword; for it is true that where packing is done by the box

Fig. 81—Storage and packing house, owned by J. W. Perkins.



there is a tendency at times in the great haste to be a little careless; but I believe that with close supervision better packing and more

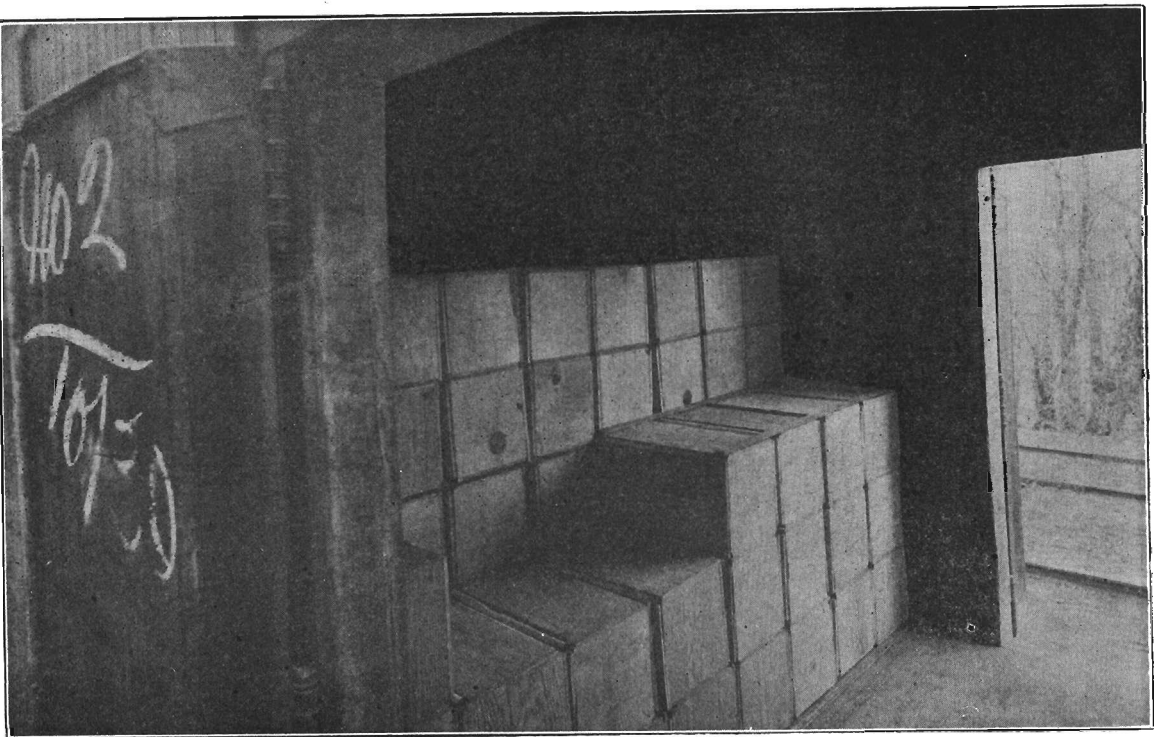


Fig. 32—Loading the car.

of it can be done in a day than under any other system. One should always see to it that there is plenty of help at hand to assist

the packers, in bringing fruit and boxes, and removing boxes as fast as packed.

The prices paid for packing vary, but as a rule five cents a box

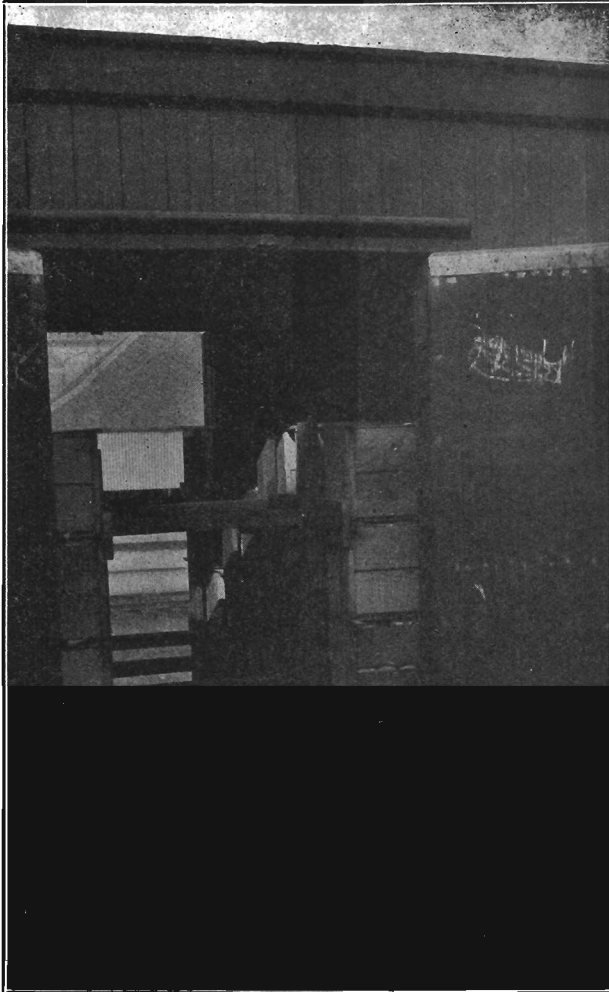


Fig. 33—How to brace a car to send across the continent.

is paid for all from three-tier to four and one-half tier, and six cents for the five-tier.

