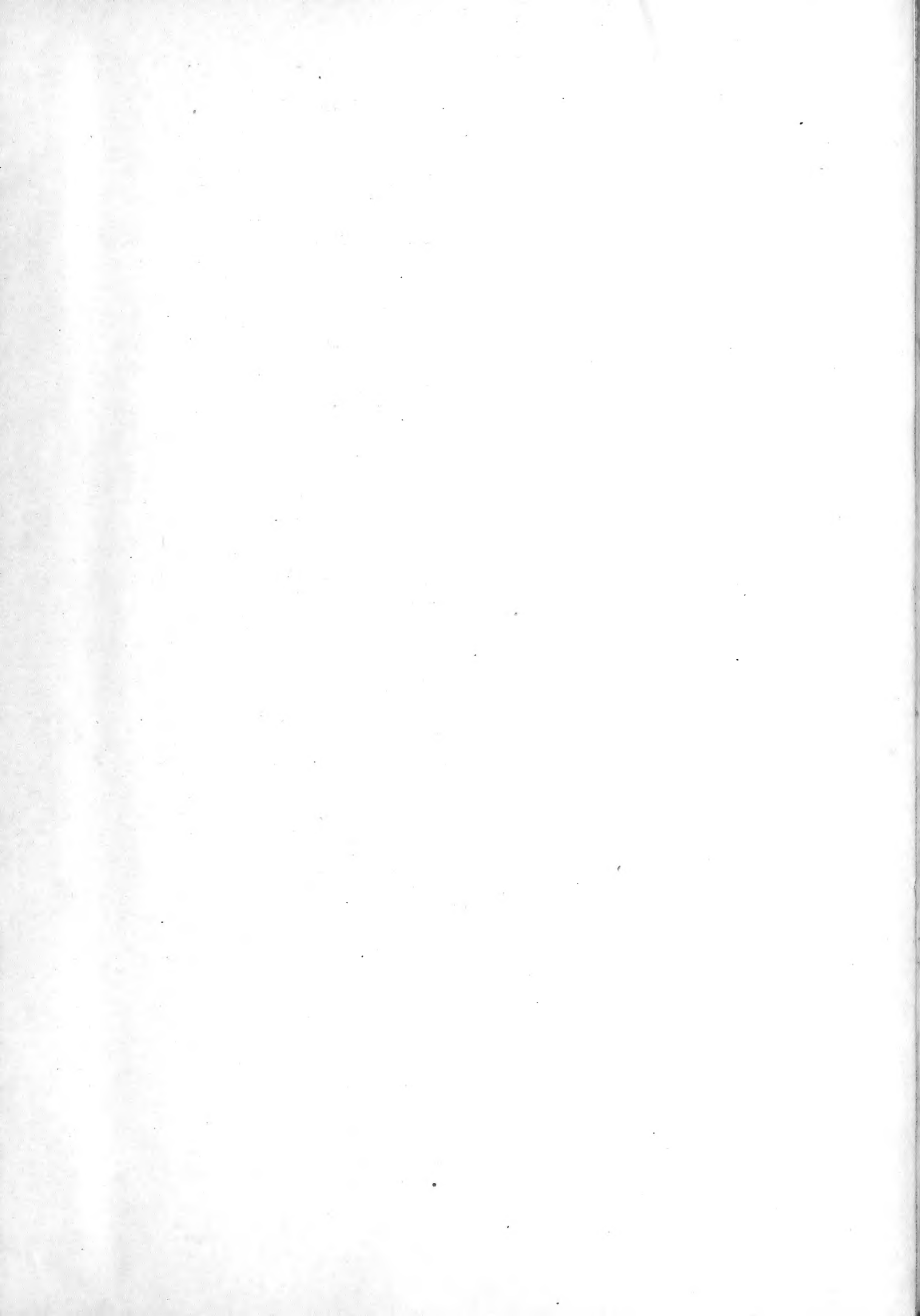




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BETTER FRUIT

VOLUME VI

JULY, 1911

NUMBER 1

FRUIT SHIPPERS AND DEALERS EDITION



Courtesy of Sutherlin Land and Water Co., Sutherlin, Oregon

NOT A "FULL DINNER PAIL," BUT A "FULL FRUIT BASKET" FOR THE
FRUIT GROWER, FRUIT DEALER AND CONSUMER

BETTER FRUIT PUBLISHING COMPANY, PUBLISHERS, HOOD RIVER, OREGON

Official Organ of the Northwest Fruit Growers' Association

Subscription \$1.00 per Year—Single Copy 10 Cents

Dangerous Fruit Pests are Unknown
in the famous

Bitter Root Valley

on Montana's Pacific Slope
Where the Wormless Apples Grow

Smudging Is Unnecessary

There has not been a killing frost on the bench lands in the growing season in the history of the Valley. There are no dust storms.

Pure water and sunshine 300 days in the year make ideal health conditions.

Net profits annually range from \$2,000 to \$5,000

on a matured apple orchard of only ten acres.

Undeveloped land in this remarkable fruit district can still be bought for **less money** than is asked in other valleys less perfectly adapted by nature for successful fruit growing. Values now range from \$250 to \$350 per acre.

Developed tracts of ten acres, with contract to cultivate and care for same to five-year maturity, cost only \$5,000 if purchased now. Easy terms of payment for both developed and undeveloped land.

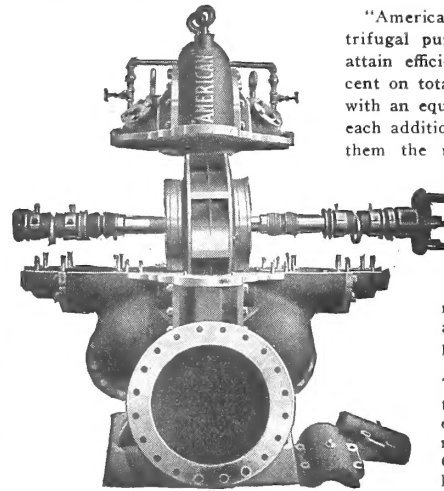
Detailed information upon request.

Bitter Root Valley Irrigation Co.

First National Bank Building, CHICAGO

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Given by the Alaska-Yukon-Pacific Exposition at Seattle
in 1909 to pumps were awarded to

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"American" single stage centrifugal pumps are guaranteed to attain efficiencies of 60 to 80 per cent on total heads up to 125 feet, with an equal increase in head for each additional stage, which makes them the most economical pump made for irrigation purposes.

"American" centrifugals are made in both horizontal and vertical styles, in any size, in any number of stages, and are equipped with any power.

Write for "Efficiency Tests of American Centrifugals," by the most eminent hydraulic engineer on the Pacific Coast. Complete catalogue, No. 104, free.

The American Well Works

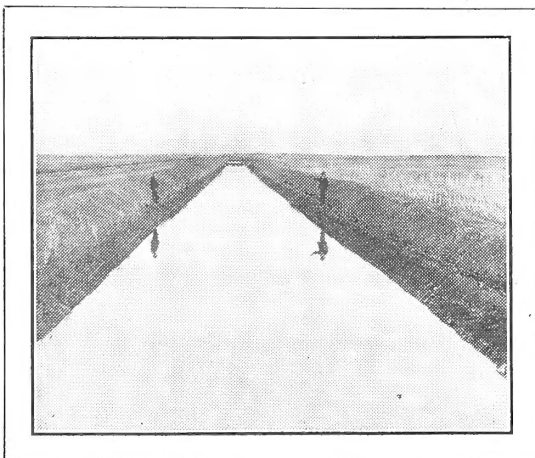
General Office and Works: Aurora, Illinois, U. S. A.
Chicago Office: First National Bank Building

PACIFIC COAST SALES AGENCIES:

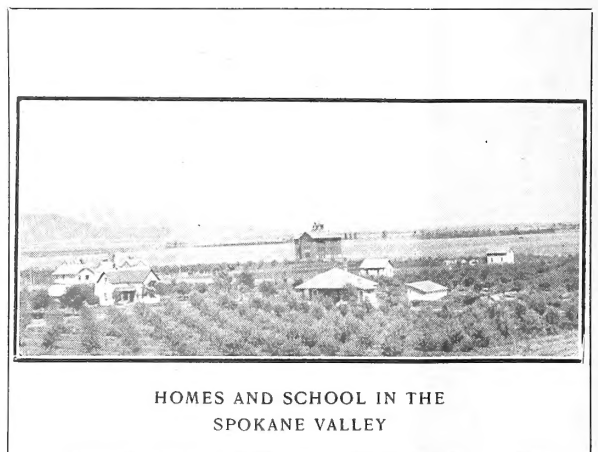
70 FREMONT STREET, SAN FRANCISCO
341 SOUTH LOS ANGELES STREET, LOS ANGELES
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THE GRAVITY IRRIGATION SYSTEM OF THE SPOKANE VALLEY

Has developed the greatest apple and berry district of the West. **Nearness to market** causes larger net returns than in any other locality. Seventy-two trains daily through the valley. Every modern convenience. "Life's journey is swift; let us live by the way." The Spokane Valley has the unique distinction of being the only established apple district near a big city. Think what that means and investigate. Five thousand contented settlers.



THE BEST
IRRIGATION
SYSTEM
IN THE
WEST



HOMES AND SCHOOL IN THE
SPOKANE VALLEY

SPOKANE VALLEY IRRIGATED LAND CO.

401 SPRAGUE AVENUE, SPOKANE, WASHINGTON

WHEN WRITING ADVERTISERS MENTION **By Transfer** BETTER FRUIT

By Transfer
1922

JUN 28 1922

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NORTHWESTERN FRUIT EXCHANGE

A FEDERATION OF PACIFIC NORTHWEST FRUIT GROWERS' INTERESTS

The following local fruit associations are now affiliated with the Northwestern Fruit Exchange for the season of 1911, because the results obtained by the Exchange last year demonstrated beyond question that the important problem of how the fruits should be marketed in order to be of the greatest direct benefit to the growers of Oregon, Washington and Idaho, had been solved:

OREGON

Rogue River Fruit and Produce Association
Eugene Fruit Growers' Association
Umpqua Valley Fruit Union
Salem Fruit Union
Farmers' Union Exchange
Cove Fruit Union

Dufur Valley Fruit Growers' Union
La Grande Fruit Association
Imbler Fruitmen's Association
The Dalles Fruit Growers' Association
Corvallis Fruit Growers' Association

WASHINGTON

Cashmere Fruit Growers' Union
Stevens County Fruit Growers' Union
Dryden Fruit Growers' Union

Spokane Highland Fruit Growers' Association
Ridgefield Fruit and Produce Association

IDAHO

Payette Fruit Packing Company, Ltd.
Weiser River Fruit Association
New Plymouth Fruit Growers' Union, Ltd.
Parma-Roswell Fruit Growers' Association
Nampa Fruit Growers' Association

Emmett Fruit Growers' Association, Ltd.
Clearwater River Fruit Growers' Union
Buhl Fruit Growers' Association
Council Fruit Shippers' Union

The successful marketing of 700 cars of fruit by the Exchange, from all sections of the Pacific Northwest, in 1910, through the employment of thoroughly scientific methods, giving consideration to the laws of supply and demand throughout the world, was appreciated to the extent that already between 2,000 and 3,000 cars of the 1911 crop are represented in the volume of products to be handled by the Exchange, and negotiations are in progress for the affiliation of a number of additional associations.

The Northwest grower wants results. Results in the orchard business can only be accomplished by using the most direct movement of the output between the grower and the consuming trade. It is the saving that counts. The grower wants, and should get, every cent of legitimate profit that he is entitled to. The difference between the cost of producing the fruit, and its **actual market value**, belong to the grower. Actual market values can only be obtained by placing the fruit in the markets where it is wanted, and not in the over-stocked markets. The Northwestern Fruit Exchange places the fruit before the consuming trade that is waiting for it. This can only be done by a daily and intimate knowledge of the markets universal.

One hundred and twenty-five markets were employed by the Exchange in disposing of the 700 cars in 1910; not more than 65 markets had ever been used by the entire Northwest in any previous season in placing its entire output. Nearly every state in the Union tasted of Northwest fruits in 1910, due to this method. New markets previously unacquainted with our products immediately repeated their demand for it.

The Exchange obtained for its representative growers in 1910 record prices for the season. It discounted every other means of selling, and in certain sections where represented, saved the growers between 20 and 30 cents per box over other methods. If every Northwest grower had saved 20 cents per box in 1910, the aggregate would have amounted to **one million dollars**.

Local associations are earnestly invited to investigate the principles, policy and methods of the Exchange; its records are open to all legitimate growers, and full information will be cheerfully sent upon application.

Local associations or unions desiring to consider the use of our marketing system for the 1911 crop are requested to let us know at the earliest moment, as our pro-season campaign will be commenced in the immediate future through our district offices in the United States.

NORTHWESTERN FRUIT EXCHANGE

General Offices, Spalding Building, Portland, Oregon

President, REGINALD H. PARSONS (President Hillcrest Orchard Co., Medford, Oregon; Director Rogue River Fruit and Produce Association)

Secretary, C. A. MALBOEUF

Vice President, W. N. IRISH (President Yakima County Horticultural Union)

Treasurer and General Manager, W. F. GWIN (Secretary Kemmar Orchard Company)

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FRUIT
RIGHT
ALWAYS SHIP TO
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WHOLESALE FRUITS
AND PRODUCE
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ESSENTIAL FOR HANDLING YOUR PRODUCTS
*A strong house that gives reliable market
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Incorporated
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FRUITS AND
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Growers and Shippers of
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Specialties: Apples, Peaches, ...
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Spitzenbergs, Newtowns, Jonathans,
Arkansas Blacks, Ortleys, Baldwins,
Winesaps, R. C. Pippins, Ben Davis,
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Grade and Pack Guaranteed
Apple Growers' Union
Hood River, Oregon

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Established 1869
235-238 West Street
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Strictly commission house. Specialists in apples,
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to their own representatives in England
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Wholesale Fruits and Produce
We make a specialty
in Fancy Apples, Pears and
Strawberries
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D. CROSSLEY & SONS

Established 1878

APPLES FOR EXPORT

California, Oregon, Washington, Idaho and Florida fruits. Apples handled in all European markets. Checks mailed from our New York office same day apples are sold on the other side. We are not agents; we sell apples. We make a specialty of handling APPLES, PEARS AND PRUNES on the New York and foreign markets. Correspondence solicited.

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SIMONS, SHUTTLEWORTH & CO.

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 Portland, Maine

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Irrigation - Drainage - Conservation - Development

In whatever way you are trying to get the most out of your land, you like to get all the help you can for the least money. There are and will be in every number of the

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enough helpful suggestions and items of valuable information about what is being done or tried in your own section and in other places to cover the subscription price a dozen times.

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SEATTLE

Increased 194 per cent in population, according to Uncle Sam's last census. This is more than any other large city in the PACIFIC NORTHWEST.

WASHINGTON

Leads all states of the Union in growth, having increased 120.4 per cent, according to the same authority.

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MCEWEN & KOSKEY

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and General Commission
Merchants

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Are solicited, all your shipments
receiving our personal attention

Spitzenbergs & Newtowns

From the
Hood River Valley,
Oregon

Took the first prize on carload entry at the Third National Apple Show, Spokane, Washington, and Chicago, Illinois, 1910.

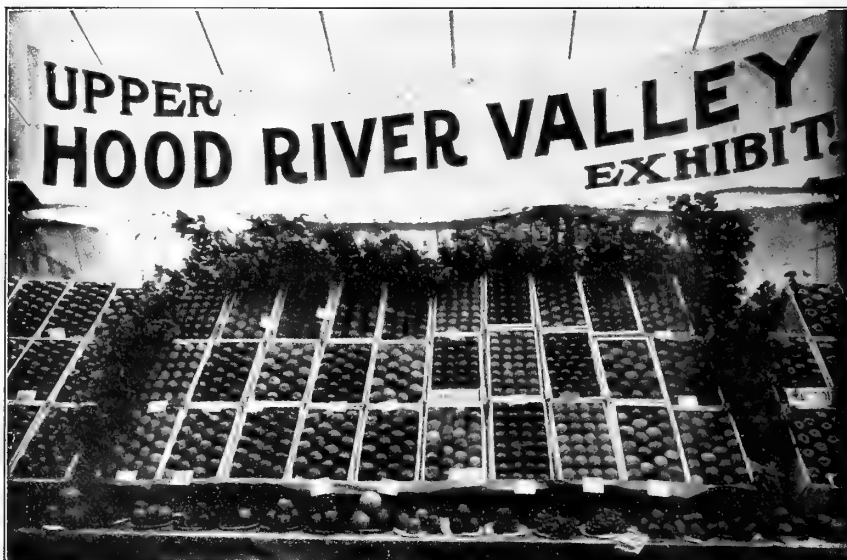
The Spitzenberg car scored, out of a possible 1,000 points, 997. The Newtown car, out of a possible 990 points, scored 988.

The Spitzenberg carload also won the championship carload prize at this show.

Can You Beat It?

We have got land improved and unimproved that is growing such fruit and that can grow it.

We are agents for the Mount Hood Railroad Company's logged off lands in Upper Hood River Valley. Many started in a small way; today they are independent. You can begin today. It pays to see us. Send today for large list of Hood River orchard land, improved and unimproved, and handsome illustrated booklet.



The above picture shows a prize-winning exhibit of Upper Hood River Valley apples at the Hood River Apple Show

W. J. Baker & Company Hood River Oregon

The oldest real estate firm in Hood River. Best apple land our specialty

FREY-WATKINS CO., INC.

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Fruits and Produce in Straight and Mixed Cars

Cold storage at Le Roy and Hilton, New York. Ship your apples to us for sale and storage. Reasonable advances, prompt returns.

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Stanley-Smith Lumber Co.

WHOLESALE AND RETAIL

LUMBER

Lath, Shingles, Wood, Etc.

HOOD RIVER, OREGON

Ryan & Newton Company

Wholesale Fruits & Produce

Spokane, Washington

We have modern cold storage facilities essential for the handling of your products

Reliable Market Reports

PROMPT CASH RETURNS

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North Yakima, Washington

C. R. Paddock, Manager

Apples, Pears, Peaches, Cherries
Plums, Prunes, Apricots, Grapes
and Cantaloupes

Mixed carloads start about
July 20. Straight carloads in
season. Our fruit is the very
best grade; pack guaranteed

We use Revised Economy Code

References { District National Bank
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Codes { Economy
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WE SPECIALIZE IN
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WE WANT TO REPRESENT THE GROWERS OF

BETTER FRUIT. We know that our
BETTER METHODS of selling will bring
BETTER RESULTS

A Trial Solicited

All Shipments Receive Personal Attention

TREES APPLE, CHERRY TREES PEAR, PEACH

MILTON NURSERY COMPANY

A. MILLER & SONS, Inc.

You cannot afford to take a chance in buying trees to plant for future profit. It requires knowledge, experience and equipment to grow reliable nursery stock.

OUR 33 YEARS' EXPERIENCE in growing first-class trees, true to name, for commercial orchards, insures our customers against any risk as to quality and genuineness of stock.

Orders are now being booked for fall delivery 1911. Catalog and price list free for the asking.

Address all communications to

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For methods and advantages in using Orchard Yarn read the first article in December issue of "Better Fruit" by a world expert.

Tarred Orchard Yarn is used by the foremost growers in all sections.

Natural, practical, economical method of supporting heavily laden trees instead of props. Makes cultivation easier and does not chafe the limbs.

Testimony: More Yarn sold last year than all previous years combined. Sold by all dealers.

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"THE CREAM OF THEM ALL"

In the Spokane Valley, Washington

THE KIND OF IRRIGATED FRUIT LAND THAT MEANS BIG PROFITS FOR YOU



A PRODUCING ORCHARD AT OPPORTUNITY, WASHINGTON

OPPORTUNITY has not only proven itself one of the finest orchard projects in the Northwest, but is the ideal place for the home-builder. Its proximity to the city of Spokane, three miles distant, splendid market facilities, steam and electric lines, churches, schools, electric lights, telephone service, water under pressure for domestic use, and the irrigation water carried to highest point on each tract, gives the purchaser all the conveniences of the city and the comforts of the country.