The apples should by all means be very closely culled and graded.

It is impossible to do good work unless this practice is strictly adhered to. Again, you cannot afford to do otherwise; it is expensive



Exhibit of A. I. Mason, winner of sweepstakes prize at Hood River apple fair.

to pay for packing poor apples and their presence will lower the

price of the package. Only quality fruit can bring high prices.

For associations just forming and desire to establish a system for handling packers, I know of no better regulations than those used by the Hood River Apple Growers' Association, and which are given in the appendix to this bulletin.

MARKING OF PACKAGE.

We find that there is no general uniformity in marking our fruit packages. It would be a work worth accomplishing if all of the growers of the northwest could come to some common understanding on this subject. Some growers stamp on the box the number of apples it contains, while others only stamp the number of tiers. Various letters are used denoting grades. More recently some growers are using lithographs to paste on the outside of the box. This past season the Hood River growers stamped on one end of the box at the center of the top the number of apples; under this was placed the name of the variety; in the upper right hand corner as you face the box is stamped the number of the grower; in the lower left hand corner the number of the packer. If the fruit in the box is not colored up to the standard, an L is stamped under the name of the variety. On the other end of the box is pasted a lithograph instead of the former ink stamping that was used. The lithograph has much to commend it. It is attractive and will in a way insure against that box being used again, unless new lithographs are used, as in transit the lithograph will be more or less defaced. It was suggested by one grower that these lithographs be made a little larger so as to paste over onto the top and bottom; thus, in opening the box they would become defaced in much the same way as a cigar box label. These lithographs should be selected with a good deal of care. Choose a design that is neat in composition and attractive in coloring. Bright, gaudy colors tend to cheapen the appearance of a package. A rather subdued, more natural effect adds much to attractiveness. Figure 18 shows four of these lithographs that have been used in Hood River.

Unfortunately growers in some states have sold fruit and stamped it as coming from a certain region in an adjoining state. In our own state fruit is bought from various sections and sometimes marked as coming from another. This is wrong—wrong to the buyer, wrong to the grower. Every grower and every association should be anxious to build up a reputation. To do this they must protect themselves. There is a move on foot now to have legislation passed similar to the Canadian laws outlined in the appendix. There should be a law requiring every grower to stamp his name and address on every box of fruit which he sells, and constituting it a criminal offence for anyone to efface the name. Then we could know where every box of our fruit comes from and each region would have a chance to build up an honest reputation and not be able to help or injure that of another region. We should also en-

courage a uniform system of marking our boxes, that there may be some common understanding on this matter.

STORAGE.

Thus far the greater bulk of our fruit has been shipped out early in the fall and few growers attempt to store for any length of time. However, we have some growers who do, and there will be a tendency as the production greatly increases to store at times, holding the fruit until the best prices prevail.

THREE TYPES OF STOREHOUSES.—There are several different kinds of storehouses. The best ones are those cooled by mechanical refrigeration. Ice storage stands next; and third, those houses cooled by ventilation. In most parts of the northwest the two former could not be considered and only the very largest handlers and associations could really afford such a plant. In our climate with its cool nights we can procure very good results from cooling by ventilation. We can open the houses at night, closing them in the heat of the day.

TEMPERATURE.—In building a storage house we must always keep in mind good ventilation, as otherwise much of the fruit will become musty. We should be able to modify the temperature. When it is warm outside, the temperature in the house will rise a few degrees; when very cold it will naturally drop a little. We must so construct the house as to prevent the interior from ever becoming heated and also from a freezing temperature. Different varieties of apples require different temperatures; but as the average grower has but few varieties his problem in this respect is rather simple. The best temperature, all things considered, lies between 32° and 40°.

MOISTURE.—Another factor worth taking into account is that of moisture. The houses should be so constructed that this can be controlled to a certain extent. If the houses become too dry there will be much trouble from shriveling of the fruit; if too moist, decays will spread rapidly. In constructing these houses it is better to have several walls with dead air spaces between, or make a double wall with a space of from nine inches to a foot, which will be filled with sawdust. Intakes for cool air should be arranged on the floor or at the bottom of the sides, and ventilators constructed in the top. By opening such a house at night and closing it daytimes, until the house becomes thoroughly chilled, fruit can be kept very nicely. In very severe weather the intakes for cold air can be closed.

How to STORE FRUIT.—It pays to put only the best fruit in storage. Low grade fruit that is diseased or contains wormholes, bad bruises, skin cuts, or other injuries, should never be stored, as the germs of the storage rots will attack these exposed parts, causing a rapid decay which will at times spread through the whole house. Never put into your storage house fruit that is heated. Allow it to cool gradually before being placed in storage. Never store in deep bins. Use shallow bins, or better, boxes. Where fruit has been

handled properly it can be boxed and placed in storage in that condition; or, store in orchard boxes and pack just before shipping. After the fruit has been thoroughly graded and placed in storage, leave it alone. Handling does not seem to improve its keeping qualities. Figure 31 shows one of the best storage and packing houses in Oregon—that of Mr. J. W. Perkins of Medford. It contains three storage rooms that will hold two carloads each, and a large chilling room properly constructed and ventilated.