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KIMBALL CULTIVATOR

Great Weeds and Ferns Exterminator

Ninety Per Cent
Hood River Orchardists
Use
This Machine

Send for
Illustrated Descriptive
Booklet



Hood River, Oregon, February 26, 1910

Mr. W. A. Johnston,
The Dalles, Oregon

Dear Sir: I use three "Kimball Cultivators" in my orchard. There is nothing better as a weeder, dust mulcher, or to stir the soil.

Yours truly,

E. H. Shepard, *Editor "Better Fruit"*

W. A. JOHNSTON, Manufacturer

Office and Factory, 422 East Third Street, The Dalles, Oregon

Long Distance Phone, Red 991

White Salmon, Washington, Orchard Lands, 30 Day Specials

- 777—10 acres first-class orchard land, only 5 miles out; red shot soil, fine view, on county road. Only \$125 per acre, on easy terms.
- 779—20 acres 7½ miles out, near sawmill, store and postoffice; easily cleared, some brush land; 1 acre under plow; small cabin; good soil. Present price only \$2,100; easy terms.
- 788—40 acres near large orchard company's property; county road on one side; little or practically no waste land; red shot soil; 11 miles to town, 2 miles to postoffice; owner needs money. Sell for \$75 per acre; \$500 cash, \$25 per month, 7 per cent interest.
- 790—80 acres only 8 miles from North Bank station, 2 miles to store and postoffice. \$5,000 for the 80; only \$2,000 cash, \$1,000 per year, 7 per cent interest. **THIS OFFER THIS MONTH ONLY.**

H. W. DAY REALTY CO., White Salmon, Washington

(Successors to White Salmon Realty Co.)

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<p>Located across the Columbia River from Hood River, Oregon, the White Salmon Valley offers the greatest opportunities of any land on earth to fruit growers.</p>						
<p>WHERE APPLES, CHERRIES, PEACHES, PEARS, PRUNES AND STRAWBERRIES GROW TO PERFECTION</p>						
<p>A few dollars invested in fruit land today will return to you in a very few years sixty-fold. The SOIL, CLIMATE, WATER and SCENERY are unsurpassed by that of any country.</p>						
<p>We have bargains in orchard lands in and near White Salmon, also large and small bodies of timber land, cheap. WRITE US FOR DESCRIPTIVE MATTER AND PRICES</p>						
<p>ESTES REALTY & INVESTMENT CO.</p>						<p>White Salmon, Washington</p>
BERRIES		CHERRIES		STRAWBERRIES		NUTS

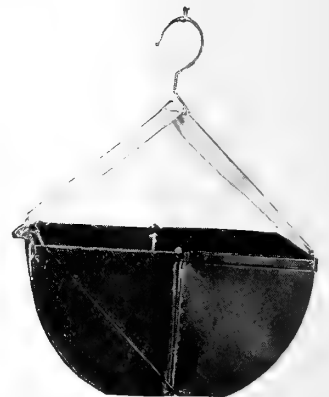
THE SIMPLEST, EASIEST AND MOST PERFECT

Picking Bucket

ON THE MARKET

Every piece of fruit that is picked without bruising is *money* in your pocket. *A day's picking will pay for it.*

PRICE, \$1.50



AGENTS WANTED AT ONCE

WRITE

Palmer Bucket Co.

HOOD RIVER, OREGON

P. S.—Tomatoes, cherries, grapes and all tender fruit can be emptied from this bucket without a bruise.

Apple Growers Get Busy

\$500 in Gold for You



At the American Land and Irrigation Exposition to be held in New York this fall, the Northern Pacific Railway is offering a prize of \$500 in gold for the best exhibit of 25 boxes of apples—any variety or varieties, a single variety to the box—competition open to the world. The conditions are:

The facts regarding the fruit, as asked by the judges, must be sworn to and attested by two witnesses. The apples must be exhibited by actual grower or his authorized agent. The grower must own the land or be the proprietor by virtue of lease or crop-sharing system of cultivation. Condition of fruit as to size and weight, appearance, perfection of type, method of packing, and date of picking will govern in the award. The competition is **not** open to dealers or any other than bona fide growers, as heretofore stated. The 25 boxes may be all of one variety, or of several varieties—the latter is preferable and will no doubt act as a factor in the award, since variety helps the display, generally speaking. There must be but one variety in each box, however.

This is a great opportunity to advertise the Northwest in the heart of the over-crowded East, and at the very gateway to our country. Let us tell the people, not only in the United States, but of Canada and the entire world, what magnificent fruit is raised in our great Northwest.

The winning of this prize will benefit not only the Northwest as a whole, but will be a great benefit to the locality which earns the prize. It will mean the boosting of land values. It will mean the directing of special attention to your section. It cannot be too strongly emphasized what this opportunity means to you and to your community. If you secure this prize at this exposition it will stamp you as the big man in your community, and it will also stamp your community as a favored one in the Northwest, and lastly, it will direct attention and arouse interest in the entire Northwestern United States.

Entry blanks, rules and regulations covering awards will be printed and sent out later by the Exposition management to all requesting them.

Write today for copy of circular telling about this and other prizes to be awarded for exhibits of products. Address

A. D. CHARLTON, Assistant General Passenger Agent, Portland, Oregon, or
A. M. CLELAND, General Passenger Agent, St. Paul, Minnesota



Northern Pacific Ry.

Irrigated Orchard Tracts **Rogue River Valley**



ROGUELANDS IRRIGATED ORCHARD TRACTS

OREGON ORCHARDS ARE THE MOST FAMOUS
IN THE WORLD

ROGUE RIVER VALLEY IS THE BEST ORCHARD
DISTRICT IN OREGON

SOLD ON SMALL MONTHLY
OR ANNUAL PAYMENT PLAN

The Rogue River Valley has made the apple king. It has won the national prizes at the greatest shows ever held in America. It has received the highest prices ever paid for fruit in the New York and London markets. It has been declared by government experts to be the most perfect fruit belt in the world, and has proven beyond the question of a doubt that it will be the most important fruit section in the entire country. The development of orchard tracts is very profitable. You can make \$1,000 per annum on a five-acre tract while your orchard

is coming into bearing. You can clear \$500 per acre when your orchard is developed. We will sell you a five-acre irrigated orchard tract in the very heart of this wonderful orchard country, with splendid railroad facilities, near the prosperous city of Medford, planted to standard varieties of apples or pears, at \$350 per acre; \$350 cash, balance covering a period of four years. Orchards cared for during a period of five years or turned over at once to the purchaser.

Let us tell you all about the glorious country of Southern Oregon and the wonderful orchards that have made this valley famous. Write for our literature. Our references: Bradstreets and R. G. Dun.

ROGUELANDS, INC.

FRED N. CUMMINGS, MANAGER

MEDFORD, OREGON



Dollars and Dollars and Dollars

Yes, that is what our Shrubbery and Fruit Trees yield to our customers. Our Ornamental Trees and Shrubbery enable our customers to inhabit the most beautiful spots on earth.

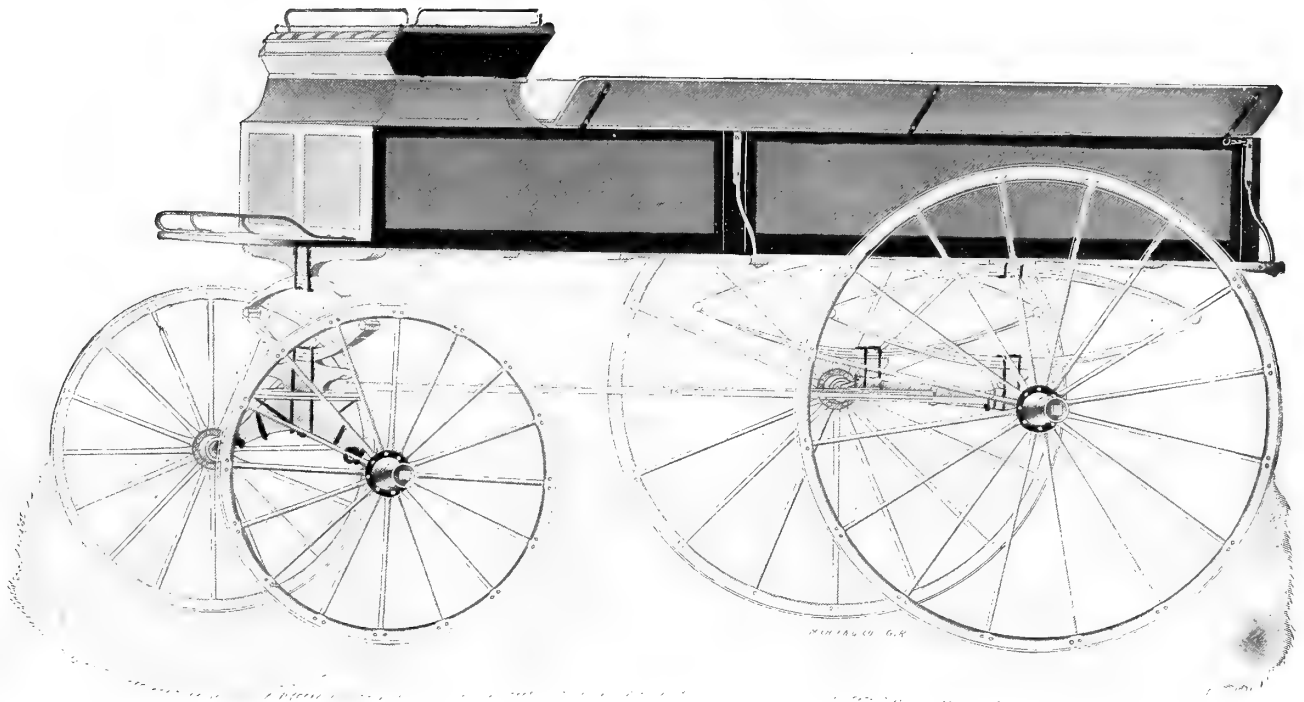
If interested, call our salesman or write us.

ALWAYS ROOM FOR ONE
MORE SALESMAN

Capital City Nursery Company

413-416 U. S. National Bank Building, SALEM, OREGON

Fruit and Berry Wagons of All Descriptions



We are prepared to furnish regular or special wagons on short notice
Let us figure with you

Scott-Munsell Implement Co.

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Read what Hood River says

Hood River, Oregon, Nov. 27, 1909.
This is to certify that I have used Cooper's Tree Spray Fluids, V1, for killing San Jose scale and found it very effectual.

G. R. Castner, County Fruit Inspector.

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**THE SOIL FUMIGANT
DESTROYS INSECTS IN THE
GROUND**

REDUCES LOSSES SAVES PROFITS
IT WILL PAY YOU TO INVESTIGATE

Write for 1910 booklet (32 pages)
Testimony from fruit growers
everywhere

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Sole Manufacturers:

**William Cooper & Nephews
CHICAGO, ILLINOIS**

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FRUIT LABELS
230 JACKSON ST. SAN FRANCISCO.

Specimen of
**CALIFORNIA
SOUVENIR
CALENDAR**
2ND EDITION
Size 9x27
LITHOGRAPHED
BY US
IN 9 COLORS

Mailed to
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in USA or
Canada for
10¢ in stamps

1911 MARCH 1911											
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17	18	19	20	21	22	23	24	25	26	27	28
29	30	31									

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230 JACKSON ST. -- SAN FRANCISCO

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▲▲▲▲ PEACH ETC.

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PATD MAY 17, 1897
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SUITABLE FOR EVERY PURPOSE

Pearson Coated Nails

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RECOGNIZED STANDARD

Fruit Box Nails
To insure always getting
Best Quality,
Proper Size, and
Full Count Nails

specify **PEARSON**, and take no substitute.
Why not accept this advice when
PEARSON'S cost no more?

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and COMPANY

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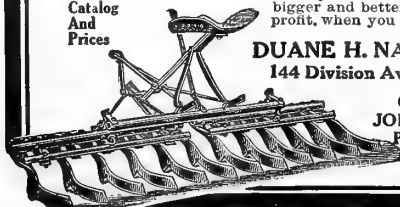
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We give you the following names and addresses of the winners of the Grand Sweepstakes prize of \$1,000 for the best car of apples shown at the National Apple Show, Spokane, Washington:

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- 1909—Tronson & Guthrie, Eagle Point, Oregon.
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All sprayed with Grasselli Arsenate of Lead.

Bear in mind that this material was used at three different points, and during three different seasons. Does this not demonstrate to your satisfaction the superiority of Grasselli Arsenate of Lead, both as to locality and climate in which it may be used?

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- Missoula Drug Co., Missoula, Montana
- Western Hardware & Implement Co., Lewiston, Idaho
- Salem Fruit Union, Salem, Oregon
- Hood River Apple Growers' Union, Hood River, Oregon
- C. J. Sinsel, Boise, Idaho
- Yakima County Horticulturists' Union, North Yakima, Washington
- Darrow Bros. Seed & Supply Co., Twin Falls, Idaho
- Rogue River Fruit and Produce Ass'n, Medford, Oregon

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Capital Stock, \$500,000

Project in the very heart of the justly famous fruit belt of Okanogan County, Washington.

Over 15,000 acres of irrigated land below the high line ditches of this Company.

Ten thousand acres of land now under contract, and as much more available for irrigation.

Two thousand square miles of watershed on mountain streams furnish an abundant supply of water.

Reservoirs with storage capacity for twice as much water as needed for reserve supply in seasons of possible drouth.

Work on ditches started April 1. Sixty-three teams and men with most modern equipment now digging more than two miles of ditch each week. Company expects to have water in main canal before November 1, 1911.

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State of Washington

A small block of stock for sale at \$100 per share. Details of plan to furnish choice fruit land with perpetual water right for less than \$100 per acre will be furnished on application to the Spokane office of the Company, 518 Paulsen Building.

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THIS VESSEL IS INDORSED BY HORTICULTURAL COLLEGES, FRUIT ASSOCIATIONS AND GROWERS. YOU CANNOT AFFORD TO BE WITHOUT THEM. EACH ONE WILL PAY FOR ITSELF MANY TIMES IN SAVING YOUR CROP.

1911 Vessels equipped with non-shrinkable canvas bottoms, improved fastenings and shoulder strap complete.

Saves money by preventing bruising fruit in handling from tree to box. Saves time by being quick to operate and leaving both hands free to gather with. Money saved is money made.

Especially designed for apples, pears, peaches, oranges, lemons and tomatoes.

Can be used to great advantage in gathering cherries, plums, prunes and grapes. In handling small fruits, place a piece of wrapping paper in the bottom. The canvas bottom slides underneath the paper and delivers the fruit on your packing table without the slightest injury.

This Vessel is an oblong metal pail, black japanned, larger at the bottom than top, equipped with canvas bottom which slides from underneath the fruit, simply laying it on the bottom of the box, or where desired, without disturbing the fruit, the bell-shaped pail lifting off without injuring the fruit in any way.

THE VESSEL HOLDS ONE-HALF BUSHEL OR HALF BOX OF APPLES, AND IN EMPTYING THE SECOND TIME THE CANVAS BOTTOM EASES THE FRUIT IN THE VESSEL ON THAT IN THE BOX WITHOUT BRUISING OR SCRATCHING, WHICH IS PRACTICALLY IMPOSSIBLE WITH THE WOOD OR METAL BOTTOM PAIL.

If your hardware dealer or association haven't this Vessel in stock order direct from factory.

Trade price list furnished merchants and agents by Wheeling Corrugating Company, Wheeling, West Virginia, upon application.

Address all orders to factory.
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Manufactured and Distributed by

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For J. H. OGBURN, Patentee
WENATCHEE, WASHINGTON

Took first prize and gold medal at National Apple Show, Spokane, Washington, November 14 to 19, 1910.

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OLD WAY—25% BRUISED



NEW WAY—NONE BRUISED

(SPECIAL ORDER BLANK) CUT OUT ALONG DOTTED LINES

WHEELING CORRUGATING COMPANY
Wheeling, West Virginia 1911

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.....Extra non-shrinkable canvas bottoms with fastenings, 75 cents per set, by prepaid freight or express.

NO FREIGHT ORDER RECEIVED FOR LESS THAN ONE DOZEN VESSELS
Enclosed please find check, draft or money order for \$..... to cover above order.

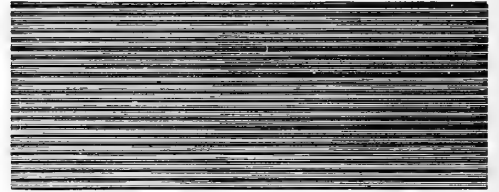
Write Name and Address Clearly Name.....
P. O.

State.....

Freight or Express point.....
Neither manufacturer nor patentee are liable for goods after delivery to railway or express company.

Corrugated Paper

Its use in your Pear or Apple box will prevent the fruit from getting bruised when being packed or in transit.



Corrugated Paper Acts as a Cushion to Your Fruit

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Write for samples and prices. Send for one of my booklets on Fruit Packing Supplies. IT IS FREE.

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Arcadia Irrigated Orchards

The Largest Irrigated Orchard Project in the Northwest

Arcadia is located twenty-two miles from Spokane. Our soil is rich and deep, entirely free from gravel, rock and alkali. Gravity irrigation, excellent transportation, ideal climate, no dust or sand storms.

OUR PLAN: We plant, cultivate, irrigate, spray, prune and care for the orchard for four years. Water free. Real estate taxes paid for five years. Over 4,000 acres is now planted to winter apples. You may remain at your present occupation while your orchard is brought to bearing, or, if desired, move onto the land at once.

TERMS: \$125.00 first payment secures five acres; \$250.00 first payment secures ten acres; balance monthly. Eight years in which to pay for your orchard. Write for literature.

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CHARLES R. BONE

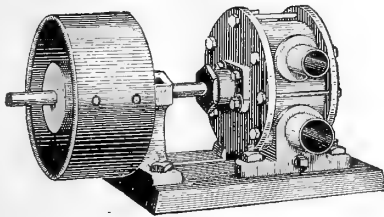
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OAK AND THIRD STREETS

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The pump you have always
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fore obtain



Patented June 2, 1903
Improvements Pending

Every Pump Guaranteed
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Saves power and money; utilizes the power; converts power into results; high heads without staging; deep wells, pits and mines. Mechanical perfection; simple; easily installed; free from wear; faithful and dependable machine. Made in many sizes, 25 gallons per minute to 10,000 gallons per minute. Address

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Apples, Pears and Other Fruits for the New York and European Markets

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Consult Us as to Best Markets to Ship to. We Always Get the Highest Prices

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Apple Headquarters for Toledo, Ohio

Don't take our word for it; write the other dealers here.

Our regular trade takes 50 to 100 Cars every season. We are the apple people.

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Hood River City Investments

100 x 100—On Oak Street, with good buildings; rental income \$110 per month. Only \$16,000. Liberal terms.

100 x 200—On Cascade Avenue, consisting of four good lots and frame house. This will double in value within two years. \$7,000. Good terms.

Combination Orchard and Hay Ranch—175 acres; 20 acres in orchard from two to fourteen years old, 70 acres in hay produced 100 tons in 1910, balance of land uncleared; large house and barns, 50 inches irrigating water, all haymaking machinery; near stores and school. \$35,000. Very liberal terms. Big money to be made on this property.

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Five miles southeast of Mosier, overlooking the Columbia River.

2,400 acres, in five, ten and twenty-acre orchards, which in **LOCATION, SOIL, CLIMATE, ALTITUDE, AIR** and **WATER DRAINAGE**, form a combination of excellence, from the apple grower's standpoint, **NOT EXCELLED ANYWHERE IN THE WORLD.**

The town of Ortley, located on the property, can be reached by drives and boulevards from every orchard.

SOLD AT A LOW PRICE and paid for in **SMALL MONTHLY PAYMENTS**, covering a period of five years.

THE HOOD RIVER ORCHARD LAND COMPANY (capital \$500,000) develops the property for resident or non-resident investors for a period of five years, bringing it into bearing in the **HIGHEST POSSIBLE STATE OF HORTICULTURAL PERFECTION.**

THE GREATEST OPPORTUNITY IN THE PACIFIC NORTHWEST for the professional or salaried man to secure a great money-producing commercial apple orchard for a small sum down and small monthly payments.

WRITE FOR A FREE BOOKLET

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DEVLIN & FIREBAUGH, SALES AGENTS

BETTER FRUIT

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

WESTERN BOX APPLES vs. EASTERN BARREL APPLES

ADDRESS BY FRANK E. WAGNER, AT INTERNATIONAL LEAGUE OF COMMISSION MERCHANTS, MINNEAPOLIS, JANUARY 11-13, 1911

WHEN our president asked me to say something to you on the subject of boxed apples the query arose in my mind as to how I should endeavor to apply the subject, whether or not I would be justified in treating it from a standpoint of dividing the producing apple country into two sections, namely, from Colorado east as a barreled apple section and with Colorado as the eastern boundary of the box section. I feel that I am safe in assuming that this division, as stated, will appeal to you as a correct application at present, although we frequently find authorities quoted in our trade papers and from other sources to the effect that it will not be in the far future when the Northwest will be using barrels instead of boxes, and equally eminent authorities stating that at no far distant date the East will be using boxes to the exclusion of barrels.

I am neither a prophet nor the son of a prophet, but I am willing to go on record as disagreeing with both opinions. In the first place the barrel seems to be the natural and most available package in the Eastern sections, while in the West the box seems to be equally, by way of natural usage and economy, the ideal package. The standard barrel now in general use seems to meet the

approval of the Eastern buying public, by way of containing to their satisfaction three bushels of apples. The heaped bushel and the three-bushel barrel, as a commercial feature, will be hard to

also as to what really constituted grades and quotations of the same, and in this connection I will say that distance has lent enchantment, and has largely tended toward an ignorance and disbelief that is quite natural; besides the advent of the box apple has been gradual up to this season. The best apple sections in the West considered in previous seasons that only their fancy and extra fancy grades, and these of their best varieties, were suitable for Eastern shipment; besides their more Western markets have taken all the choice grades and such varieties as are commonly produced in the East, and suffered most by their competition.

Sections of the West that produced a quality that graded only on a par with the East by way of color and finish also found nearer and foreign markets accessible and profitable. These conditions have influenced Eastern operators in anticipating Western box apples to be universally of the high order of grading and excellence that in reality pertains only to favored localities, so that it seems there is still quite a wide field for the introduction and better understanding of boxed apples. By way of explanation, may I be pardoned for using two occurrences happening in my own firm's business that seem to be favorable illustrations. In answering inquiries from a Southern correspondent for price on Washington box apples we were advised by him that we must have made a mis-

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LEADING APPLE MARKETS OF MIDDLE WEST, 45

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change by virtue of its long established usage and traditional sentiment. Any good banker will tell us that any effect to oppose the traditions of trade must of necessity lower our credit, as such opposition is, as a rule, more or less costly.

From the fact that the Northwestern apples were first introduced in the Eastern markets in boxes and this package has been consistently maintained, we may well assume that, while more modern, this package and custom is equally traditional, and should be violated only with due caution as to results. It is evident that with the increase in the volume of boxed fruit and its varying grade and quality, there is an increased tendency to estimate their value in dollars and cents in proportion to the aliquot part of a barrel that it contains. This is but natural owing to the box being practically unknown as a regular package for apples previous to the last few years to the majority of Eastern consumers, while the barrel and heaped bushel has been the natural method of computation ever since they have been marketed in the United States in commercial quantities, the present so-called standard barrel being the outcome of the retailers' demand for a liberal three-bushel measurement.

There has been a misconception on the part of many, not only as to the volume of fruit produced in the box states and the influence on the apple season's values, that a crop in this section means, but



GEORGE R. MERRITT

General Agent of the Refrigerator Service of the Northern Pacific Railway, with headquarters at St. Paul, who has charge of all refrigerator cars and service on the Northern Pacific. Fruit shipments last year from all points in Washington, Oregon and Idaho were handled in a satisfactory manner, the Northern Pacific supplying plenty of cars at all times, and in addition to their own cars had a contract with the Armour Car Lines to supply a sufficient number of additional cars.



WILLIAM D. TIDWELL, DENVER, COLORADO
Secretary Western Fruit Jobbers' Association



JOHN B. CANCELMO, 127 DOCK STREET, PHILADELPHIA, PENNSYLVANIA, ONE OF THE FIRMS HANDLING FRUITS EXCLUSIVELY

take, as we were just one dollar per box higher than other quotations received by him for the same variety and grade, which demonstrates that to a great many these box apples are considered by marked grade of a uniform excellence. Again, just at the beginning of the apple season, a friend, whose firm is a heavy buyer and operator in barreled apples, called us on the phone asking for a price on a number of cars of certain varieties of Washington box apples, which was given him. He then stated that he was offered ten to fifteen thousand boxes of these varieties, among them being Rome Beauties, Jonathans, Delicious and Wine-saps, at about one-half our asking price, and asked our advice as to the purchase. Upon learning the territory and other details we simply stated that from our standpoint we would not consider them a purchase. They were, however, bought, and our present knowledge would indicate an unprofitable transaction. This is related as a practical demonstration that

operations in box apples in their territory require the same careful attention as to

locality, finish, packing, etc., to avoid disaster, as may apply to any other section.

Neither does the rapid development of the apple growing states seem to have been seriously enough considered. It is variously estimated that the production of apples in the Western and Northwestern States this past season has been between twenty and twenty-five thousand carloads, or approximately twelve million boxes, as against probably twenty-two to twenty-five million barrels in the Eastern producing section, of which latter a very large quantity has gone into by-products, such as evaporated apples, cider, etc., while the estimate on boxes covers practically the quantity actually shipped. This proportion is but indicative of what may be anticipated in the future and what may be expected from a locality that is so favored by nature, and where actual and attractive returns on investments have seemed to justify the large increase in acreage that has been planted the last few years. It has been no uncommon thing to see bearing orchards in the most favored localities change hands at upward of two thousand dollars per acre. With these natural and accrued advantages, aided by a strenuous and intelligent advertising campaign, it is not surprising that the apple growing industry in this Western section has gone forward by leaps and bounds, as it were, and to the dumfounding of a large number of our Eastern dealers.

The question has often been asked me by Western growers if, in my opinion, the planting was not being overdone, and whether in a few years their crops would not be so large as to preclude the probability of a profit. In answering this question I tried to be candid and reflect the experience of an operator and the observation of an impartial observer, and in rehearsing it to you I do so with a full knowledge of my own limitations and only as the opinion of one who might be successfully controverted by a better authority or by actual events. My reply has been to the effect that in my belief, should there be a season of a universal crop in the United States and Canada, it would be doubtful if the mar-



VIEW OF DOCK STREET, PHILADELPHIA, PENNSYLVANIA—THE GREAT FRUIT AND PRODUCE STREET

keting of the desired proportion of their crop East would be profitable, and even with what we may naturally anticipate in the experience of recent years, wherein failures and non-producing years, together with the ravages of disease in some of the commercial producing sections, it must be anticipated that the extravagant values received in the majority of the seasons past would be considerably reduced. The large acreage promised to be in bearing in the next few years does not necessarily mean disaster, or even lack of profit to the grower. As a general rule full crop is no more to be anticipated than a general failure.

The cost of box apples on board cars, take, for example, in the States of Washington and Oregon, is variously estimated at from forty to fifty cents per box, including cost of cultivation, pruning, spraying, box material and packing, and will approach the maximum or minimum figure, according to how the orchardist may be favored with economical farming and harvesting of his crop, whether or not the wiping of the fruit is practiced or necessary, and to the care used in the grading of the fruit. The freight rate to practically all points east of the Mississippi River is fifty cents per box, making a maximum cost to the grower of one dollar per box delivered.

As the risk of non-profit naturally depends largely upon the Eastern crops, comparisons probably can be better understood by figuring cost in the Eastern package which they must compete with. On this basis a comparison of cost to the grower might be made as follows: Colorado, with her lower freight rate, \$2.75 per barrel delivered. Nearly all other box states, \$3.50 per barrel delivered. These costs would appear to place the box apple producer at a disadvantage, but when the generally higher average of grading, packing, color, etc., are taken into considera-



JOHN B. CANCELMO, 127 DOCK STREET, PHILADELPHIA, PENNSYLVANIA, A POPULAR FIRM DEALING IN QUALITY FRUITS

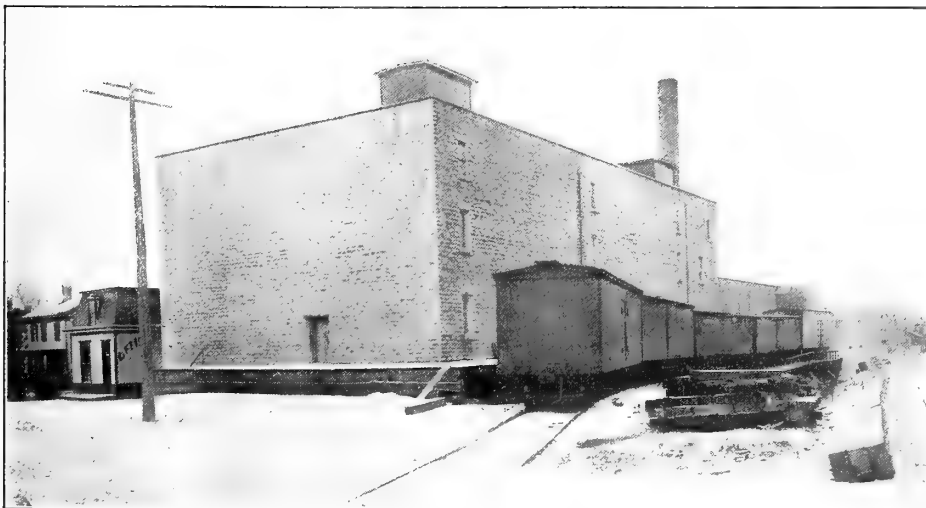
tion the disadvantage is really great only in years of a large Eastern crop, and doubtless as the output increases economies in marketing will be developed to reduce these costs.

Up to the present time probably the most serious menace to the apple industry, as a whole, has been the failure upon the part of the operators in and producers of barreled apples to give proper consideration to the magnitude, real and potential, of the box production, and a like failure of the producer and operator in boxes to consider the barreled product as competition. The salvation of both depends largely upon each taking the other into consideration.

It is unquestionably a fact that the best localities and growers in the West have introduced fruit that in its excellence of grade, color, assortment and attractiveness of pack has appealed to the discriminating buyer as worth the advanced price asked and obtained for it, but it must be borne in mind that the market for fruit at two dollars per box upward has serious limitations. These Western growers are generally men of a high order of intelligence, and fully realize any dangers that may attend their business. The Alaskan, Philippine, Australian and Oriental trade is being encouraged and rapidly developed. They are also making a close study of varieties, so that their orchards may commercially represent such varieties as prosper best in their locality and approach the nearest to an unlimited and most general demand in the East. It is fair to presume that many sections that now count many acres of planted trees, that have been induced by shrewd and zealous advertising rather than by natural advantages, will gradually be abandoned, resulting in a survival of the fittest.

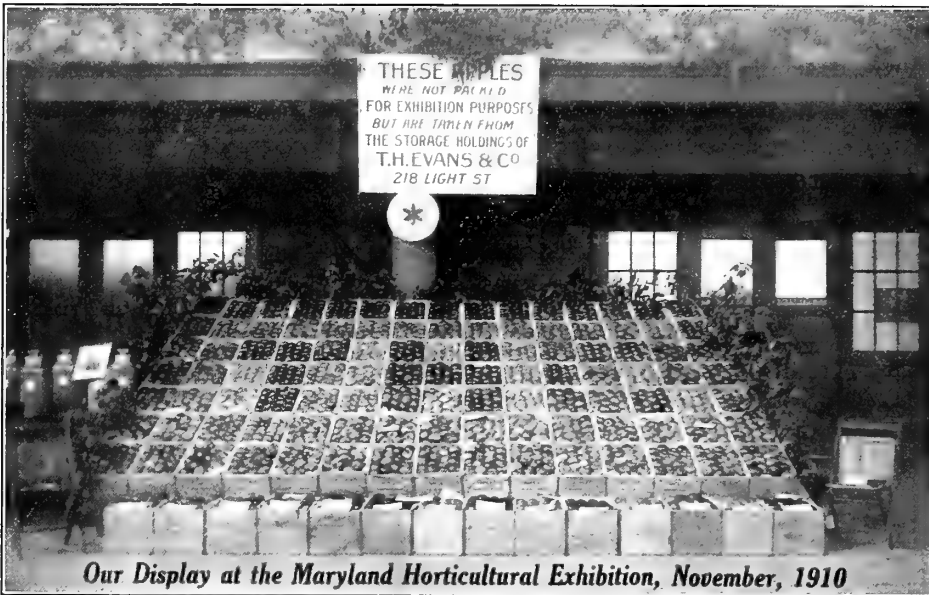
We have seen the growth of the orange industry in Florida, California and other sections, and the view point and experience of crops may be assumed as nearly identical with the apple crop, with the exception of the advantage to apples by virtue of their storage qualities and the greater variety of use.

One of the questions that must be seriously considered by apple operators and by Western growers is the auction question, especially because of the importance of box apples as a factor, and their present and increasing volume. Auctions, commission merchants interested in auctions, and some independent of these influences, strongly advocate the auction system of sale, some urging that



ROGERSON COLD STORAGE AT LE ROY, NEW YORK—FREY-WATKINS COMPANY, INC., ROCHESTER, NEW YORK, MANAGERS

Boxed apples stored in the East find a market not only in the large cities, such as New York, Boston and Philadelphia, but can be jobbed in straight and mixed cars at good prices throughout the South and Southwest and for export. Western apples stored in our storage at Le Roy the past season are keeping fine, the last carload being shipped June 15. Red varieties are in good demand from the South and Newtowns from the exporters. We would not advise shipping early varieties of fruit that have been packed any length of time. If interested in apple storage in the East, get in touch with the Hilton Cold Storage, Hilton, New York, capacity 80,000 barrels, or the Rogerson Cold Storage Company, Le Roy, New York, capacity 50,000 barrels, through its president, John B. Frey, of Frey-Watkins Company, Inc., Rochester, New York, for twenty years car lot jobbers of fruit and produce.



The above illustration represents the first display of Western box apples ever made in Baltimore, which created a great sensation. Mr. U. G. Border is president of F. Border's Son Company, through which the carload business is handled, and in addition he is also president of T. H. Evans Company, through which the jobbing business is done.

all apples should be sold this way, and others, probably the majority, stating that only the poorer fruit, lower grades and weaker apples should be auctioned. This season has been favorable to observe the possible benefits of this system. With the auction sales of box apples prevailing in all leading markets right up to Christmas in large quantities, and with the universal low range of values obtained, is it not likely to cause the operator who has been in the habit from year to year of buying his stock

directly from the orchard to seriously consider whether a new and important hazard has not entered the field. That the auction sale of apples increases in proportion to the new theories of marketing that are introduced in this prolific country is quite evident. That all theories are not sound in practice in the fruit business can be attested by nearly all of this assembly.

Is it worth the while of the commission merchant of today to combat theories that his experience tells him are not practical at the expense of his time and money? As water seeks its level, so will the best methods eventually prevail. The commission merchant is the natural ally of the grower. His business, and by that I mean the commission part of it, is as permanent and as necessary to the grower as the labor necessary to insure the perfecting of his crop. What benefits one reflects to the advantage of the other.

This organization has done wonders in raising the morals of the commission business, eliminating by organized effort publicity and education many disreputable concerns that in the past apparently flourished in their plunder of ill-gotten gains, while today, with a fair consideration of the hazards of the business and its small compensation for labor and brains, it leads any other business in the world in the percentage of merchants doing an honorable business of recognized integrity and honor. But at present practically all firms connected with this league are doing a mixed business, in a greater or less proportion merchandise and commission. This has been occasioned by the commission merchants meeting the grower more than half way in their determination, in some localities, to do business on an f.o.b. loading station basis, which plan works beautifully for the grower so long as conditions favor his locality and produce, but if for some reason the products are especially hazardous by reason of poor shipping

quality or of inferior grade than less favored sections the buying sentiment ceases, and his only haven is the commission merchant.

Much of the criticism of commission merchants in these times, when ordinary business caution has been used by the consignor, is due to the above described conditions, that of using his services only in times of stress, when by reason of poor quality or overstocked markets there is little or no demand and the consequent criticism of the inevitably low results. As opposed to this class there is, however, a large number of producers who, with care and judgment, select commission merchants as their agents, and consistently place their entire crops on consignment to their profit, satisfaction and mutual confidence. All good commission merchants have such accounts of years' standing, thus it seems that, regardless of theories, the commission feature of perishable products is not only enduring, but desirable and necessary.

Apples are different from many other fruits because they have, by the use of cold storage, become a natural fruit for an early investment, based on the supply. It has become a necessity for the apple buyer to carefully estimate all sources of supply before making his investment, and equally important to the grower that he be equally well posted. Abnormal profits, as well as losses, are generally equalized on succeeding seasons. Apple dealers have learned by experience that the quicker an apple gets into storage after it has been gathered the safer the investment. Careful storers desire apples gathered at such stages of maturity as may best serve the time they are intended for sale. The conservative investor in apples either examines the fruit in the orchard and the method of handling or he must be assured by an experienced dealer that he is buying what he con-



Photo by J. E. Mock, Rochester

R. G. PHILLIPS, ROCHESTER, NEW YORK
Secretary of the International Apple Shippers' Association

The Editor met Mr. Phillips at the International Apple Shippers' Association meeting at Niagara Falls in 1910. Mr. Phillips was elected as secretary of the association upon the death of the late Mr. C. P. Rothwell. The impression formed of Mr. Phillips is being borne out in the excellent and intelligent work he is doing for the association and the fruit industry in general.



WAYNE M. FRENCH

Secretary-Treasurer Simons, Shuttleworth & French Company, New York, and Treasurer of International Apple Shippers' Association

tracts for, and the competent commission merchant is the natural and most economical intermediary.

We have to consider with the adoption of the auction sales of boxed apples as a method the hazards of an uncertain condition, the inequalities of value as unseasonable fruit is offered in superabundance and in the probability of fluctuating and unstable markets not warranted by the actual crop conditions. Also with part of the crop marketed by direct sale, consignment and other regular channels and the other part by auction we have confusion, with this season's practical lesson to thoughtful growers and dealers alike. Again, we have the question whether or not it would serve all interests to abolish the auction sale of apples entirely. It would seem to many that neither the best interests of the grower or of the legitimate apple dealer or operator has been subserved by the institution of the auction system, but while some firms unhesitatingly advise against the auction method, many others would advise and advocate the exact opposite, and between these conflicting advices, together with the natural suspicion of selfish motives, can we expect the grower to quickly adjust ideal marketing conditions?

Experience will teach that all theories do not work out in practice, and that a practice which might be beneficial in one commodity may be ruinous in another; that expounders of new and attractive theories are not entirely philanthropists. The laborer is worthy of his hire; don't hold your services too cheaply. It encourages a suspicion of incompetency, if nothing worse. We may be sure that the advent of box apples heralds better and more uniform grading in barreled apples, with the accompanying necessity of more attention to the details of pruning, spraying and thinning in Eastern orchards. This will again reflect on the West to the end that we may anticipate an era of better fruit in all its applications.



P. B. BEIDELMAN

General Agent Refrigerator Service, Great Northern Railway Company, which has done much for the fruit industry in Montana and Washington.



W. DENNIS & SONS, LONDON AND LIVERPOOL

Reading from left to right, back row—John W. Dennis, William Dennis, Sr., Joseph M. Dennis
Front row—I. Herbert Dennis, Frank W. Dennis, Thomas E. Dennis

A world-wide business built upon sound foundations, with a reputation thoroughly established for probity, solidity and resourcefulness, and a distributing organization in the United Kingdom that is incomparable, thus insuring clients best results and quickest possible returns. All bona fide proposals of business in apples and pears receive the utmost consideration. Shippers are invited to avail themselves of our services. Selling records, season 1910-11: Car Oregon Comice pears, \$5 per half box; car Hudson River Bartlett pears, \$12 per barrel. This house controls the firm of Champagne Freres, Ltd., whose headquarters are in Paris, and who are recognized as the largest and most powerful distributing organization on the European Continent.

RELIABLE AND PROGRESSIVE PHILADELPHIA FIRM

TO give you an idea of the growth of the apple business in our market, would say that up until about eight years ago there were very few box apples coming to this market from the Northwest. It was a very rare thing to see a carload of box apples on this market; it was necessary for the writer to buy his entire supplies of box apples in New York, probably buying once or twice a week from fifty to a hundred boxes at a time, and we thought it a remarkable thing to sell these apples all in a day. The business has grown steadily, and it has apparently been a very healthy growth—last season we handled 262 cars, 53 cars of these from your famous Hood River orchards, and would say that these apples were the finest received on this market. The indications are that we will handle at least 400 cars this season. This, to my mind, is a very conservative estimate for the coming season. Notwithstanding that the local crop of apples, from the present indications, will be very heavy, we feel that the trade has learned to appreciate the quality of your Northwestern box apples, and will no doubt take almost double the quantity this season.