BI-PRODUCTS.

We have today in our orchards an enormous amount of fruit that should be utilized in some way—fruit that it will not pay to pack but which could be made into vinegar, canned, or evaporated. Millions of dollars worth of canned apples, pears, prunes, cherries, small fruits, and vegetables could easily be put up in our state every year. Many failures have resulted in the canning business, largely because the market conditions were not studied. There is little demand for fancy canned fruits, jams, or jellies put up in glass; but there is a big demand for plain canned goods put up with water and a little sugar in ordinary tin cans. One association in Washington has a factory the equipment of which cost about five hundred dollars. The growers of Puyallup, Washington, had seven thousand dollars worth of raspberries canned in one week the past season. Had it not been for the canneries, these berries would have been a total loss. Until recently the honest canner had to compete against the man who put up a little paste dyed and flavored with coal tar, but those days are gone and we should take advantage of the opportunities that lie before us.

LOADING A CAR.

The way in which a car is loaded will depend largely upon the kind of fruit, the season, and the distance to ship. The number of boxes will vary also with above named conditions. Where the standard sized boxes are used this will vary from five hundred to eight hundred, half sized boxes allowing twice as many. With such fruit as pears, fresh prunes, cherries, and peaches, ventilation spaces are left between the layers of boxes, and the top and center of the car is not filled, as in these parts the temperature ranges higher. Summer and early fall apples must be handled carefully when sent a considerable distance. All boxes must be laid on their sides and never on the top or bottom. Where refrigerator cars are used and icing is necessary, the car should be loaded as quickly as possible to prevent it from becoming heated and thus save the ice bill. Again, heated fruit should never be placed in an iced car. It will cause the fruit to sweat, and will also heat the air in the car. Gradually chill the fruit before loading.⁷⁷ Figure 32 shows how the boxes are placed in the car. Cleats are nailed on the floor of the car so as to hold each row of boxes in place. Formerly every layer

of boxes was firmly cleated, but this year the results have been found good where the bottom layer has been firmly cleated and then every third layer so treated. The fruit should be loaded so as to prevent shifting. Figure 33 shows how the two halves of the car are firmly braced. If the cars are to cross the mountains during severe weather, they should be lined with paper to prevent freezing of the fruit.

HOW TO SELL THE PRODUCT.

DIRECTLY TO RETAILERS.—Even when we have packed our first-class product in the best way possible, we have still the problem of disposing of the same, altho it may practically sell itself. Nevertheless, judgement and careful dealing must be resorted to if we are to realize the highest returns. Some men enjoy soliciting the trade. To others this is distasteful. We have several paths to choose from. At times, by coming in touch with the retailers, we can find a good market and often realize the highest returns. One very successful cherry grower in our state realized wonderful results by means of letters to retail fruit dealers, choosing only one in a place and putting nothing but first-class material on the market.

THRU COMMISSION MEN.—The most common way is to dispose of the fruit to the commission man, with varied results. So much swindling has been done by this class of men that they have come into general disfavor, and often unjustly. Commission men are human. Some are honest; others are not. Many times the growers are at fault. They think they have handled the product nicely when nevertheless that same product arrives in the market in a fearful condition, and the low price is always blamed on the commission man. This summer I had occasion to wait at a depot several hours for a train. A number of large consignments of peaches were brought to be shipped three hundred miles by rail. In many cases I could run my hand in between the top of the peaches and the cover of the box and could in many of the boxes move the peaches. Imagine the condition of those peaches on a warm day in a city market. A great deal of thanks must be given to commission men, for the fruit industry in many localities owes its growth to their efforts, and it will be a long time before we can dispense with them entirely, if indeed we ever can, as the large commission men are very likely to obtain the fruit through whatever channels it is sent. Indeed, the commission business is so conducted that the chance to swindle is very easy. Fake accounts can be easily returned. The grower must rely entirely on the honesty of the commission man. Only in those cases where the fruit is bought outright for cash is he sure. It is no wonder, then, that much swindling is done and as a result the whole family of commission men must bear the stigma. It is largely their own fault. They tend to conduct their business on the plan that if there is any profit it is theirs, and if any loss, it goes to the grower. They should

change their methods if they desire confidence. This a large percentage are not in favor of doing and, in fact, will not do just so long as they have a large business under present methods. Before patronizing a commission man, be sure of his integrity; then try to follow his suggestions, and do not desert him if he does not bring you the highest price the first season.

THRU AN ORGANIZATION.—A third way of disposing of the fruit is through an organization, known as a union or association. I prefer the latter name as the former is distasteful to many buyers and suggests certain characteristics which a fruit growers' union should not have. There is nothing arbitrary about an association. It is simply an organization formed so that the grower can realize a fair profit; whereas, at the present time the crop is handled by so many middle men, each, of course, demanding a profit, that little, in proportion, is left to the grower. The outcome of successful associations all over this northwest will be a better profit to the grower without pushing the market beyond the reach of the common people. With more active associations fruit will retail cheaper, if anything; but the profits will go where they belong—to the man who grows the fruit.

FORMING AN ASSOCIATION.

ADVANTAGES OF.—I will outline briefly some of the advantages of an association. In fruit growing there are four things to be kept in mind: first, we must grow a first class product. This means up-to-date methods. Second, we must pack our product with skill and great care, keeping constantly in mind quality, cleanliness and honesty. Third, having grown and packed this splendid product, we must feel that we ourselves have something good. And fourth, knowing ourselves that we have something good, we must let other people know it—in other words, advertise. All these things the association fosters and in all of these does such an association as the Hood River Apple Growers' Union excel.

The association demands that fruit receive the best of care. To produce the quality of fruit required, one must carefully thin and prune and spray and keep the trees in good vigor by thorough cultivation. In the special instructions to growers given in the appendix you will note the quality of the fruit required; and right at this point the association can be of great service to the grower because they can buy spraying materials, tools, etc., in carload lots, thus making a great saving for the grower. The best grading and packing done in the state is through an association. This is borne out by the fact that the fruit from Hood River this year was received without inspection in the New York and Liverpool markets. You cannot grade and pack your own fruit as nicely as someone else can do it for you. Our own eyes are often too small to detect blemishes that the unbiased eye can easily discover. It is only by very close inspection of every individual specimen that the fancy

pack can be realized. If there are any men who know a good thing when they have it, they are the members of our associations. This knowledge has taught them the fourth requisite—that is, advertising. In all lines of business today it is realized that advertising certainly pays. There has been no exception to the rule in fruit growing. The people who are realizing the largest returns are the people who advertise. The finest investment an association can make is to donate a few boxes of apples where they can make an impression. Thus, when the letter carriers had their convention in Portland, a certain organization donated several boxes of apples, each box costing the association about eleven dollars. Each apple was wrapped in a silk wrapper with appropriate lettering. Other conventions have been handsomely remembered. These apples have graced the tables of the finest banquets of the country. Our men of wealth, our lawmakers, our foreign ambassadors, all sing the praises of this Oregon organization, and advertising has accomplished this. Another splendid way to advertise is to hold fairs, as we do, and have other public exhibitions. Place fruit in city show windows, and in many other ways get it before the public eye. There is one kind of advertising that most of the Oregon growers can improve upon, and that is the kind of banners they put on their cars. They should in many cases be more conspicuous, and carry at a flash the fact that it is Oregon fruit which they herald, naming the localities. These cars go all over the United States.

An association can afford in a very short time to hire a manager and have him give all his time and energy to placing the product on the market. Men can be hired to do this for a small commission. It will by all means pay the association to make this liberal enough to secure the services of a man of ability. The more the association makes the more he makes. He therefore has an incentive to bring about the best possible results, devoting all his time to the work. He can receive daily quotations and even change the destination of a car already en route, thus not allowing a consignment of fruit to reach a glutted market. The association, because it handles such a large quantity of fruit, can, if necessary, hire at destination a private inspector. Again, the problem of storing and shipping is handled more cheaply than can possibly be done by the independent grower. Better shipping facilities can often be secured from railroads because of the volume of business. While the individual large growers can, and do in many cases, put a splendid product on the market, the keen competition of the growers of an association will generally produce a superior article. Our independent grower is too busy to attend to all the details of growing, and in packing he must hire and manage the work himself. He can build up a market for his fruit, but few can accomplish this with the ease and at the low cost of the association. The bi-products

will become more and more important each year and the associations can afford to build canning and vinegar factories, and in some cases have already done so with splendid results. As time goes on they can make their own boxes. Problems of storage are often simplified, as, if necessary, the association can afford to build well equipped storage plants. There are many other advantages too numerous to speak of. It is sometimes stated that the prices will fall and that associations will no longer pay. Take for granted that prices will fall from the present standard. This much is sure—that the best handled fruit will always bring the best prices and give the best profit.

HOOD RIVER METHODS.—The methods of the Hood River Apple Growers' Union are quite simple. When the driver delivers a load of fruit at the warehouse, he is given a slip in the form of a receipt for the fruit. There is a duplicate of this retained at the office and it is entered on the debit side of the ledger. At the time the fruit is loaded into the car it is checked up and entered on the credit side. When the check is received, each grower is credited his share less the charges of the Union.

The Hood River organization now has a membership of over one hundred and controls approximately ninety per cent. of the fruit of the valley. In four years it has been able to raise the price from 85 cents to \$3.15 for the best grade of Spitzenbergs, and \$2.50 for the best Yellow Newtowns. The prices range somewhat as regards size and quality. As an experiment this past fall the association sent nine carloads of fall apples to England. These apples were selling here at approximately 85 cents a box. After all expenses were paid they netted the Hood River growers \$1.32 per box. Some associations expect to realize such returns at the very start, and if they cannot they become dissatisfied. It takes time to build up a strong organization and to gain a reputation; but remember that even at a dollar a box you can realize a fair profit.