Our business relations with the Hood River Apple Growers' Union certainly have been a pleasure. We feel that we have worked hard in their interests, and want to handle this business again this season. We have several letters from Mr. C. H. Sproat that are very encouraging, and he certainly has appreciated all our work, and we feel that it will be mutually agreeable that we handle Hood

River apples again this year. Hoping to have the pleasure of seeing you in Detroit, at the convention, I am yours very truly, J. B. Cancelmo.



Editor Better Fruit:

Please accept my thanks for the May issue of "Better Fruit." This is a most interesting number of your valuable fruit magazine, and I never lose an opportunity to recommend your paper to fruit growers. Very respectfully, John Schang, Toppenish, Washington.



JOHN B. CANCELMO

A dealer exclusively in fruit, in his office at Philadelphia

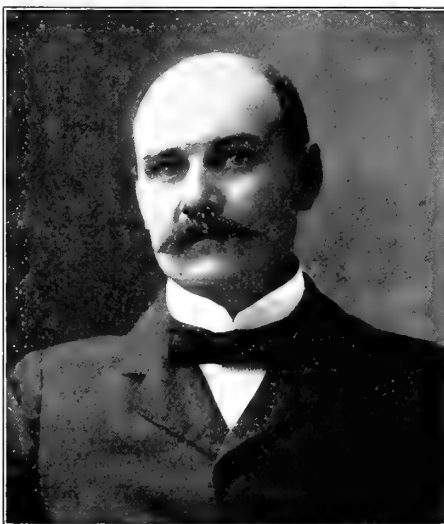
THE PROBLEM OF MARKETING DECIDUOUS FRUIT

ADDRESS OF F. B. McKEVITT, AT WESTERN FRUIT JOBBERS' MEETING, SACRAMENTO, FEBRUARY 15-18, 1911

THE marketing of a great crop of deciduous shipping fruit, such as California produces, is a problem deserving of most careful study on the part of growers and shippers alike. Did we have our own crop alone to consider, the solution would be easy, but California is not the only state with great horticultural interests. Texas, Georgia, the two Virginias, Delaware, Maryland, New Jersey, New York, Ohio, Michigan, Missouri, Arkansas, Colorado, Idaho, Utah, Washington and Oregon are all heavily interested in the same lines of fruit growing, and while it is true we have a much greater range of production, including some varieties that are not grown at all elsewhere, we cannot escape the financial consequences of the competition of their products, but must endeavor to so shape our course that we will minimize it to as great an extent as possible. How to do so successfully is the problem, and the solution justifies all the thought, care and expense demanded by an interest that controls the prosperity of thousands of our fruit growers and involves sales of a gross value of \$12,000,000 to \$15,000,000.

The first thing we have to do, after the season has advanced far enough to allow us to estimate our own production, is to figure what other sections will have.

We must have the best information obtainable on this subject, covering not only probable production, but also the time of ripening. Records show what it has been in the past, and then, as the season is reported so many days earlier or later, we can estimate, with normal weather conditions, the time when to



GEORGE C. RICHARDSON, KANSAS CITY
Ex-President of the International Apple
Shippers' Association

expect their heavy shipments, and so avoid them as much as possible. The season in California must be considered also, as it occurs every now and then that a little difference in ripening, earlier here and later there, or vice versa, may make a profitable opening for a variety that at any other time perhaps would not bring freight. Certain sections of the country, outside of California, market their shipments in some cities to the comparative exclusion of others. This tendency must be known and taken into consideration, avoiding as far as possible those likely to be overloaded with competitors' stocks, and shipping more heavily to others that they do not or cannot reach. The conditions referred to have more bearing upon the shipments of peaches than any other variety, as that is the competing fruit produced most largely in the South and East, but have their effect on all varieties, since we cannot expect to sell any fruit at satisfactory prices if the market is supplied with local stock which is plentiful and cheap.

When crop and market conditions have been determined and shipment begins, then comes the necessity for such a distribution of our fruit among the different markets as seems likely to secure best returns for same. No actual systematic distribution is possible unless a large



COMMISSION DISTRICT, MINNEAPOLIS, MINNESOTA, SHOWING E. P. STACY & SONS AT CORNER.
List of their branch houses is given in their advertisement in this edition

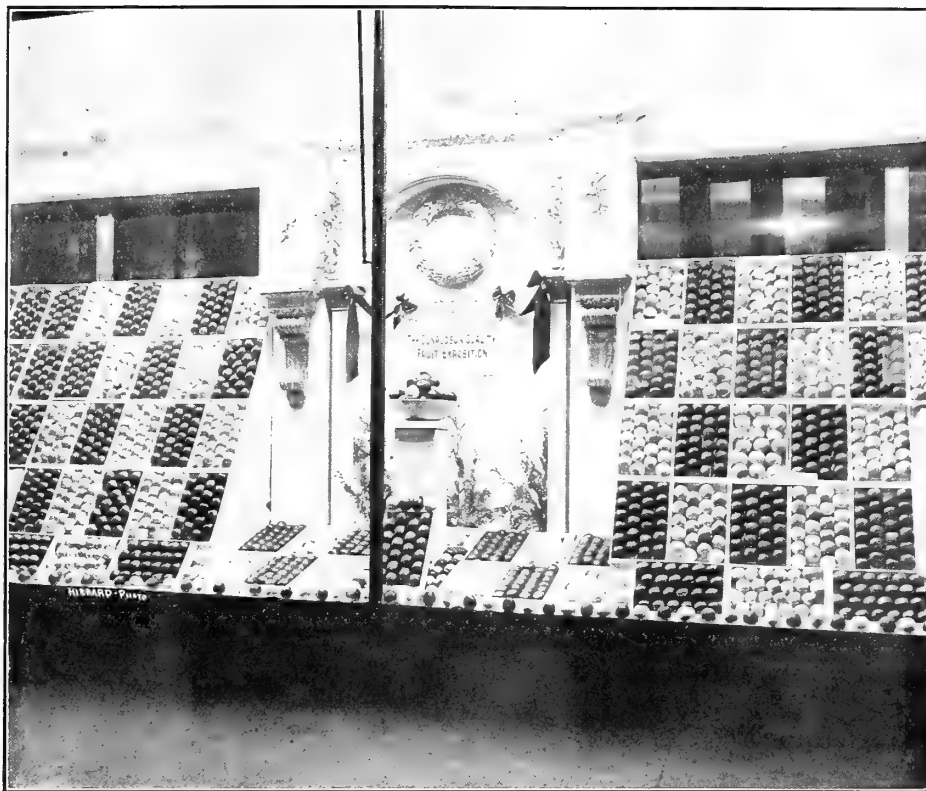


EXHIBIT OF HOOD RIVER APPLES AT DONALDSON FRUIT EXPOSITION
MINNEAPOLIS, 1910

volume of business is controlled by one central agency. So long as considerable shipments are made by independent operators distribution is rendered more or less uncertain. Every shipper, independent or otherwise, will strive to reach the best markets, but a lack of knowledge as to where the shipments of others are going will always handicap distribution, and to a considerable extent nullify it. It is only a few years ago that all shippers were acting independently, with the result that frequently markets were overloaded, with consequent heavy losses, and others left unsupplied, where a small quantity of fruit would sell at high prices. The complaints of the losing growers who depended on these sales not only for their profits, but for very existence, were generally met with the explanation that other companies had shipped in so many cars that they had overloaded the market. Then the shippers, all and singly, came in for a sound scolding because they did not "get together" to prevent such senseless slaughter. It was in obedience to this demand and in recognition of the fact that something must be done to remedy the evil that the California Fruit Distributors was organized. So far as the business of this corporation was concerned the evil was remedied, distribution was accomplished, red ink returns, instead of being a common thing, became almost unknown; then the grower began to worry because he was afraid the shippers had formed a "trust," and that his interests were in danger. This idea has been systematically encouraged by competitors who depend largely upon that alone to increase their business, and who are unwilling to spend a portion of their earnings in supporting and upbuilding an institution which from

the very nature of things cannot prosper without bringing prosperity to the growers in an even larger measure than to the shippers. If good distribution means better prices for fruit than every grower who wishes to succeed and desires to see the industry grow stronger should support an institution which is working to bring this about, and which is able

to do so. It is a well known fact that a large percentage of the fruit shipments of this state is handled for the growers' account. He grows, picks, packs and delivers his fruit to the firm with whom he is doing business, and same is shipped and sold for his account, the amount realized, less established and well known charges, going to him. No effort is spared to secure the best results, as satisfactory returns mean satisfied and friendly growers—a result that is of far greater value to the shipper than the small profit received; the work of the California Fruit Distributors, contributing so largely to this end, does not add one cent of expense to the grower, being entirely covered by an assessment levied on the business of the shipper.

There will never be anything in the nature of a trust in this business. Fruit is most largely sold at auction; these auctions are open to all, and can be and are used by growers who ship in car lots. It is not likely that any other method than this will ever be used by California fruit shippers in the large cities, but should the business retrograde to the private sale plan, that is as open to the grower as the other. If all fruit sent out was purchased by the shipper and the grower was compelled to take such a price for his product as was offered, or let it stay at home, there would be danger, but as it is the grower can either sell f.o.b., if the opportunity offers, or send it forward on consignment, to be offered for sale to competitive buyers, who will base their bids on the value of the fruit. If the shipper sends his own fruit to these markets he must sell it in the same place, in the same way and to the same buyers, enjoying no advantage whatsoever in its sale that is



PUBLIC FRUIT AND PRODUCE MARKET, MINNEAPOLIS, MINNESOTA

not open to every grower. With these opportunities open to him, the ability to purchase supplies at fair prices and with the lowest commission charge known for similar service, the California grower is well protected and never need be misled by the cry of "trust" to lose faith in those who are his friends, many of them fruit growers themselves, and who are now, as they have been in the past, working hard to advance the interests of the fruit industry of this state.

About seventy-five per cent of the fruit shipments of the state are sold in the auction markets; the remainder is distributed mostly through the great and growing section west of the Mississippi River, where it is sold on what is known as the f.o.b. plan, a term intelligible to growers and buyers alike, but possibly not to others, for whose benefit we may say that it means the fruit sold in California, at shipping point, for an agreed price per package, loaded in the car and ready for shipment. This fruit is handled by the California shipper either for account of the grower or his own account, and the manner usually varies with the locality. In some districts the growers sell their fruit to the shipper, bringing it to the car packed and ready for shipment. This is the usual plan where fruit is sold on advance orders. When cars are sold in transit, however, it is frequently grower's fruit, and is sold for his account. Some growers object to having their fruit sold in this way, preferring to take their chances in the auction markets. When this is the case their wishes are always respected, and that is why it often happens that we are unable to sell occasional cars which are badly wanted by the trade, and which we would gladly sell but for this restriction. Payment for f.o.b. purchases is



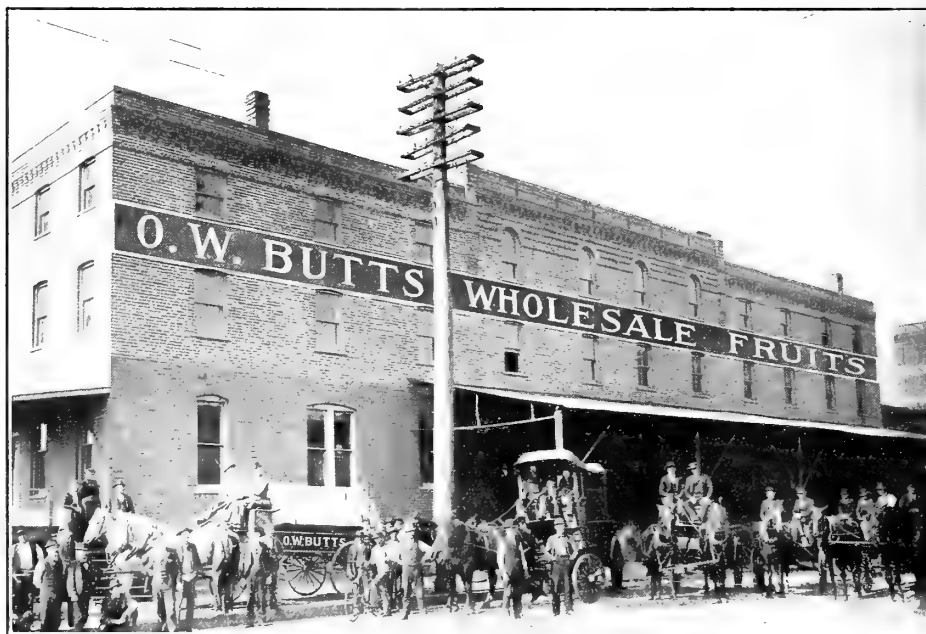
THE FRUIT AND PRODUCE STREET OF DENVER, COLORADO
Market Street, between Fifteenth and Seventeenth Streets

usually made by sight draft, attached to bill of lading, giving to the buyer the privilege of inspecting the fruit on arrival, and before paying for same, thus securing to him complete protection. This privilege is sometimes abused, and cars arriving on a declining market may be reported in bad order and rejected, making heavy losses to the shipper. No reputable merchant would resort to such a practice, however, and such rejections are the exception rather than the rule.

It is a principle of business with the California Fruit Distributors to sell as

much fruit f.o.b. as possible, as we have two objects in view. First, we want everybody to eat California fruit, and plenty of it, so that selling in this manner is in line with wider distribution. Second, every car that can be kept out of the auction markets helps to maintain fair prices there. Such a large percentage is sold in these markets that any improvement in price, even of a few cents per package, means an aggregate increased return of no small proportions. California is so far away from the markets that consume her products that the cost of transportation and refrigeration are relatively very great, and this, added to the high and constantly increasing cost of labor, makes a delivered cost sometimes in excess of the amount realized, so that it can be seen how important to the industry even small savings may be. This factor is having a very important bearing in character of fruit shipped. With a strong demand and profitable prices there is a natural tendency to ship everything, whether good, bad or indifferent, but with the large amounts we now have to market, and always remembering that the cost of shipping a package of poor fruit is as great as that of the most fancy quality, and that the former often brings "red ink" where the latter may return a large profit, the growers have realized the necessity of shipping nothing but good fruit, heavily packed, thereby raising the average of the product to a high plane, and incidentally reducing the volume of shipments, since the poor fruit must now be disposed of in some other manner. This better quality will prove a strong factor in increasing the demand and extending the business, making it at once more profitable to the dealer and more satisfactory to the consumer.

The growers and shippers in California are not the only ones interested in systematic and careful handling of our



O. W. BUTTS COMMISSION HOUSE, OMAHA, NEBRASKA

The firm of O. W. Butts is widely known as one of the pioneer establishments in the Middle West. During the past thirty-five years of active business experience they have gained the confidence of shippers in every producing section of the United States. Omaha is particularly well situated for transcontinental shipments, being centrally located in one of the best distributing points of the country and having every favorable opportunity for the inspection, reconsigning and disposing of perishable products to any market north, south, east or west. The above firm has large warehouse facilities for both cold and common storage, situated on Union Pacific trackage, and does a strictly car lot business. Practical experience, so essential in the distribution of all perishable products, appeals to all shippers, and the O. W. Butts firm solicits correspondence and offers their services in any capacity that the trade desires.

Western Pennsylvania
Exposition Building,
Pittsburg, Pa.



IN THIS BUILDING DURING 1910 WAS HELD A SPLENDID EXHIBITION OF WESTERN BOX APPLES

fruit shipments, as it is also a matter of vital importance to the receiver and distributor in the East who is looking to this line of business for a profit, and perhaps his livelihood. The idea of centralizing shipments and putting them under one management was not favorably received by the trade at its first inception, as it was a change from former conditions, therefore an experiment, and the fruit trade is too conservative to welcome any change; then there was the possibility that any organization having control of such a large business would prove exacting and dictatorial in its methods, and might attempt to "hold up" the dealers who were dependent upon it for their supplies. Like the growers in California, they, too, feared a "trust," and looked upon the formation of the organization with misgivings. The work, however, was done, and since then years of experience have enabled the trade to see just what we desired to accomplish, and have made them familiar with the means by which we expect to do it. We believe no dealer can be found today who will deny that we have given to the business a stability that it did not possess before, and who does not find that he can more safely engage in the business of handling California products than was possible in the old days when every shipper was in the field for himself and the continual cutting of prices made it impossible for him to know whether he was safe in buying or not, owing to the well grounded fear that his competitor would buy from some other shipper at a less price than he had paid, and be able to undersell him, causing him to lose both custom and profit. It was a situation productive of distress and loss, not alone to the California grower and shipper, but to the purchaser as well, and it is extremely doubtful if many of the trade would welcome a return to old conditions.

During the last half century ideas of business have undergone many changes. It does not seem so long ago that the purchase of any article in the best of our

stores was a matter of bargaining—the dealer asking more for his goods than he expected to get and the customer determined to secure a reduction in price before buying. It was found that this was not the best policy, and gradually conditions changed until today, in any reputable place, the goods are priced with an established per cent of advance over cost, and that, and no other, is the price at which the goods are sold. We all recognize the fact that this is better than the old way. As it is in other lines, so, too, it is in the fruit business. It is far better for the trade to buy at a stated price, which is the same to all, than to have to "shop around" to find who will sell the cheapest. Uniform cost price puts all dealers on an equality and gives to the business a stability that would otherwise be impossible, thereby extend-

ing and upbuilding it, as we are all anxious to see it extended and upbuild to the end that it shall be able to provide an outlet for our constantly increasing supplies, the equitable and profitable distribution of which is a great problem today, and will be a greater one in the coming years.

There must be a community of interest in the fruit business if we are to prosper. The grower must realize a living price for his product and the dealer must be able to handle it at a profit. Fruit must be carefully grown and selected for shipment; packages must be full weight, the fruit sound and as nearly as possible of uniform size; no deception must be practiced in packing and the bottom of the package must be of as good quality as the top. When such fruit as this is received by the dealer he should be willing to pay a reasonable price for it in order that the grower may realize enough to make his business pleasant and profitable. This, we believe, he will do, and the future of the business will demonstrate whether or not this is correct, for California growers are determined upon standardizing and improving their pack until it shall be universally admitted that there is none better in the world. With the finest fruit carefully selected, correctly packed, to be (we hope) conveyed so rapidly by our transportation lines that we can give the consumer an opportunity to test the luscious flavor of our perfectly ripened fruit, and with the most intelligent body of fruit dealers to be found anywhere to buy and distribute our products we look for that complete success which we have a right to expect will attend well directed effort in supplying the consumer with the most delicate, acceptable and healthful of foods.

Editor Better Fruit:

Want to congratulate you on the very excellent color work in your May issue. The entire issue is an excellent piece of work. We hope to be able to swell our account with you in the next twelve months. Yours truly, Lord & Thomas, Chicago.



INTERIOR VIEW OF BARNETT BROS.' STORE, FRUIT AND PRODUCE COMMISSION MERCHANTS, 159 SOUTH WATER STREET, CHICAGO, ILLINOIS

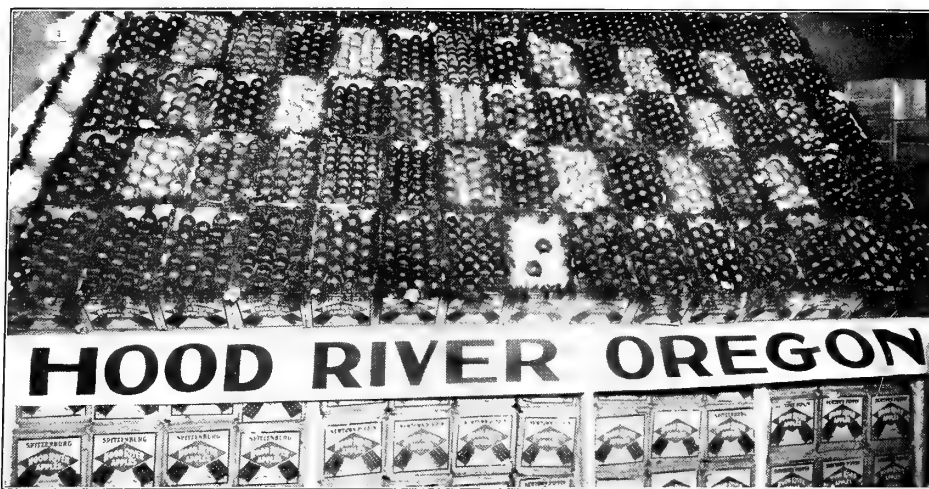


EXHIBIT OF APPLES AT STORE OF GIBSON FRUIT COMPANY, CHICAGO, ILLINOIS

THE PRODUCE REPORTER COMPANY—WHAT IT IS

THE subject of "Credits" is a large one. It is of vital importance to every grower who ships, to every shipper or shipping association, to every commission merchant and broker in the United States. The care, toil and money expended in the raising of a fruit crop is heavy. It covers months of labor, physical and mental. All this may be lost by one or two fatal mistakes in determining to whom to sell or consign the crop.