STEPS IN FORMING AN ORGANIZATION.—You do not need to try to form a large organization the first season. Good results can be realized by a few growers pooling together; then the next season branch out. Send some forceful member about to visit the growers and lay before them the advantages of an association, and call a general meeting. At this meeting choose a committee to draw up by-laws and constitution to be acted upon at some future meeting, when they will be adopted, and such officers as president, treasurer, and secretary, managers, and board of directors will be chosen. Have each member sign the constitution. It will generally be well to incorporate. To do this, simply file the names of the directors and a copy of the by-laws with the state auditor, and pay a small fee. It is generally advisable to issue stock—say, at five or ten dollars a share, requiring a fourth or half to be paid in. Oblige every member to take at least one share. It is at this point where some of our

associations are weak. In their early struggles they will sell shares to anyone who cares to buy. This is a mistake. The growers should always control the organization. It would not be a bad plan when the final steps are to be taken in completing the organization, to invite some of the members of a successful organization to attend and aid in the work. To do away with petty jealousies it is often much better to have an outsider come in and act as manager. As a general rule a business man has had the training that will make him more skillful than the average grower. It will pay to reward a capable man. Some organizations have had trouble in holding the buyers and also the growers to terms. Outsiders will come in who desire to injure the association so that in the future they can control the market. Make the buyers sign a legal contract and deposit a forfeit. In the fall after the crop is handled, plan for the next season and have a contract drawn up for the grower to sign. Do not put this off later than spring. Those who object to such a plan are not the men you desire. Rather have an organization of twenty sincere members than a hundred knockers and backsliders. In time you can build up a reputation so that the buyers will come to you and will do as they did at Hood River this year—camp out for weeks and at a given time hand in their sealed bids. There is only one danger in the sealed bids proposition, and that is that at some times the buyers might pool and divide the spoils. Have a good supply of by-laws and regulations printed and issue these to every member. It is the duty of each and every member to become familiar with these by-laws and to aid the officers of the association in every way possible. If a manager must constantly remind the members of the by-laws he wastes much time and cannot give his best efforts to his duties.

It would be a good plan if all the associations of the state would have their officers meet once a year and discuss plans for improving methods, and thus build up the fruit industry of the state. This meeting could come at or about the time of the meetings of the State Horticultural Society.

There is plenty of room for all and a wonderful chance for development. Instead of hindering, we should always try to aid each other in every way possible. The associations should also take an interest in the Northwest Fruit Growers' Association, which meets once a year and which can do much valuable work in drawing up desirable regulations and laws.

C. I. LEWIS.

Written by E. H. Shepard.

APPENDIX I.

Hood River Apple Growers' Union.—Advice to Growers.

1. Pick all apples as soon as they have attained their proper size, color and maturity, and save loss from dropping. In picking be careful not to pull off fruit spurs or stems. Your pickers, packers and wrappers must not bruise apples by dropping into the bucket or basket or in transferring from the field box. Be careful and do not allow pickers, packers or wrappers to break off stems of apples.

2. The Union will notify you all by mail when a variety is to be packed and how. Upon receipt of such notice, pick, wipe and have all arrangements made for packers, as follows: Packing house, boxes, paper, packing table, nailing machine, nails, etc. Notify the Union when you are advised a variety is sold when you will be ready for packers. Packers will be sent to growers in order of notification.

3. The packing house should be arranged to let in plenty of light, and keep out as much wind as possible. Provide sufficient lamp light for late in the afternoon, as it gets dark early.

4. PACKING TABLE.—Each grower should have tables for four packers. Be sure and get one.

5. PAPER.—See that you have plenty on hand for your crop. Carload for sale at Union; price, cost laid down.

6. BOXES.—Have sufficient number on hand. *Keep them clean. Do not pack fancy fruit in dirty boxes.* Dirty boxes buyers will not receive. Therefore, the Union will decline to accept them.

7. SORTING.—Cull out all wormy, scabby, scaley, bruised, misshapen or otherwise imperfect apples. Packers, in final sorting at prices agreed will not be required to cull out more than 8 boxes in 100 without extra pay. Sort your apples into the standard or special box, whatever they will most likely pack into to the best advantage. This will save a great deal of time. Growers in sorting are requested to put 4-tier and larger in boxes by themselves and all 4½ and 5-tier in boxes together.

8. WIPING.—See that all apples are properly wiped for the packers. In piling boxes after sorting, put cleats between so apples won't bruise.

9. APPLES ON PACKING TABLE—Growers will be expected to see that the packing tables are kept properly filled for packers.

10. PAPER AND BOXES HANDY.—See that empty boxes and paper are conveniently arranged for the packers.

11. SETTING OFF BOXES.—Each packer will be required to set off

his own box and put on the lower left hand corner of the end of the box with a rubber stamp his packer's number.

12. **STENCILING BOX.**—Each packer will write on the end of the box the number of apples contained in the box. The grower or foreman will stamp on the end of the box, in the middle at the top, the number of apples contained in the box, and underneath the name of the variety. A complete set of stamps for this purpose will be carried by each foreman of a gang.

13. **GROWER'S NUMBER.**—Each grower will be required to put on his number with a rubber stamp in the upper right hand corner of the end. If you do not have a number, call at the office and one will be presented free. If you do not fully understand the stamping of the boxes, ask the foreman of packers, or the manager will explain.

14. All stamping must be on one end of the box.

15. Packers must pack apples so that they will not be above the top of the box on either end. Growers will be allowed to refuse to nail a box unless so packed. If absolutely unavoidable in very large apples, the grower will be sure to put on cleats under the lid at both ends.