How is the average producer, or association of producers, or individual shipper to pass upon the reliability of those who offer to purchase, or who seek consignments? It is practically impossible, one season with another, to sell for spot cash before the goods leave the shipping point. It is even a question of whether as large net cash returns result from selling for spot cash to a few traveling buyers as follow from getting the top price to be had from widely scattered, distant markets by the customary method of quoting and selling daily by wire, and shipping to high class firms. The spot cash plan is the surest, but it is not always possible. Every marketing unit, whether an individual or association, needs to prepare for whatever conditions may prevail during the "shipping season."

The only "credit guide" of value to shippers must be based on the actual experience of shippers. The financial responsibility of shippers' distant customers is of secondary concern; the main point is their reliability, or disposition to live up to purchase contracts (when the market declines before the car arrives), or if consigned to make honest returns. The mercantile agencies have never furnished this class of information and never can. It is a special line of investigation that their reporters or system is not qualified to make and pass upon, consequently their reports and ratings do not satisfy shippers. At least, this was my experience as a shipper of produce and fruit. This was why the Produce Reporter Company was organized—not only to report, but to inspect, adjust or resell rejected shipments anywhere in the United States.

All of the reasons that argue for co-operation in local shipping associations apply with even greater force for a national credit and adjusting organization; but the commission merchants and brokers also have troubles—with careless or unreliable shippers, so the organization recognized the need of not only associating shippers with shippers, but joining shippers with commission merchants and brokers—not arraying class against class, but uniting them. Right here arose the self-evident necessity for adopting working rules and establishing grades, standardizing fruit and produce, as well as classifying dealers. The best thought of leading shippers and receivers of different specialties, as well as the standards and customs, statute laws and court decisions, have been codified, and constitute a very valuable feature of the organization's credit book, or blue book, as it is commonly termed.

All of these features and others that space prevents mentioning have resulted from continuous, hearty, genuine effort of dealers of all classes to "get together" and establish a workable system for use in the daily activities of the produce and fruit business. Every shipper and every

commission merchant or broker needs to connect with desirable dealers at the other end of the line, and his own credit standing is of as great if not greater importance as a knowledge of the business reputation of his customer, perhaps a thousand miles away. Here is a practical incentive for high business ethics—here is the daily reward in increased confidence and business between dealers widely separated geographically. Besides all the mercenary advantages there is the greater one—the common inspiration that has fired the membership and actuated the management—the establishment of a great national organization in which the opportunities for misunderstandings are largely avoided from trading under equitable established rules, and rating men on their honor, not their money—a credit system that puts "the man above the dollar."

This is no dream—or if it was a dream it has come true—and every reader can assist himself and his industry in bringing the system to the highest perfection, by joining, lending his moral and financial support, and in turn be protected by the organization that is today a terror to crooks, no matter whether the crooks are commission merchants, brokers or shippers—for good business ethics are not confined to any class.

One word more, the well known fruit or produce crooks are not the most dangerous; their very notoriety reduces their opportunities, but as a dealer once wrote us, "I don't get hurt by the notorious crooks, but by the well rated scoundrels in the old agency books." Twelve years has so thoroughly established the confidence of the trade in our organization that an unfavorable rating in the blue book is dreaded, and with cause, for it has helped put numerous crooks out of business, but what is of more importance and satisfaction to the management, it has helped and inspired many to do better. Thanking you for your valued space, and congratulating you on your special life work for "Better Fruit," which, pardon me, is next in importance to mine, "Better Credits," I am, yours cordially, A. L. Baker, Secretary Produce Reporter Company.



EXHIBIT OF APPLES AT STORE OF G. M. H. WAGNER & SONS, CHICAGO

COLD STORAGE BILL PENDING BEFORE CONGRESS

WHAT THE INTERNATIONAL APPLE SHIPPERS' ASSOCIATION HAS TO SAY ABOUT IT

OFFICERS of the International Apple Shippers' Association urge growers and distributors of apples and other kinds of fruit to exert their influence with senators and congressmen to defeat in its present form the bill now pending in Congress restricting cold storage of foodstuff. If the measure as drafted is enacted it will operate greatly to the disadvantage of the apple industry. The shippers' association has issued the following communication on the subject:

"Growers and distributors of apples must be active to their interests.

"The primary purpose of the bill was evidently to regulate the storage of beef, veal, pork, sheep, lambs, poultry, game, fish, eggs and butter and their products. Such language, however, was used in framing the bill that there is no question but that apples fall clearly within its provisions.

"Section 2.—After providing definite terms of storage for the products named above, these words are used: 'Or any article of food which, having been held in cold storage for any period of time, has been removed therefrom or returned again to cold storage shall be deemed to be adulterated within the meaning of this act.'

"Section 3.—No food product, having been once placed in cold storage and removed therefrom shall again be placed in cold storage.

"Section 5.—That the term cold storage * * * shall be construed to mean the deposit of food products in warehouses,

buildings or other receptacle where for a longer period than ten days the temperature is artificially kept at forty degrees Fahrenheit or below, except when the products are actually in transit and have not previous to such transit been in cold storage.

"Under these provisions apples from cold storage must go directly on the market without regard to weather or other conditions. Apples placed in cold storage in producing centers, whether in Oregon, California, Washington, Colorado, New York or New England, cannot again be placed in storage at ultimate destination even to save them from total waste and destruction. Cars ordered out from the Northwest, or from the East going West, must take their chances of finding a suitable market and weather upon their arrival after many days. These conditions cannot be foreseen. Shipments to the South out of cold storage cannot be protected by refrigeration upon arrival.

"Under the definition of 'cold storage' employed in section 5 even the use of ice boxes in distributing houses would be barred, for they are a 'receptacle' where the temperature is 'artificially kept at forty degrees Fahrenheit or below' for a period longer than ten days, viz., throughout the season. In other words, stack your cold storage boxes and pile your cold storage barrels in a warm store and, on a glutted market or during a warm wave, watch them go down.

"Primary distribution is also a serious element involved. Apples for cold storage are put in as soon as possible after packing. Future markets cannot be foreseen. The season for picking and packing and storing is short. Production is large. At the present time this fruit can be placed in any storage available and with only a general regard for future distribution. Denied the right to re-store when necessary to protect your fruit from decay and your investment from loss and it will be necessary to seriously consider the point of primary storage. Shifting the points of primary storage will, in many instances, cause your fruit to go into refrigeration in a weaker condition than it now does and may ultimately add to the expense not only in shrinkage, but in freight rates. The result will be too little storage at some points and too much at others.

"Furthermore, it would appear from section 5 that cold storage apples which were in transit in a refrigerator car for a period longer than ten days, if by some rare chance the temperature in the car were forty degrees or under, would be deemed adulterated. You will note that the exception reads: 'Except when the products are actually in transit and have not previous to such transit been in cold storage. How about shipments from Washington, Oregon, etc.? While all of these conditions are not of usual occurrence, yet they open the door to needless trouble, dispute and litigation.

"Section 3 also provides that any article of food which has been in cold storage and which fails to bear a label stating the date of production, killing, packing or manufacturing and the period of time during which the article has been held in cold storage shall be deemed mis-branded.

"Section 4.—Every person who places any food product in a package or container bearing a false or fraudulent statement as to the quantity, quality or character of the contents thereof * * * or causes or allows to be placed any fraudulent brand, mark or statement upon said package or container shall be deemed guilty of mis-branding.

"With reference to section 3 there is no objection to stating fully when apples go into cold storage and come out. They are advertised as from cold storage. No accusation has ever been made against 'new laid' Missouri Ben Davis in January, or 'strictly fresh' Spitz in February, or 'fresh killed' New York Baldwins in March. The apple deal is closed up every year. There are no 'hang-overs.' These facts are known. Why, therefore, should growers and distributors be placed under the extra expense of placing labels on every box and barrel of apples in cold storage?

"Section 4, relating to false statements as to quality and character, opens a beautiful field for litigation. Marks indicating quality and character are like the sands of the sea in number."



HOOD RIVER APPLES ON SALE ALONG "THE STREET" IN NEW YORK CITY

A GREAT FRUIT FIRM OF A GREAT WESTERN CITY

MINNEAPOLIS, the metropolis of the Middle West, with a population of over three hundred thousand, is tributary to St. Paul, making a combined population for the two cities known as the "Twin Cities" of over half a million. Minneapolis is the railway terminal of some of the largest trunk lines. It also has many branch lines running to the large wheat fields and rich farming country tributary. This city receives and distributes many cars of fruit and vegetables of all kinds during the season. It also has many car lot distributing points in adjoining states. Very little fruit of any nature being grown in the State of Minnesota makes Minneapolis one of the largest and best fruit markets in the world.

Minneapolis is the third largest city in the United States in the distribution of carload lots of green fruits, and among the largest and most up-to-date houses handling fruits in Minneapolis is the Gamble Robinson Commission Company. This company has a paid up capital of \$400,000, is located on the main street of the famous Central Market and has a frontage of seventy-seven feet, a depth of one hundred feet, or a total floor space of over 30,000 square feet. They also have seven subsidiary companies, or associate houses, located at the very best points within and without the state; have a sales force of forty traveling men, thoroughly covering the states of Minnesota, North and South Dakota, Iowa, Wisconsin, Michigan, Montana and the Canadian provinces, including Ontario.

This firm makes a specialty of green fruits, which they handle through their associate houses, at distributing points and through the Minneapolis house, or at auction in Minneapolis. They also

make a specialty of box apples, and their record on the number of cars handled the past few years has been remarkable. More than this, they represent the greatest force exerted in the fruit business today in the direction of correct methods and straightforward ways of getting into the good graces of the various associations with whom they do business. They are now open for contracts with associations or straight carlot shippers for both deciduous fruits and box apples, and offer an outlet undoubtedly as large if not larger than any fruit firm. The Gamble Robinson Commission Company's associate houses are located as follows: Gamble Robinson Fruit Company, St. Paul; Gamble Robinson Fruit and Produce Company, Mankato; Gamble Robinson Fruit and Produce Company, Pipestone, and Gamble Robinson Company, Rochester, in Minnesota; Gamble Robinson Fruit Company, Aberdeen, South Dakota; Gamble Robinson Fruit Company, Miles City, Montana, and Gamble Robinson Fruit Company, Oelwein, Iowa.

Roycroft Shop, East Aurora, New York.
June 10, 1911.

Dear Mr. Shepard: We believe that "Better Fruit" should be received by us, and The Fra should be among your magazines, so we suggest that you put us on your exchange list and we will put you on ours—each for other's good.

In case this arrangement is satisfactory to you please record this name on your list: Elbert Hubbard, Box 14, Willink, New York. The writer would personally like to have your magazine, and if it is mailed to the above address I will be sure to get it, but otherwise it is apt to get lost in the shuffle here at the office. Yours very sincerely, Elbert Hubbard.



A. M. CLELAND
General Passenger Agent Northern Pacific Railway
St. Paul, Minnesota
The Northern Pacific Railway handles immense numbers of cars of fruit annually from Yakima Valley and other fruit territory along the line

FUTURE OF THE APPLE INDUSTRY

THE planting of so many commercial orchards in the various fruit districts, especially the Pacific States, and the rehabilitation of old orchards in many sections of the East by state experiment officials, under improved methods of horticulture, the crop will be of such huge proportions as to tax to the limit the best efforts of apple experts to find channels through which to dispose of the fruit. With compulsory pruning, spraying and thinning of apples, the fruit should reach such a state of perfection as to rapidly increase the consumption among all classes and in all countries. It will soon be considered a crime to make cider out of any but perfect apples. With the care that should be given orchards inferior sized or worm-eaten apples should be unknown.

Sutton Brothers of Columbus, Ohio, are recognized as apple specialists in every city from Maine to Washington. They make a specialty of fancy box and barrel apples, and have them in their store every day in the year. Their sales are made largely to fancy grocers and stand trade at home and in nearby cities, and they are car lot distributors for Western box apples and the famous Ohio Rome Beauty in barrels, when their native state (Ohio) has a crop. They have been actively engaged in the apple business for twenty years, and know from experience how to pick, pack and ship fine fruit, and also know how to obtain the market price as well. This firm was the first to introduce box apples in the Columbus market, and they are strong believers in boxes for fancy apples; in fact they believe boxes are the coming package for apples of all grades.



SIXTH STREET, MINNEAPOLIS, MINNESOTA—THE FRUIT AND PRODUCE STREET

COMMISSION MERCHANTS' ANNUAL CONVENTION

ADDRESS BY WILMER SEIG, MILWAUKEE

HARD it is for a man from Milwaukee to be serious. We live in an atmosphere permeated with good fellowship, an atmosphere that displaces a frown with a smile. Even in our domestic relations we whistle before we attempt to make a mean retort, and look so foolish when we pucker that all meanness is relegated and a laugh takes its place. But I have taken a serious subject that must be treated seriously. My subject is "National League," two words fraught with the widest possible meaning, either word comprehensive in itself, but when used together denote the strength universal and a purpose for its strength. Have you ever stopped to analyze the strength produced by unity of purpose, have you ever stopped to analyze the development and elevation of business methods produced by organizations founded on a right basis? Have you ever stopped to analyze the value of this organization of which we are permitted to be members? These are questions that certainly deserve analyzing. Organization is the banding together of mutual interests either for betterment or self-protection. In this fast-moving, busy world individuals are weak. They are but the atoms of the whole, and until they are surrounded and put together they merely exist, follow the pace, get the little percentage of good, the large percentage of bad and then pass away, leaving their space to be filled by another. How different when all these

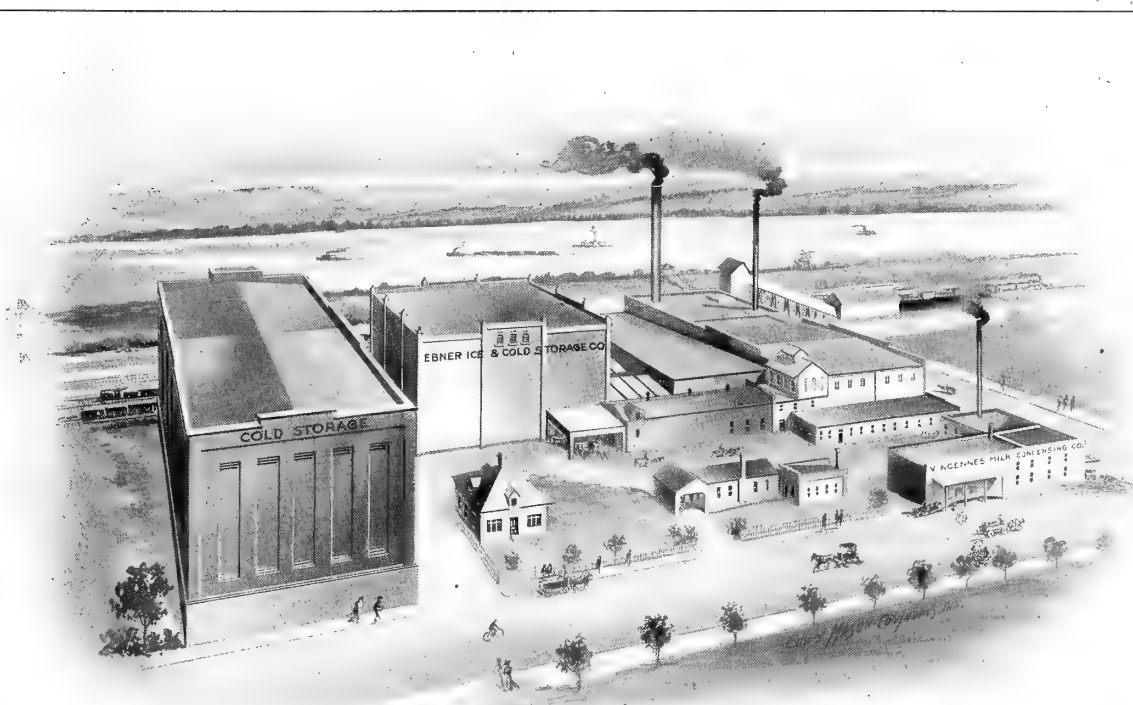
atoms are combined into a concrete mass. The single brick is weak in itself, but forms an important part in the completed structure. Remember, however, that no chain is stronger than its weakest link. Unity of purpose is the completed structure, the well-woven chain, and it is up to the organization to see that each atom embodies in itself the strength of the whole. Business honesty,

business judgment and a belief in their fellow men should be the watchwords of an organization like ours.

Have you not thought frequently of the wisdom of the men who nineteen years ago founded the National League? Does each one of our almost four hundred members realize the debt of gratitude he owes to these men? They took conditions into their own hands, founded an organization that is today a tower of strength. The pride of those whom a wise Providence has spared to see the results of their forethought and their labors must be a recompense for the nineteen years of work and guidance. The commission produce business, permitting as it does the entrance of men and firms of erratic quotations, men and firms whose entire capital consists of glowing stationery, a business card and a stencil, naturally had to fall into bad repute. The wise founders of the National League had solely in their minds the elevation of the business as their basis of foundation. There is not an organization in these great United States that is capable of accomplishing such widespread good as the National League, not alone to its members, but particularly to shippers in all parts of the Union. Stop for a moment and realize the vastness of its field. Twenty-eight of the large distributing markets in the country, with five hundred of their largest distributors paving a way for marketing the crops, produced in the



J. DENNIS, OF W. DENNIS & SONS
London and Liverpool, England



PLANT OF THE EBNER ICE AND COLD STORAGE COMPANY AT VINCENNES, INDIANA

The building shown in the above picture has capacity to store 400 carloads of boxed apples. Vincennes is an ideal distributing point for the Middle and Southern states. Facilities for loading and unloading are most modern, having four trunk lines at Vincennes, with track connection to the cold storage building. Besides this plant, the Ebner Ice and Cold Storage Company owns and operates plants at Flora, Illinois, and Seymour and Washington, Indiana, making a total capacity of 700 carloads of apples. Their apple department is constantly in touch with the market and they are therefore in position to give their storage customers the very best results.

country under a banner that proclaims to all equity and honesty of effort. Its formation is an accomplishment to be proud of, and the enrollment on its lists is a dignity of purpose to be sought and carefully guarded. There is not one of our twenty-eight markets but shows wonderful increase in its output. Study your figures based on the last census and note the duty that lies before you.

We gather here today as commission merchants, but are we commission merchants in the true sense of the term? Conditions hardly understood and badly misinterpreted have brought about a change. In the great race for a seeming supremacy we are evidently afraid that

some parts of the various crops are going to get away from us, and we jump in head over heels to secure just enough to keep the other fellow out. Result is an over-speculation that not only ruins a market condition, but turns a figured profit into an absolute loss. The wrecks strewn along the shores of our commercial ocean are mute evidence of the speculative storms. The old saying that you can lead a horse to water, but cannot make him drink is amply exemplified season after season. Unnatural conditions are only caused by unnatural circumstances. The grower and producer needs the commission man far more than he needs the buyer. The buyer is always



S. J. ELLISON

General Passenger Agent Great Northern Railway Company, who is recognized as a great developer of territory along its line, and whose service is greatly appreciated by the Wenatchee district, so famous for its fruits.