16. **PILING AND LOADING.**—Pile your boxes, after being packed, on the sides and load in the wagon the same way.

17. **HAULING.**—Haul on springs and use a wagon cover to keep off dust and rain.

18. All boxes should have four nails on sides, tops and bottoms. A great many boxes came in last year bursted. We therefore request you to use 5 or 6 penny cement coated nails, which are the only proper nail to use.

19. **FINALLY**—We grow fancy fruit. Our reputation and prices this year and in the future depend on our pack. Do all you can to assist the board of directors in carrying out their plans. These requests are made by them for your interests.

INSTRUCTIONS TO PACKERS.

1. A crew will consist of four packers, including foreman.

2. Each packer, before he is permitted to pack for the Apple Growers' Union, must have his name registered at the office of the Union and receive a rubber stamp free. He shall be required to stamp each box at the lower left hand corner when packed with his official stamp.

3. Each packer shall be required to put up a first-class pack. If upon any inspection any packer be found guilty of putting up a poor pack, or putting in apples not suitable for the pack being made, he shall bear the expense of repacking such box or boxes for the first two offences. Upon further neglect he shall be dropped from the list of the Apple Growers' Union packers.

4. Each packer, when a box is packed, shall write with pencil up-

on the end of the box, in the center near the top, the number of apples the box contains.

5. Each box of apples shall be packed with about a $\frac{3}{4}$ -inch to 1-inch swell in the middle of top and bottom combined, but no box must be packed so high that it will be necessary to cleat the box before nailing on the lid.

6. Each packer shall receive his pay from the grower in cash, or a written order on the Apple Growers' Union, which will be cashed by the manager on presentation.

7. The charges fixed by the Union and agreed to by the packers for packing, will be 5 cents per box for all boxes containing 128 apples or less, and 6 cents per box for all boxes packing $4\frac{1}{2}$ tier. All 5-tier apples will be packed at 7 cents. This price shall cover any and all packs ordered by the manager.

8. Each packer will be furnished meals by the grower where he is packing, without charge, but must make necessary arrangements for his bedding.

9. Packers are required only to pack fruit properly wiped and assorted from culls fairly well by the grower before being placed on the packing table, but the packer will be required to make the final culling, which shall not exceed 8 per cent, or 8 boxes in 100. Such culls as the packer may throw out he will be required to handle with as much care as first-class fruit.

10. Each packer must be supplied with suitable and necessary room at the packing table, which must be properly and substantially made.

11. Each packer shall require the grower to supply him with empty boxes, and have the proper paper placed in a convenient place.

12. Each packer must set off his box when packed.

13. If the grower is not properly prepared for packers, the packers are at liberty to move on, or may charge the grower at the rate of 20 cents an hour for extra time spent in culling and wiping properly. It shall be the duty of each packer to notify the grower of such conditions, when existing, in advance, and should the grower make a protest, the packer will be at liberty to move on and report the matter to the manager, who will endeavor to conscientiously adjust the matter satisfactorily.

14. Packers must be sure to have the exact number of apples in the box as numbered. Foremen are cautioned to watch this. Avoid criticism by following this instruction. We are on the lookout for this sleight of hand trick.

15. Please assist the packer. He is also a grower and your friend; and remember he is following instructions given by the Board of Directors, who are acting as directors with your interest at heart, giving one day each week of their time without pay.

BY ORDER OF THE BOARD.

APPENDIX II.—Special Instructions to Apple Packers.

Only two stings on one apple will be accepted on all first grade apples. Any worm sting must not be larger than 3-16 of an inch in diameter measured from outside of green ring around said sting. No sting may show an open hole; 4½ and 5 tier apples should not show over one sting unless said stings are very small. Limb and leaf rubbed or other like defects will be accepted where said defect does not break the skin of the apple, providing said defect is not larger than a 10-cent piece, if said defect is circular; if it is oblong in shape it must not be more than 3-8 of an inch wide and 3-4 of an inch long. This shall also apply to defects caused by cut worms while small, providing any defect does not materially affect the shape of the apple. Stemless apples will be accepted when the flesh of the apple surrounding said stem is not broken. All apples must be clean, fully matured, of good color, free from any insect pests, fungus, rust, decay or injury except as herein specified. Deformed apples will not be accepted. Packers are cautioned to look out for windfalls and bruised apples. Green apples that will never mature will not be accepted. All apples must be wrapped, boxes lined, layer paper between layers on top and bottom. Spitzenbergs, Newtowns, Ortleys, Aiken Reds and Red Cheek Pippins must be wrapped with top and bottom layers in printed wrappers middle layer plain paper. All other varieties must be put up the same way unless otherwise ordered. Spitzenbergs sold as red must have 70 per cent or more red color. Spitzenbergs and Newtowns that pack 5 tier must be packed in Oregon boxes. This does not apply to other varieties. These instructions will be followed on all our packs, except the clause pertaining to color, on which special instructions will be given for the different varieties.

4 tier apples include nothing smaller than 128 size.

144 size is special.

4½ tier includes 150 to 175 size.

5 tier includes 185 to 200 size.

Do not pack in dirty boxes.

Everyone should keep his hand clean so as not to soil the paper or dirty the boxes in handling.

APPENDIX III.—Office Hood River Apple Growers Union.