S. A. HERING, AGENT NORTHWESTERN DIVISION, PACIFIC FRUIT EXPRESS COMPANY
PORTLAND, OREGON

Mr. Hering, who was formerly connected with the Armour Fruit Express, has been in the service for many years, and is a tried and proven man in the refrigerator car service, having filled a difficult position with ability and tact. He has rendered the companies he has represented splendid service and at the same time has retained his popularity with the fruit grower. Notwithstanding the fact that his title as official is prominent, he is known far and wide as "Sam," which is perhaps the best testimonial for his popularity.

trying to buy as cheaply as he can in order to moderate his risk. The commission man, on the other hand, with risk eliminated, tries to boost, and does boost to bring about the returns the grower and producer is entitled to. Values and markets are established solely by the laws of supply and demand, and in order to establish the correct value a wise distribution is the keynote, and this can never be solved by the buyer. It is the commission man who has invariably created the market for the shipper and a demand for their product. It is tempting for the shipper to have a dozen buyers clamoring for his goods, but he fails to take into consideration the hundreds of buyers that are bidding for goods honestly packed when they reach the sidewalks of the commission man. There are a thousand wrongs to right if we go after them in the right way. Publicity is the route and publicity should be the watchword.

For years past we have been sliding toward a merchandise basis. A basis that benefits neither the buyer or the seller. Half the crop is sold and the other half is generally consigned, and this spells disaster to all. With twenty-eight of the best distributing markets of the United States banded together we may reach that point where we can suggest crop movements to the grower under conditions that will be mutually beneficial. I believe in shipping organizations as a factor in elevating the standards of producing sections, and I believe in an organization like the National League of Commission Merchants to facilitate crop distribution. The buyer has had his lesson. He has learned that he cannot make a choice grade stand for a fancy grade, that he cannot make two or two and a quarter-inch apple grade number one, but he can by his idea ruin a crop prospect as far as its commercial value is concerned. Every year tells us this story. The wise



WILLIAM L. WAGNER, OF G. M. H. WAGNER & SONS, CHICAGO, ILLINOIS, PRESIDENT INTERNATIONAL APPLE SHIPPERS' ASSOCIATION

shipper grades for his market and distributes his products into safe hands, willing to take a market as created by his quality. The National League is the saving grace to the shipper, who is wise enough to realize its manifold benefits, and the elevation of business methods under its development is their hope for the future.

And now, gentlemen, a word as to our own organization. We meet here as twenty-eight units of this big concrete National League, and each one of the twenty-eight look to us for guidance and plans. Our membership must be classed and guarded as a business asset of consequence, and the value of the asset depends upon us. We are passing through a critical time. We see ahead of us big interests that are striving to take away our business. To every thoughtful, thinking member it is apparent what these menaces are. As an organization we have spent years in the interest of the shipper. Now let us turn toward ourselves and do missionary work

that will count and that will bring about that contentment and satisfaction to ourselves which our long vigils and untiring efforts entitle us. Consolidation and close co-operation are the routes that will enable us to assert our inherent rights. Nineteen years of organization finds us yet, to a certain degree, in swaddling clothes, especially as far as our individual interests are concerned. That great problems are confronting us is amply manifested by the large attendance at our conventions. We are not here for pleasure, but we come inspired with a purpose. Let us start the twentieth year with better and stronger co-operation, more consultation between members and sister leagues, a closer affiliation with shipping associations. These are only suggestions for further thought. You have established the ground work in the formation of the National League of Commission Merchants; you have furthered it by the establishment of the office of business manager. There are wonderful opportunities ahead for mem-

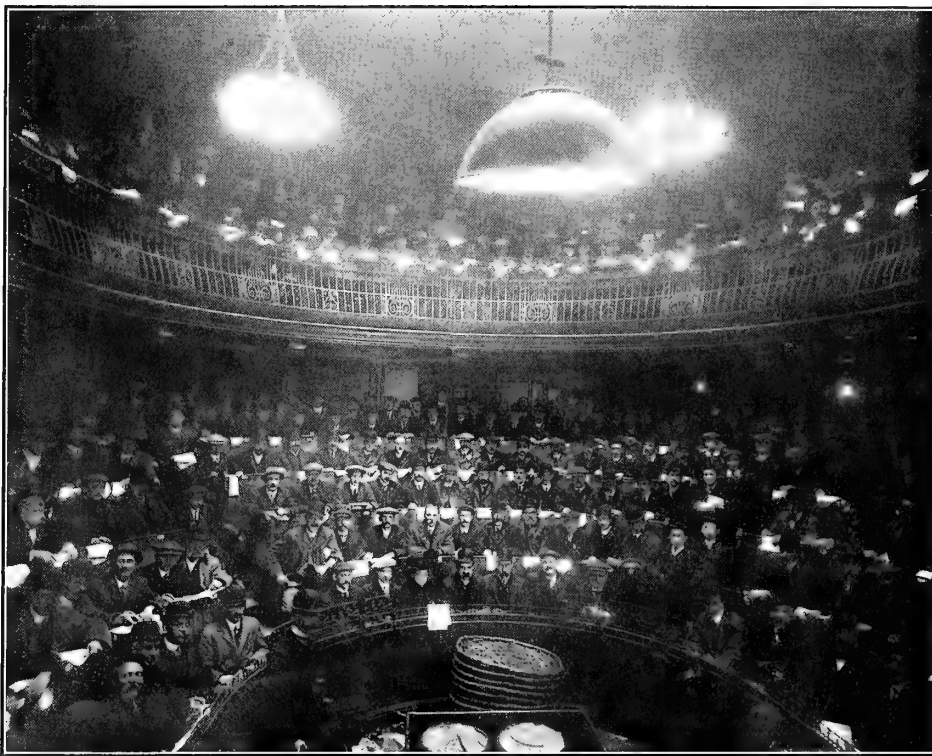
bers of the National League of Commission Merchants if we only awake to our possibilities. Let us resolve to be commission merchants, organized to dignify our chosen calling and to hold out to the shipper the benefits to be derived from well-rounded efforts. Our organization is a necessity and bound to realize as such. Indiscriminate buying of the past is bound to round into commission business for the future; it will right itself on the same law that causes all water to find its level.

We have an asset in our business manager's office that is daily making itself more manifest. We have capitalized it with brains, and the time is soon at hand when you will see the necessity of capitalizing it with money. There is no limit to the work or field for a business manager. There is not a state in the Union but that needs education as to the aims and purposes of the National League. The campaign of education should be on the basis of a "Billy Sunday Revival." Equip your business manager with assistants who can, through him, carry the gospel of the National League to the four points of the compass and you will be surprised at the results. If this work is to be done toward increasing our own benefits it will require more money to carry on the campaign in this direction, but as long as the benefits will be ours assessments will be justified. The members little realize the work that falls upon the shoulders of the officers of an organization like ours. When I planned and argued for the establishment of the office of business manager it was because I had studied the possibilities and the realization of my work in this direction was one of the happiest events to me. While I deeply regret the change of management I know that the office of business manager will continue to grow because it is on a right foundation. I feel that when we convene in 1912 benefits will have made themselves so apparent through his office that we will be eager and willing to increase our dues to keep pace with the increased possibilities to be derived from his office.

Study your business manager, keep in touch with him, learn his worth by asking questions. His office is a fund of information drawn from the four points of the compass. His information is yours for the asking. Make him strong by putting him to the test. Let us leave with you the three thoughts coined by our Minneapolis friends: Prosperity comes quickest through organization. Prosperity of your trade industry means your prosperity.

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Editor Better Fruit:

The writer has told you so often in the last five years what he has thought of your direct and indirect services in behalf of the fruit trade that it would merely be a repetition of many preceding remarks to thank you once more. Never does an opportunity go by when we have the chance to direct attention of probable advertisers and other friends to the beauties of "Better Fruit." While on the subject we want to say once more that it is our humble opinion that you have taught the Northwestern fruit operators more during the period named, as to how to look out for their own interests, and to handle fruit, to say nothing of packing it properly, etc., than all other journals or magazines combined, and it would certainly take a triple team of "fiery untamed steeds" to knock that idea out of our various and sundry craniums. Yours very truly, G. A. Arthur, Produce Reporter Company, Chicago.



LIVERPOOL, ENGLAND, COMMERCIAL SALES ROOM

STORAGE-IN-TRANSIT RESOLUTIONS AND RULES

AT a conference of the authorized representatives of the Western Fruit Jobbers' Association, the National League of Commission Merchants of the United States and the International Apple Shippers' Association held in the La Salle Hotel, Chicago, on the 12th day of December, 1910, the following resolution was unanimously adopted:

"Resolved, That owing to the growing necessity for storage-in-transit of box apples from the West, to the end that a broader and more equitable distribution may be accomplished, thus fostering and protecting the industry, increasing the traffic and aiding the furnishing of equipment to move the crop, the appended rules governing such storage in transit of apples be submitted to the Transcontinental Lines Freight Bureau and individual lines interested, with a request that said rules be adopted in effect and such storage-in-transit privilege be made lawfully applicable in time to properly move the apple crop of 1911."

Proposed rules governing storage-in-transit of box apples are as follows:

Apples, carloads, from any point shown in tariff, may be shipped to any intermediate point, placed in storage and afterward reconsigned on protection of the through rate, under the following provision:

A. The storage point must be an intermediate point in the same general direction, between point of origin and final destination, except that no charge for back haul will be made when ultimate destination is in the same general direction, or storage point is in territory intermediate via any route from point of origin to final destination.

B. Storage must be in warehouse furnished by shipper or owner of property.

The carrier not to assume charges for storage, insurance or other expense accruing at warehouse.

C. Shipments entitled to storage in transit privilege shall have their expense bills at the storage station stamped, "To be stored in transit."

D. The surrender of paid expense bills accompanied by warehouse certificate identifying said shipment will be a declaration by the shipper that said shipment is entitled to transit privilege.

E. Shipments may be stored in transit for a period not exceeding nine months.

but in no case is privilege to be extended beyond July 1st following.

F. Upon surrender of paid in-bound expense bills, shipments will be re-billed from storage point to final destination at balance of through rate, if any, from initial point of shipment to final destination plus a switching charge not to exceed five dollars.

G. The through rate in effect on date of shipment from point of origin shall be the rate to be protected.

In conclusion, and as a part of this report, it is recommended that the transportation committee of the Western Fruit Jobbers' Association in the future be composed of one of its members from each of the large cities or jobbing centers, and that the secretary of the association be named and act as its chairman.

There are two reasons for this recommendation, viz.: First, the larger part of the work must of necessity fall upon the secretary; the average member is unable to give the necessary time and attention that should be given to this important committee. Second, a committee of this kind, with the secretary as chairman, could call upon the various members to attend different meetings and other hearings which are held in the various cities throughout the year, with very little expense to the association and with better results.

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Editor Better Fruit:

A friend in Bloomington loaned me a copy of your May number to read and I am so delighted with "Better Fruit" that I am enclosing postal money order for one dollar for one year's subscription. I want you to begin this subscription with the May number, so please be sure to send me that number if you never send me another one. I am anticipating, however, that every number will be a delightful one, if I am to judge from the one now in my hand. Very truly yours, J. M. McConkie, Bloomington, Illinois.

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Editor Better Fruit:

Enclosed please find a postal order for one dollar for which please send me "Better Fruit" for a year. I just recently received a sample copy and find it an excellent paper. Very truly yours, C. H. Metcalfe, Honolulu.



AUCTION SALE BY GARCIA, JACOBS & CO., FLORAL HALL, COVENT GARDEN, LONDON

BETTERING THE DISTRIBUTION OF THE APPLE CROP

BY WILLIAM L. WAGNER

DURING the past year the one great cry that has gone up from the wilderness of apple production in the Northwest has been, "Our fruit is not distributed properly nor widely enough." Probably every local and state horticultural meeting has been addressed by not less than one and in many instances by several on the subject, and the result has been "confusion worse confounded" rather than elucidation. The reason for this confusion is obvious. As a rule the criticisms made and solutions offered have been tendered by one of two classes, the first of which has no practical knowledge of the subject, and the second having an ulterior purpose as the basis of what they say.

The first class may be enlightened to general advantage, but the greater the enlightenment of the second the more dangerous they become and the greater the menace to the community. I say a "menace" for the reason that anything which tends to disturb the equilibrium of a producing section or to disturb the close relations between the producer and those upon whom he must depend in the placing of his crop, whether it be by direct sale or otherwise, is not only dangerous, but more dangerous to the producer than to the distributor.

In limited space it is impossible to go into this subject fully and at best only the most salient features can be even touched upon. Briefly, I would call attention to the one great misapprehension that affects the mind of the average objector, that is, the idea that he who handles these apples piles them up somewhere and calmly sits down and awaits a purchaser. This is far from the real fact. Some operators in apples operate upon a larger scale than others, but everyone in the territory in which he operates is a large one. The scope of territory may include but a single town or country, but it may and does include with many of them practically every state and county in the United States and

every large center of those foreign countries to which operations can be extended.

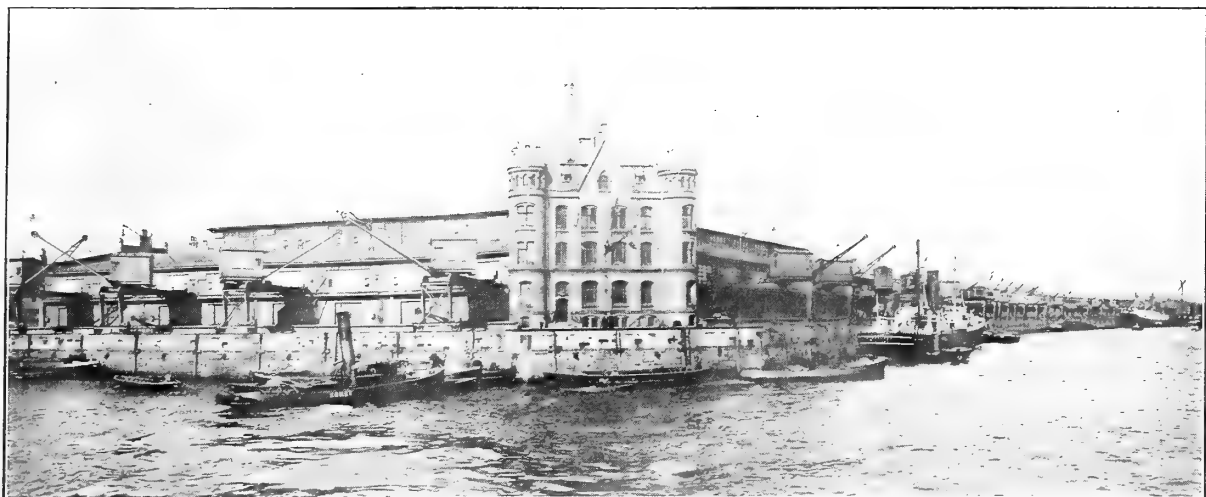
That no one man or firm can deal with every other man is one of the rules or laws of trade, and the fact that almost no one can deal with some men has also been established. Because a minor "city" or village is discovered that had not for sale "box apples" does not in any way prove that that particular place has been overlooked. It simply demonstrates the truth of the fact that "minds must meet" before a trade can be effected, and that in this particular case the minds have not met. This is not because the distributor who has in all probability "worked" that particular field either through personal solicitation, offering by mail, wire or phone, through the various mediums of

advertisement, or possibly by all of these methods, is not ready to make a deal, but because the buyer is not ready. The buyer has his own reasons, many of which are most excellent and all of them good from his point of view. To the man who for years has handled barreled stock only and who has built up a profitable and satisfactory business in them, the taking on of boxes means a possibly dangerous innovation. He knows his trade and is convinced that the lower-priced barrel will meet all requirements and prove a safe investment. Naturally he sticks to them. He is in business for profit, not as a philanthropist, and he handles that which appeals most strongly to him from a profit standpoint, just as the producer markets in the way that looks most advantageous to him and regardless of the fellow at the other end, and the failure of the distributor to sell to him is no discredit to the distributor. Nor is the fact that owing to changed conditions the small dealer becomes ready for a deal and is "landed" by a producer for a car any discredit to the distributor, but rather it tends to show the result of his systematic effort to "educate" the buyer up to the commodity instead of any neglect of him.

Successful distribution is not like a problem in mathematics, that may be successfully solved by anyone knowing the rule, nor can it be learned from books. Whether it is an art or a science might be open to discussion, but one thing is certain, and that is that only he who "knows the game" will succeed, and success will come only in such measure as he does know the game and "plays" it. There are no rules. Each operates his business according to his own light and ability, and even then the "race is not to the swift," but to the safe, sane and conservative. It requires years of study of conditions, observation and possibility of experiment, to acquire knowledge as to approximately the quantity of apples a given territory "will take," and the varieties that can be disposed of to the best



MICHAEL SIMONS, J. P., D. L., GLASGOW
Simons, Shuttleworth & Co., Liverpool; Garcia,
Jacobs & Co., London; Simons, Jacobs & Co.,
Glasgow



FRUIT SHEDS OF HAMBURG, GERMANY

advantage in that territory; those varieties that would be as "Dead Sea fruit" if shipped in; a knowledge of "who's who" in the apple business in that territory and who may or may not be dealt with in safety; to acquire a knowledge of freight rates and shipping combinations, to the end that not only may selling be made easy, but also safe, in that cars if rejected may be moved and disposed of with proper economy. Unfortunately every sale is not a sale, and only too often whether it becomes a sale or not depends upon the mood of the buyer at the time the car arrives, to the condition of his market, or whether someone has in the meantime offered him a car for less money.

It has been said that no car of apples ever has or ever will be packed that will not show sufficient defect to establish a basis for rejection on a declining market. All of these things must be taken into consideration, must be assimilated by the distributor and become a part of his mentality. Whether the distributor operates on his own account, buying the product outright, or distributes as the agent for the producer has but one difference; in the first case what he does is no one's business but his own, and he is not subject to question even though open to criticism, but in either case success depends upon his knowledge and ability.

Distribution may be of two kinds, one to dispose of quantity, the other to produce and increase value. Naturally the latter is the more restricted and requires the higher degree of distributive education, but either requires for success the solving of the greatest problem of them all—the problem of true economy. To the student of this question it quickly becomes apparent that after the cost of operating expenses, including road men, advertising in its various forms, telegraph, telephone, salaries, rents, etc., are deducted from the gross revenue of the distributor, the remaining balance is so small that whether the season's deal shall show a profit or a loss depends upon the distributor's success in making only safe accounts and incurring no losses. This



D. CROSSLEY & SONS' NEW PLACE IN COVENT GARDEN, LONDON

An important increase in the firm's assets made during the year. This season the firm has done considerable more business on the London market than heretofore, and as a result has opened a place there through which its usual methods will be pursued. The Crossley firm is a strong advocate of the private sale method, selling all its receipts by this means through its Liverpool, Glasgow and London houses. With increased facilities the firm will be in better position than ever to look after its shippers' interests. D. Crossley & Sons is one of the firms acting as promoters of the American apple in the European markets and believe that this outlet will to a very large extent keep pace with the increasing business in this important product of the Northwest. Mr. William Crossley has been spending some time in Europe looking after the firm's interest in England and on the Continent.

condition does not, however, mean that the cheapest method of distribution is always the most economical, as, on the contrary, it may prove the most expensive. True economy means the production of the highest possible net results and the building up of an established demand at the lowest possible cost to produce such results.

The statement that it is more easy to learn to produce the fruit than to distribute or market it would probably meet with no denial, and still comparatively few operators are found who are producers. Why is this so? For the simple reason that they are two as separate and

distinct lines of business as are teaming and banking. It resolves itself back into the old adage that "he who is jack of all trade is master of none," and the sooner the force of this is realized the better for the industry.

The West has done much for the apple industry. Its high ideals as to quality, grading and packing have been carried into practice with the result that new life and energy has been shown along the same lines in every apple-growing section. These ideals should not be lost sight of or overshadowed by other questions, but on the contrary should be carefully nourished and if possible raised to an even higher plane. With a producer at one end of the line to maintain these ideals of quality and pack, and the competent, trained distributor at the other end of the line, the question of distribution is solved, and economy takes the place of extravagance and waste. Instead of constant carping criticism, bickering and fault finding, it should be the aim of both producer and operator to work in more close and complete harmony, each endeavoring to enlighten the other as to the difficulties that beset him, to the end that united wisdom may lighten the burdens of both and the apple industry be placed upon the most secure footing possible, with fair assurance of reasonable remuneration to all who are engaged in it.

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Editor Better Fruit:

Allow me to congratulate you on your magnificent issue just out. While all agricultural publications cannot put out such an issue, we congratulate those who are able and have enthusiasm enough to do so. I sincerely hope that it will bring you good returns. The agricultural press is fast becoming the most valuable publication in the land. Very respectfully,
J. D. Dean, Editor The Ranch, Kent, Washington.



WENATCHEE VALLEY FRUIT ON EXHIBIT FOR INTERESTED BUYERS
COVENT GARDEN, LONDON

THE STANDARD PACK AND PACKAGE OF APPLES

At the meeting of the Western Fruit Jobbers at Sacramento, California, February 15-18, 1911, the following letter from Mr. N. G. Gibson, chairman of a special committee on the subject, was read by Mr. Prentiss Martin:

I had previously planned to be present with you at this meeting and make my report to you personally, but owing to an unfortunate railway accident a short time ago I have found it impossible to make the trip, as my physician will not permit me to undergo the strain of the long journey to and from Sacramento. However, my report regarding progress of securing a law for uniform boxes, baskets and barrels for apples can as well be put in writing, and I will promise not to take up much time in presenting it.

Since our last meeting your committee has done all possible to do in the furtherance of your instructions, but it seems little or nothing has been accomplished so far as actually securing the enactment of a law such as we are working for. A trip was made to Washington early last year, and with representatives of the International Apple Shippers' Association, National League of Commission Merchants and other interested parties, your committee appeared before the committee of agriculture of the house of representatives. Every argument was made and every influence was brought to bear on our national legislators to get a favorable report on the then pending Lafean bill, which was the measure we previously had introduced. This measure was not favorably reported for reasons with which you are no doubt as familiar as your committee. In a recent communication from Lafean he states it is quite likely the same measure will be introduced again; yet it is doubtful if anything can be done until the next congress meets.

Now, gentlemen, it does seem we are doing a lot of work for nothing. The question arises in my mind that we may not have been as interested as we should. By this I mean our membership as a whole. Your committee has really made a sacrifice of time to put in the work they have tried to do. What I have in mind is, I fear, the matter of standard apple packages is not one whose vital



CHARLES M. SIMONS, LONDON, ENGLAND

importance really appeals to enough of our membership to do more than vote "aye" on a resolution which declares that uniform standard boxes, baskets and barrels are established and regulated by the common law of the land. Now, I have neither the time nor the inclination to rehash the essentials of our contention with our friends in certain producing sections, but I want to say that without any legislation on the subject Colorado has swung into line, and the apples from this great producing state are being packed in boxes that conform to the requirements which we and others are asking for. In my candid opinion, we are rapidly reaching the point where most apple producers will be glad to accede to any reasonable suggestions relative to grading and packing of their fruit, for, unless I am a bad calculator, these and other steps will have to be taken to insure a consumptive demand for the enormous increase we shall see in the apple output in this good country within the next few years. I may say that I make this statement with the Western box apple uppermost in my mind. It is already tight scratching to get sellers and buyers together on average prevailing prices the past few years.

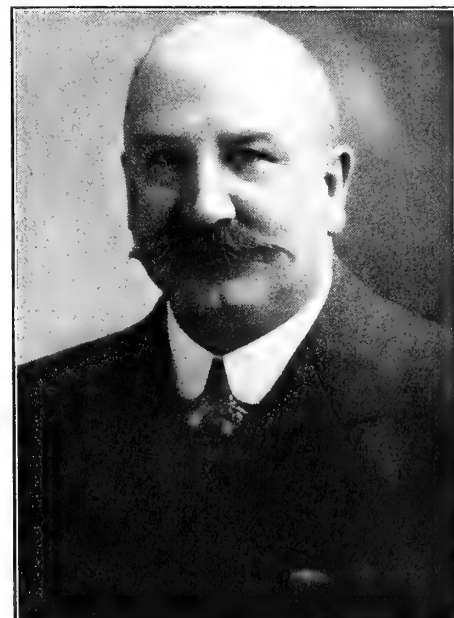
We are confronted with an annual increase of fifty per cent in the production of Western box apples, and there is every reason to believe this ratio of increase will be maintained for several years at least, because of so many new

orchards coming into bearing. On the other hand, we have an increase of about twelve and one-half per cent in the consumptive demand of a given commodity every year over the preceding, if the statistics on foodstuffs are to be relied upon. Putting the two ratios together we find it stands one to four, with the balance on the wrong side, so far as selling apples at high prices is concerned. But the balance favors concessions to develop lower prices and attract more consumption. Therefore, the old law of supply and demand may serve better than any legislation we can get at Washington, or elsewhere, to accomplish what we are trying to do; and for fear some of my friends may misconstrue my position, I want to say that I am in favor of selling apples for good prices—high prices if I can get them. They are worth all they will bring. That is elementary. But it is also elementary that if the supply of anything is doubled, and doubled again, we shall have some change, at least in prevailing selling prices.

Talk is cheap—that is why we have so much of it. But some of those who have tried to talk us out of court when we have been laboring for their and our mutual interest are likely to cease accusing us of being meddlers, and, I think, will gladly join forces with us in trying to do what we have already attempted, viz: to provide for as wide an outlet as possible in this country and abroad for apples, and by means of standard packages we know the problem will be greatly simplified. By reason of the fact that my firm has already sold over 1,200 cars of Western box apples this season, I profess to be entitled to some definite opinions on this subject, and it is my honest conviction that we need a standard box and basket of 2,342 cubic inches and a standard barrel which will hold three boxes or baskets. I want to say once for all that all the apples now grown, or yet to be grown, can be packed in such packages.



ERNEST SIMONS, GLASGOW, SCOTLAND
Of Simons, Jacobs & Co.



GEORGE H. SHUTTLEWORTH, LIVERPOOL



YAKIMA VALLEY APPLES AT AUCTION, COVENT GARDEN, LONDON, ENGLAND

THIS YEAR'S APPLE CROP THE LARGEST IN HISTORY

FROM all indications it would appear that the 1911 apple crop is likely to be the largest in the history of the United States. With a full crop in the East, where the freight is only twenty-five or twenty-six cents per barrel, as compared to \$1.60 for the same weight of apples from the West, the difference in freight alone will favor the Eastern as against the Western grower in the matter of prices. The Easterner, knowing it to be a question of the "survival of the fittest," has taken note of what has been done in the West, spraying the trees, pruning and thinning the crop, has gone one better than the Westerner during the past two years, being determined to recapture the market which he had foolishly lost, forgetting the law of nature that "man should earn his living by the sweat of his brow," and that it was not sufficient for him to plant the tree and then ask nature to do the rest.

It is quite true that, on account of their color, Western apples appeal to the eye more than the Eastern fruit. The Easterner did not prune his trees and allowed the middle of the trees to be full of wood, which shaded the fruit and kept it from properly coloring, but with proper cultivation the Easterner, particularly in some of the high altitudes, is going to produce some sorts with as good color as are grown anywhere. Michigan, Vermont and New York State can produce the best Northern Spies in the United States, an apple that never scalds in the spring. Baldwins, in the East, don't get bitter-rot to any alarming extent. For general market purposes, and for export business, the Baldwin, Northern Spy and Greening are hard to beat. It is quite true that the Western Spitzenberg, up to Christmas, is one of the best apples grown, and, together with the Yellow Newtown, will always hold its own.

The vast quantities of apple trees which have been planted during the past four years must surely mean, given good

weather, together with the scientific cultivation of the West and Middle West, no shortage of apples in the future. According to government reports, on June 30, 1908, there were 201,794,642 bearing apple trees in the United States, and if all reports are true concerning plantings that have gone on since then, there must surely have been another 50,000,000 planted, say, in round numbers, 250,000,000 apple trees, good, bad and indifferent. These ought to produce a bushel to the tree, and that is quite a lot of apples; therefore something has to be done with this extra surplus; and in all Western districts there should be some kind of a factory to take charge not only of the windfalls, but the No. 2 apples and such like surplusage, where apples could be not only canned, but dried.

Eastern dried apples are now shipped to most parts of the world. I don't mean to say dried apples from the United States are shipped all over the world, but there are many places where dried apples could be shipped. In connection with such canning factories the cores and skins could be made into vinegar; and there is the further question of cider. I understand cider and vinegar sell for higher prices in the West than they do in the East, and if it pays the Easterner to put thirty per cent of his crop to the cider and vinegar mills it should also pay the Western man.

There is another question which, to my mind, should be put before Western growers, namely, the packing of fruit which I have seen taking place in the orchards. That, in my opinion, is not the proper place to pack fruit. The fruit, after being picked, should be taken to a warehouse to allow the outside heat to get out; then, when it is packed, it is cooled off, and does not require ten to twelve cents refrigeration charges, and can be shipped wherever wanted without being iced. Of course, if it is loaded up with all the outside heat in it, ranging from sixty to eighty degrees, it wants ice, but such expense need not be incurred if the work is properly done. W. N. White, of W. N. White & Co., New York.

T. J. POUPART
Fruit Salesman
Covent Garden Market
London, W. C., June 3, 1911.

Mr. E. H. Shepard, Editor Better Fruit
Hood River, Oregon:

Enclosed please find my subscription to "Better Fruit." Will you please send me the numbers since the last one sent to date.

Yours faithfully,
T. J. POUPART.

Editor Better Fruit:
Will you be good enough to announce in "Better Fruit" that the next meeting of the Society for Horticultural Science will be held in Washington, D. C., on Friday, December 29, 1911, in connection with the meetings of the American Association for the Advancement of Science. Very truly yours,
C. P. Close, Secretary-Treasurer, College Park, Maryland.



ENTRANCE TO THE GOLDEN WEST EXHIBITION OF WESTERN APPLES, UNDER THE AUSPICES OF GARCIA, JACOBS & CO., EARLS COURT, LONDON



INSIDE VIEW OF HEATED FRUIT SHEDS AT HAMBURG, GERMANY

CONGRESSIONAL SUB-COMMITTEE ON LEWIS BILL

THE Congressional sub-committee on postoffices and postroads met June 14, 1911, and took up for consideration the Lewis bill, which provides for condemning and purchasing the express companies and adding them to the postal system, and establishing a complete system for the quick transport of packages and the eatable products of the farm and truck garden, etc. At their last conference in Washington the representatives of the business men of the country and of the farmers' granges asked Congress to establish such a system, and representatives of these interests were present at the hearing before the committee.

"There are two main reasons why the express companies must be added to the postal system," said Mr. Lewis in his argument. "First, the express company service does not reach beyond the railways to the country or the farmers, which the postoffice does, through the rural free delivery, which is waiting with empty wagons to receive the express packages and take them to the country stores and the farmers, and carry back to the towns and the cities the produce of the farms and truck gardens for the people to eat at living prices. Second, the contracts of the express companies with the railways give them an average transportation rate of three-quarters of a cent a pound; and with this rate the express charges by post would be reduced from two-thirds to one-half on parcels ranging from five to fifty pounds, and about 28 per cent on heavier weights, as a consequence of the co-ordination of the express company plants with the postoffice and rural delivery, and the elimination of the express company profits, which are averaging over 50 per cent on the investment.

"The express companies are positive hindrances and obstacles to the business of the country. The average charge for carrying a ton of express in Argentina is \$6.51, and for the countries of Europe

\$4.12, while the average express company charge in the United States is \$31.20. They charge five times as much to carry a ton of express as a ton of freight in other countries. Here the express companies charge sixteen times as much. Of course, these charges simply prohibit by half or more of the traffic in the United States. Our average is less than one hundred pounds per capita, while that of the other countries is over two hundred pounds per capita, although we have far greater demand for quick transport on account of our longer distances and more extensive business.

"We cannot have an efficient parcels post. The government cannot conduct it on mail railway transportation rates, at over four cents a pound, in competition with the express companies' paying but three-fourths of a cent a pound, excluding the weight of equipment in both

cases; which enables the express corporations to pay over 50 per cent in profits to themselves, although rendering no service whatever to the farmers and to points off the railways."

Mr. Lewis has worked out a system of "zones" based on scientific methods, from which a five-pound package, for instance, can be sent 196 miles for 11 cents, while the express companies now charge 25 cents and more for like distances; from Calais, Maine, to San Francisco, will cost 30 cents for five pounds, and \$2.42 for fifty pounds, as against the express company charges of 85 cents and \$7.50.

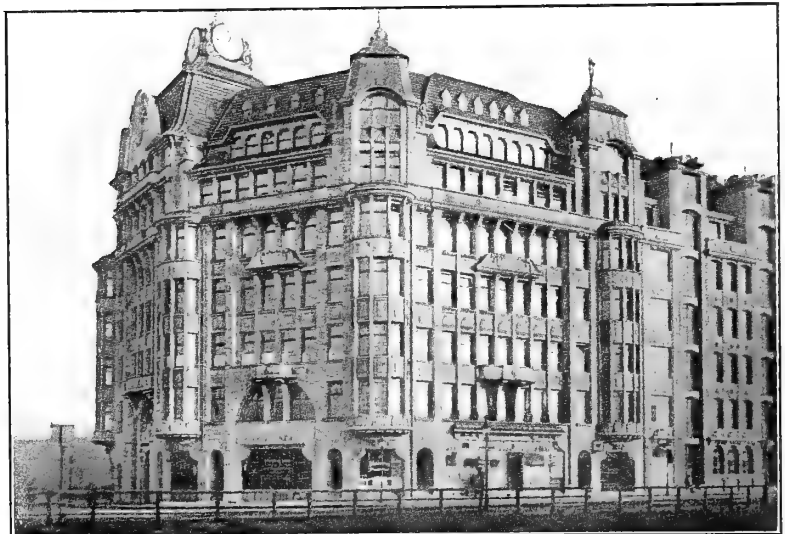
With the rural free delivery a part of the express system, an agricultural parcels post will market the farmers' produce and save them the time and labor of marketing their truck. Rates even lower than those quoted are promised, by having the rural and city carriers assemble the small consignments of the individual shippers and utilize the fast freight service on trunk lines, with passenger trains on the branch roads to hurry the stuff to destination, at the regular fast freight rates. The postoffice will recoup itself by securing carload rates for the assembled shipments, while the small shippers get their advantage over present conditions by having their collect-and-delivery system for practically nothing.

This system is now in vogue in Germany, and shippers, Mr. Lewis shows, pay only double freight rates, less than a tenth of the express rates here.

The food problem, the "high cost of living," according to Mr. Lewis' figures, is largely the result of the want of a proper articulation of our transportation with the rural sources of supply. While prices are often prohibitive to the consumer, crops may be rotting at the place of production, for want of a real express service.

Editor Better Fruit:

Copy of your May issue of "Better Fruit" has just reached the writer, and I wish to congratulate you on the splendid make-up of this issue. Yours truly, H. M. Ashby, Cleveland, Ohio.



THIS BUILDING CONTAINS OFFICES OF ALL FRUIT FIRMS IN HAMBURG

FRUIT'S JOURNEY FROM PRODUCER TO CONSUMER

BY N. G. GIBSON, OF THE GIBSON FRUIT COMPANY, CHICAGO

THIS journey that fruits grown in the Northwest must take to reach the centers of population in the Middle West and along the Atlantic seaboard, where hungry souls await their coming every season, is a long one. Perhaps it would be stating the truth more correctly to say that these people, millions of them, would await the coming of the fruit more eagerly were they all able to buy it as freely as they would like. One thing that has impressed me as much as any other one thing relating to marketing of box apples and other Western fruits is that heretofore the cost has been too high to hope for anything like a maximum consumption in this great country.

Quite naturally, the price to the consumer is fixed at the time a price is made in the orchards, or at shipping points, barring accidents and fickle markets, for there is a marketing cost that must be figured against the purchase, and I want to say as emphatically as I know how that the day of miracles has passed in the selling of fruits if, indeed, it ever existed in fact. This talk about reducing the cost of marketing below a certain legitimate figure, and getting the benefit of experienced, capable men, is sheer tommyrot. Assuming that we shall have to rely upon present methods for selling, with slight modifications from time to time, I think we should endeavor, so far as possible, to encourage a freer consumption of fruits by resorting to that great old coquettish trick of trade, reducing the price to attract buyers and consumers.

How can this best be done? When is the best time to begin? Who shall undertake it? Answers to these questions readily suggest themselves. You can rest assured the "how," the "when" and the "who" will be the grist of the mills of the future, and then only when the force of conditions shall dictate what I suggest.

Let's not forget we are all human—growers, market men, consumers and all—and that selfishness, unfortunately, is a quality more or less attributable to us all. The wrangle over the uttermost farthing, the spirit of Shylock, the haunting dread of giving something away for a bit less than we fancy it is worth may temporarily boost land values and add to the many vexations of the middle men, but it is certain the whole scheme results in a woeful abortion of that simple injunction of the lowly Nazarene, who taught us in the producing and marketing business a memorable lesson with the few loaves and fishes. Feed my sheep, though meekly commanded, has reverberated through the centuries, and the spirit of the call is gaining ground and winning over men today wherever civilization has spread.

What has all this got to do with selling apples and other fruits? Just this: There are lots of people, outside of the poor houses if you please, just common people, the kind God makes most of because He loves them best, in this big country who rarely enjoy such a luxury as a feeling of fulness of good fruit. Comparatively few people have money enough to buy without asking the price. The poor people are the real consumers after all. Do you catch the point? Is it obnoxious to think about? Shouldn't we consider them as part and parcel of the consuming public? Are these "under dogs" unworthy of our fruit, rather God's fruit?

Go along the streets and alleys surrounding the large market places in the big cities late in the day, after the stalls and stores are closed; watch the bedraggled flotsam and jetsam of human-kind fight and elbow their way to the dump barrels and boxes filled with decayed fruits and vegetables, which are fished industriously for every morsel fit to eat—forsooth, unfit to eat. See that pale mother with a babe in her arms,

both pinched and starved, glare with sluggish, sunken eyes at the prospect of fighting through the hungry mob for perhaps a bit of rotten fruit; watch that old gray-haired man, limping and leaning on his friendly cane as he hurries to join the scuffle; see those ragged, bare-foot children come romping as fast as their emaciated bodies and spindling legs will let them toddle, in flocks of two and three, and more, from squalid



WILLIAM L. LOEFFEL
President of Barnett Bros.
159 South Water Street, Chicago, Illinois

lodgings, some to carry the bag or basket, others to fight their way into the throng, where the most promising luxuries in the way of food may be had; see all this and ask yourself soberly if you draw any conclusions that might result in a better plan of reaching the consumer.