HOOD RIVER, Sept. 22, 1906.

All apples will be wrapped this year, boxes lined, layer paper between layers and on top and bottom. Printed wrappers will be used on top and bottom layers, plain paper for the middle layers; therefore, order half printed wrappers and half plain wrappers. Using printed wrappers this year will only add three-fourths of a cent per box.

The crop packs out in general one-half in Oregon boxes and one-half in California boxes. We would suggest in a general way ordering half of each size box, and paper the same way.

Mr. Geo. I. Sargent, late from California, who had charge of a four hundred acre orchard there, is using the system of sorting apples adopted in California canneries. Briefly, he cuts three circular holes in a board, 2¾ inches, 3 inches, and 3¼ inches in diameter, which he hangs up in front of the sorter. This being just in front of the eye and within reach of the hand, enables the wiper, when wiping and sorting, to quickly see or determine the size of the apple, and it is accordingly placed in a 3, 3½, 4 or 4½ tier box. It is just as quick to place each apple in the proper box as it is to put them all in one box. All apples less than 2¾ inch hole go in 4½ and 5 tier boxes.

The great advantage of this system is that your packers can pack directly from the box, or if placed on packing table you avoid having all sizes on at once, which means, as you know, a whole lot of pawing over and bruising

more or less, which must necessarily affect the value of apples in the market. The less bruising we have the more our apples will bring, consequently the more buyers will be willing to pay us in future.

Mr. Sargent says it costs no more to sort in this way than when putting all sizes in one box.

The crew of four now packing say it is the slickest and best system they ever saw. They packed out two hundred and eighty boxes the first day.

We would like to see the growers try this, because we believe it will enable us to pack the crop a great deal easier and quicker. And we believe this system will eliminate so much unnecessary bruising caused by pawing over a lot of different sized apples that our crop handled by this system will bring us more money.

If you do not thoroughly understand it, call at the office for explanation.

Growers are requested to wipe their apples and put nothing on the packing table but what is absolutely A-1 stock. Above all things, be sure and cull out all apples showing scale or fungus, for the reason that either one of these diseases would cause a car to be rejected or turned down by an inspector quicker than anything else.

Fancy prices have been realized this year and we must "make good" by putting up fancy apples. This will insure us fancy prices next year. We must maintain our reputation. If we do not we can not expect high prices.

HOOD RIVER APPLE GROWERS UNION,

E. H. SHEPARD, Manager.

APPENDIX IV.—Hood River Fruit Growers' Union.

Articles of Incorporation and By-Laws.

Art. 1. The name of this corporation shall be "The Hood River Fruit Growers' Union."

Art. 2. The objects of this corporation shall be to secure to fruit growers of Hood River valley and vicinity all possible advantages in the marketing of their fruit, as well as to build up a standard of excellence, and to create a demand for the same.

Art. 3. The principal place of business of this corporation shall be at Hood River, Wasco County, State of Oregon.

Art. 4. The capital stock of this corporation shall be one thousand five hundred dollars (\$1500).

Art. 5. The value of each share of such capital stock shall be five dollars (\$5).

BY-LAWS.

Section 1. The name, place of business, capital stock and purposes of this corporation are set forth in the articles of incorporation, which are referred to as a part of these By-Laws.

Sec. 2. The directors of this corporation shall be five in number, who shall be elected annually, and shall serve until their successors are elected and qualified. They shall qualify as directors within five days after their election, and within ten days thereafter they shall elect from their number a president, vice-president and secretary. They shall also choose a treasurer, who shall be required to give bonds, with surety, in such sums as they may deem ample. They may choose a bank as treasurer without bonds.

Sec. 3. The directors shall have power to levy and collect assessments on the capital stock, the same to become delinquent in thirty days from date of notice in local paper of such assessment. The directors may sell such delinquent stock at public auction to the highest bidder for cash, first giving thirty

days' notice of such sale in a local newspaper, such sale to be made at the door of the office of the Union, in Hood River, Oregon.

Sec. 4. The directors shall employ such agents and other employes as are necessary to do the business of the corporation, and shall fix the remuneration.

Sec. 5. The directors may refuse to receive for shipment any fruit not considered prime for any cause. They may also refuse to receive fruit for shipment from any person who has not shipped with the Union regularly heretofore during the shipping season for such fruit, when in their judgment the receiving and shipment of the same would be detrimental to the interests of the regular shippers of the Union.

Sec. 6. The duties of the secretary shall be to keep all books and accounts and records of the corporation, and to keep the minutes of the proceedings of the directors' and stockholders' meetings, and to carry on all correspondence, and to perform such other duties as may be required by the board of directors.

Sec. 7. The duties of the president and vice-president shall be the same as are usually required of such officers.

Sec. 8. It shall be the duty of the treasurer to receive and pay out all funds of the corporation, and to keep a correct account of the same.

Sec. 9. The annual meeting for the election of officers and the transaction of other business of the corporation shall be held on the second Saturday in November of each year, in the town of Hood River, Oregon, at 10 o'clock a. m.

Sec. 10. The president shall instruct the secretary to call a meeting of the stockholders whenever in his judgment the necessities of the Union require it, by giving one week's notice through the local newspaper and by posting notices in three conspicuous places.

Sec. 11. A majority of the stock subscribed, upon which all legal calls or assessments are paid in full, shall constitute a quorum at any stockholders' meeting, and no vote shall be counted which is not represented by at least one share of stock upon which all calls or assessments have been paid.

Sec. 12. These By-Laws may be amended by a vote of a majority of the stock upon which all calls or assessments have been paid in full, at any regular or called meeting, provided that notice to amend By-Laws shall have been given in the call for the meeting.

Sec. 13. The board of directors shall have the power to fill any vacancies that may occur in their number.

APPENDIX V.—Canadian Fruit Marks Act, 1901.

[*Extracts.*]

4. Every person who, by himself or through the agency of another person, packs fruit in a closed package intended for sale, shall cause the package to be marked in a plain and indelible manner, before it is taken from the premises where it is packed —

(a) with the initials of his Christian name, and his full surname and address;
 (b) with the name of the variety or varieties; and
 (c) with a designation of the grade of fruit, which shall include one of the following six marks: for fruit of the first quality, No. 1, or XXX; for fruit of the second quality, No. 2, or XX; and for fruit of the third quality, No. 3, or X; but the said mark may be accompanied by any other designation of grade, provided that designation is not inconsistent with or marked more conspicuously than, the one of the said six marks which is used on the said package.

5. No person shall sell, or offer, expose or have in his possession for sale, any fruit packed in a closed package and intended for sale, unless such package is marked as required by the next preceding section.

6. No person shall sell, or offer, expose or have in his possession for sale, any fruit packed in a closed package, upon which package is marked any des-

ignation which represents such fruit as of No. 1 or XXX. finest, best, or extra good quality, unless such fruit consists of well-grown specimens of one variety, sound, of nearly uniform size, of good colour for the variety, of normal shape, and not less than ninety per cent free from scab, worm holes, bruises and other defects, and properly packed.

7. No person shall sell, or offer, expose or have in his possession for sale, any fruit packed in any package in which the faced or shown surface gives a false representation of the contents of such package; and it shall be considered a false representation when more than fifteen per cent of such fruit is substantially smaller in size than, or inferior in grade to, or different in variety from, the faced or shown surface of such package.

8. Every person who, by himself or through the agency of another person, violates any of the provisions of this Act shall, for each offense, upon summary conviction, be liable to a fine not exceeding one dollar and not less than twenty-five cents for each package which is packed, sold, offered, exposed or had in possession for sale contrary to the provisions of this Act, together with the costs of prosecution; and in default of payment of such fine and costs, shall be liable to imprisonment, with or without hard labour, for a term not exceeding one month, unless such fine and the costs of enforcing it are sooner paid.

9. Whenever any fruit in any package is found to be so packed that the faced or shown surface gives a false representation of the contents of the package, any inspector charged with the enforcement of this Act may mark the words "falsely packed" in a plain and indelible manner on the package.

(2) Whenever any fruit packed in a closed package is found to be falsely marked, the said inspector may efface such false marks and mark the words "falsely packed" in a plain and indelible manner on the package.

(3) The inspector shall give notice, by letter or telegram, to the packer whose name is marked on the package. before he marks the words "falsely packed" or "falsely marked" on the package.

10. Every person who not being an inspector wilfully alters, effaces or obliterates wholly or partially, or causes to be altered, effaced or obliterated, any marks on any package which has undergone inspection shall incur a penalty of forty dollars.

Explanation for Guidance of Inspectors.

SEC. 6. 'No. 1 or XXX, finest, best or extra good quality.' The following marks also are held by the trade generally to indicate this quality of fruit: 'Choice,' 'Fancy,' 'Selected,' 'Prime.'

'Nearly Uniform' is to be taken as including any size of fruit except that which may be fairly classed as *small for the variety*.

'Bruises.' Only such injuries as produce decay or otherwise materially lessen the value of the fruit for consumption, should be counted as bruises.

'Scab.' Such as causes appreciable waste to be considered particularly.

'Properly Packed.' 'Slacks' are to be considered as not properly packed if the condition is likely to result in permanent damage during handling or transit.

Explanatory Notes for the Owner.

If the owner marks the package 'No. 1' (or XXX) the fruit must be described in Section 6. practically perfect. On reading this section carefully, it will be seen that the packer should aim to discard every injured or defective fruit, and not to deliberately include the ten per cent of inferior specimens which the law allows. This margin is meant to make the work of grading easier and more rapid than if absolute perfection were exacted in the first grade, as many of the best growers think should be done.

It should be noted that the definition of No. 1 fruit does not vary from year to year; no provision is made for lowering the standard when the quality of the crop is poor. In such a case the only result is that a smaller proportion of the fruit is No. 1.

The Act makes no restriction as to the quality of fruit which is marked 'No. 2' or 'No. 3,' but it is strongly recommended that 'No. 2' consist of fruit in every way as good as 'No. 1' except in the matter of size and colour. 'No. 3' will then include all under-sized or defective specimens which are marketable, culls being left at home.

By carefully following the above method, owners will soon establish a high reputation, particularly if they export very few of the 'No. 3' grade.

On the owner is laid the duty of seeing that the face of each package fairly represents the contents as required by Section 7. Over-facing is an offense against the Act which is most severely dealt with by the courts.