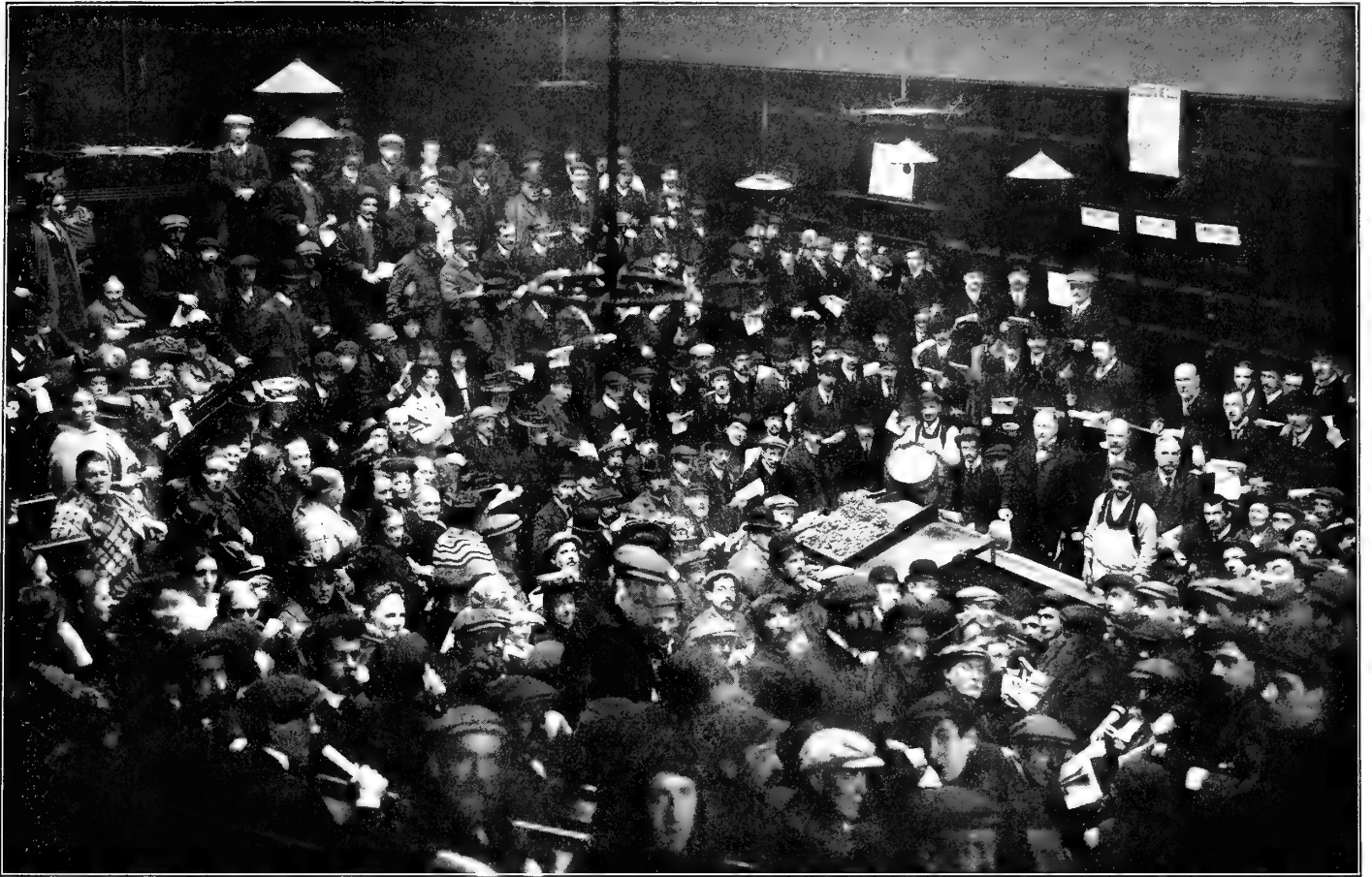
Obviously, we all want to get all we can for our products or our services, but I believe we will be better off in the end to stop now and then and think of the other fellow, especially the fellow who may be down and out, hungry and unable to take care of himself. Mind you, I am not heading a crusade to distribute fruits through a charity bureau, but I hope to live to see the day when the masses will be able to procure good fruits at more moderate prices. I am optimistic enough to believe I shall see that happy state of affairs within a decade.

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Editor Better Fruit:

The May issue of "Better Fruit" to hand, and a magnificent issue it is. Its charm can hardly be approached, and surely not surpassed. But the chief value of this, as of the other issues I have seen, lies in the practical feature of its excellent articles, written as they are by writers who are pre-eminently fitted for the task. My appreciation of Pacific Coast enterprise, and my determination to have the best published on subjects of horticulture, led me to subscribe for a publication that is the recognized leader of that young and enterprising locality, and I feel that up-to-date growers of the East could not do better than to add this journal to their list of periodicals. Wishing you merited success, I am, yours very truly, C. F. Bley, Hamburg, New York.



FINE COMMERCIAL DISPLAY OF APPLES FROM CALIFORNIA BY GARCIA, JACOBS & CO.
EARLS COURT, LONDON



AUCTION BY SIMONS, JACOBS & CO., GLASGOW, SCOTLAND, IN THEIR SALESROOM

WILMEROOTH TELLS OF EUROPEAN APPLE MARKET

FOR the benefit of those desiring information in regard to the great foreign fruit markets and the methods employed by the various fruit exchanges, Mr. Charles W. Wilmeroth has authorized the publication of the following interview. Mr. Wilmeroth is well known as a dealer and distributor of apples and pears, and represents the Simons string of houses in New York, Boston, Portland, Maine, and Nova Scotia; Simons, Jacobs & Co. of Glasgow, Scotland; J. H. Lutten & Son of Hamburg, Germany; Simons, Shuttleworth & Co. of Liverpool; Garcia, Jacobs & Co. of London; Olivet Bros. of New York, and the Stewart Fruit Company of San Francisco and Los Angeles.

The Stewart Fruit Company needs no introduction to the Rogue River Valley, as Mr. Stewart in years gone by taught the people of that valley to pack pears. Olivet Bros. are also well known in that vicinity.

Mr. Wilmeroth has traveled to the greater markets of the world, and as the result of his investigations gave the following information:

"Hamburg is the great free port of Germany, where buyers from Northwestern Russia, as well as St. Petersburg and Moscow, Northern Austria, Sweden, Norway, and parts of Switzerland, Holland and Belgium (estimated population of 127,000,000 people) regularly attend the auctions. Hamburg and its suburbs have a population of over 1,000,000 people. Prior to my visit to Hamburg I had the

impression that the German government was unfair in inspecting our apples for disease and pests, discriminating in favor of their own products and throwing the trade in that direction. With this thought in mind, by the aid of letters from the United States Department of Agriculture and through introductions by friends, I



SAM H. SIMONS, GLASGOW
Of Simons, Jacobs & Co.

was granted long interviews on two different occasions with the chief of the department of inspection, who was quite anxious to explain his desire to be fair in admitting perfect fruit into Germany without discrimination of any kind. The action of the German government in refusing diseased fruit was not unfair and was entirely justifiable when occasion made it necessary. A car of box apples for Hamburg, before being offered for sale, is carefully inspected by a department maintained for this purpose, and you must see them work to satisfy yourself of the thoroughness with which the work is carried out. From three to five boxes from each grower's lot in this car are inspected and those found free from disease or scale are passed. Any lot not perfect is marked in large letters S. J. L., which means San Jose Louse, and under no conditions will those boxes be permitted to enter Germany. They are not condemned, and buyers from any country other than Germany may purchase them and ship them to any place not in the empire. In many cases the goods bring about the same prices as those not marked S. J. L. Shipments to Hamburg are charged no duty, especially when shipped to other countries, but the purchaser must pay duty if the fruit is shipped into the German empire.

"The Hamburg fruit docks are the finest in the world, covering between forty and fifty acres of ground at present, with additions under construction. These docks are heated during the winter so that fruit can be stored and offered



TYPICAL CROWD OF FRUIT BUYERS AT A FRUIT AUCTION, LONDON, ENGLAND.

for sale with perfect safety. The goods are lifted from the holds of the vessels by huge traveling cranes, which deposit them at any desired point in the store houses.

"I consider London the largest but most erratic market of Great Britain. The volume of sales there is enormous and they will pay the fanciest prices on the best lines of goods, but, on the other hand extremely heavy shipments cause a fluctuation in the market greater than ever witnessed in the Glasgow or Liverpool trade.

"I consider Liverpool a strong, steady market, taking as it does enormous quantities of fruit and distributing it to the extensive manufacturing cities of Manchester, Sheffield, Leeds and other districts with equally as heavy a consuming population.

"Glasgow is a distributing point for all of Scotland, including Edinburgh and some portions of Northern England, and I believe can take as many high priced, fancy goods as any of the markets which I represent. I am sure that Glasgow sent back the strongest sales on Northwestern Newtowns.

"It has been stated that I thought selling fruit by auction in Europe was not the proper thing to do, but it has been the custom for many years and it will never be changed. Any persons who think they can change the customs prevailing in these countries in five years will find that their efforts will result in a dismal failure. The idea I did intend to convey regarding the sale of apples by auction was for the United States only. The past season there has been great quantities of cold storage fruit sold at auction out of season, demoralizing the general market. I have obtained the opinion of many of the old apple dealers of the United States and they agree with me that under no circumstances should apples be consigned to people who insist

on selling at public auction. With highly perishable fruit this plan is the proper one, but not with long keeping winter apples.

"Fine results were obtained by storing the goods in New York City and shipping at the right time to London, Liverpool and Glasgow, as their markets might warrant, cutting out the weak markets and shipping heavily to the strong markets. I very much doubt if results equally as good could be obtained by anyone who does not maintain a strong selling force in those cities.

"Regarding the condition of arrival of our boxed apples, I will say that I found them bruised in a great many cases and quite a number of broken boxes, caused

by a long sea voyage and a hasty loading and unloading at the points of shipment and distribution. Our firms regret that this condition prevails and suggest the only improvement to be made at this time is to use heavier tops and sides and longer nails. This extra expense on a box would be offset by the lesser quantity of broken boxes and bruised fruit. It would be well to reduce the bulge on apples for export to the minimum, as anyone can readily see in looking at the loading and unloading how apples cannot avoid being damaged when packed too heavy. On the other hand, we must be careful not to pack so light that they will reach their markets in a slack condition. The most desirable sizes are from 128 to 150, and we must not ship over 5 per cent of 3½-tier fruit to any foreign market. A good rule to follow is to ship, as near as possible, apples averaging four to the pound. I learned this by talking to a good number of retailers in all the markets I visited in Italy and France, and at this time could not recommend these countries as prospective markets for our apples, except in quantities not worth exploiting at this time."

Mr. Wilmeroth expects to leave soon on an automobile tour through the north, examining the fruit conditions in all the great growing districts on the way.

[Note: The Stewart Fruit Company is the largest independent fruit distributor in California, handling over 2,000 cars annually, and maintaining offices in New York, Chicago, Philadelphia, Boston, Kansas City and Omaha, selling at auction and private sale, confining their work to deciduous and citrus fruits and not handling apples in any form. Olivet Brothers of New York are one of the oldest, best known, strongest apple dealers in that city. They maintain a large selling force in the docks, as well as at their store on Washington street, and with these fine facilities find it possible to show fine results on their sales.]



OFFICES OF GARCIA, JACOBS & CO., COVENT GARDEN MARKET, LONDON, ENGLAND

DONALDSON QUALITY FRUIT EXPOSITION SUCCESS

MINNEAPOLIS, MINNESOTA, NOVEMBER, 1910

THIS exposition proved to be an event of much importance and one long to be remembered. Mr. L. S. Donaldson, president of the L. S. Donaldson Company, Minneapolis, Minne-

sota, sent into our midst last August his representative, Oliver D. Hefner, to solicit the co-operation of the commercial clubs in the various fruit valleys of the Pacific Northwest to inaugurate the largest and most beautiful fruit exhibition ever held east of Spokane. The entire show window space, over five hundred feet on Nicollet Avenue, Sixth and Seventh Streets, of the Donaldson Glass Block, was given over to the exclusive display of fruits. This immense Glass Block was illuminated each evening with its thousands of red, white and blue electric lights, which cover the building from the dome to the ground. This, together with the artistic display and blending of colors of the fruits, colors that can only be produced in the fruit valleys of the Northwest, presented a spectacle seldom, if ever, witnessed, and was visited day and night by many thousands of people.

SOUTHERN OREGON DISTRICT EXHIBIT AT DONALDSON QUALITY FRUIT EXPOSITION
MINNEAPOLIS, MINNESOTA, NOVEMBER, 1910

The valleys participating included Hood River, White Salmon, Yakima, Rogue River, Wenatchee, Cashmere, Okanogan, Willamette, Bitter Root and others. Each valley sent from one to three representatives, selected by the commercial clubs to give out literature and correctly answer the hundred and one questions asked by visitors. Over a dozen cars of extra fancy apples were purchased outright by the L. S. Donaldson Company and distributed during

the exposition, and were the means of creating a great demand for Northwestern fruit in that section of the country. A recipe book entitled, "One Hundred-and-One Ways of Using Apples" was

compiled and given out free by the company. The Glass Block has one of the largest and most up-to-date food and fruit markets in the United States, and is a large distributor of Western fruit. The photographs illustrating this article were chosen at random from dozens equally good, taken at the time of the exposition. For a firm of the standing of the L. S. Donaldson Company, selling merchandise of every description, to devote every window in its entire frontage on three streets to the display of apples, while other merchandise was entirely excluded, speaks eloquently of the belief of this concern in fruit raised in the Northwest. Favorable comment upon this great display and exposition was widespread, agricultural journals in all sections of the country devoting considerable space to mention of its scope and beauty.

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WE have spared neither pains nor expense in producing this issue. It will cost about \$5,000 to get out this edition. It is our honest opinion that the good it will do to fruit dealers, shippers and fruit growers—whichever you want to place first—will justify the expense, and we believe the results will be so great to everyone connected with the fruit industry that we shall receive support in the future that will justify our rational endeavor. If we fail in accomplishing what we expect to in this edition—and we do not believe that we shall—it will be the first time that "Better Fruit" has failed to realize the results it anticipated.

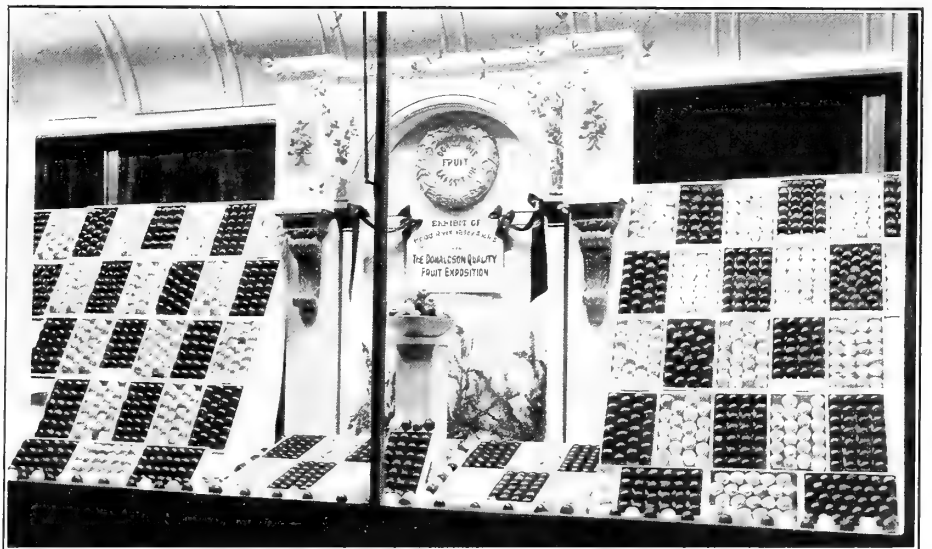
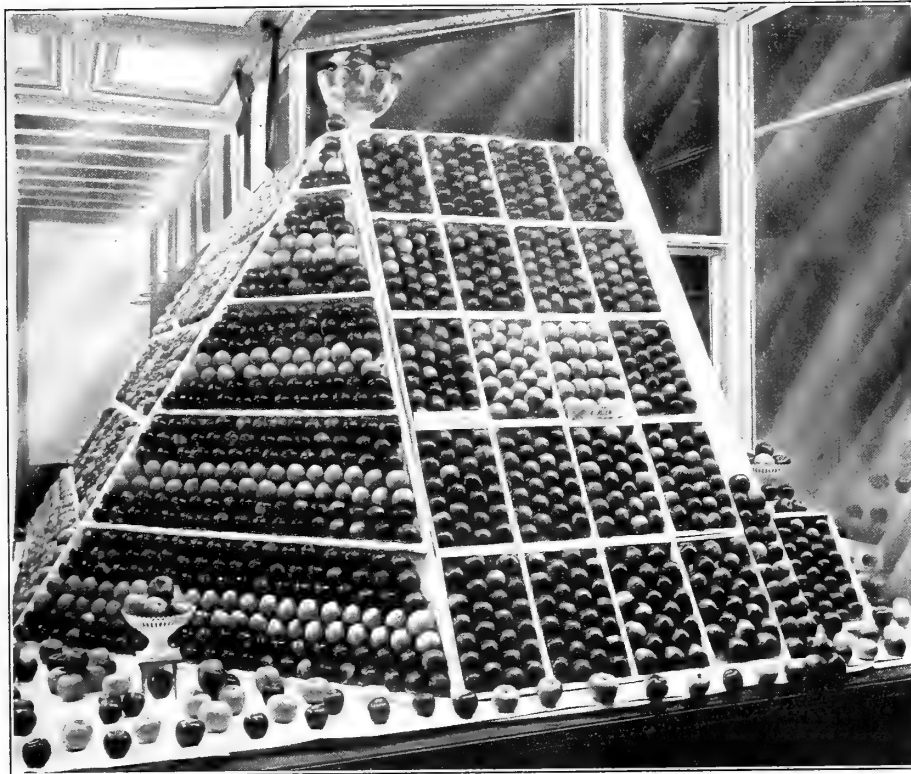


EXHIBIT OF HOOD RIVER APPLES AT THE DONALDSON QUALITY FRUIT EXPOSITION
MINNEAPOLIS, MINNESOTA, NOVEMBER, 1910

EXPORTING APPLES TO THE EUROPEAN MARKETS

THAT London, Liverpool, Glasgow and Hamburg have, in one season, imported from the United States and Canada the equivalent of 10,000,000 boxes of apples is sufficient indication that these same markets may be expected to play a large part in the problem of marketing American apples in the future.

Each of the markets referred to is influenced by conditions peculiar to itself, and which are perhaps not apparent to one who has not made a study of those conditions, some of which have direct and traceable causes, some being due to purely racial or national characteristics, while others are local trade develop-

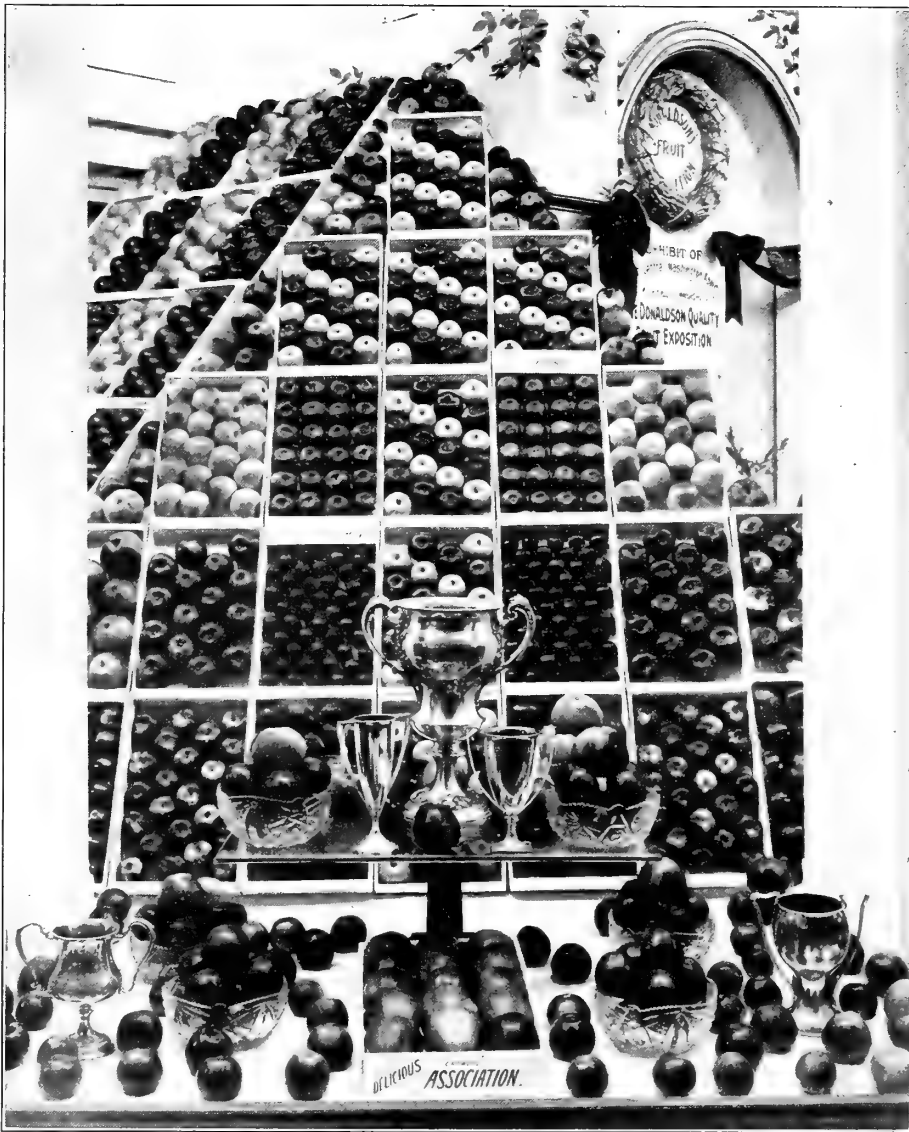


EXHIBIT OF CENTRAL WASHINGTON AND WENATCHEE APPLES AT THE DONALDSON QUALITY FRUIT EXPOSITION, MINNEAPOLIS, MINNESOTA, NOVEMBER, 1910

ments which can in no way be accounted for. The space allowed for this article does not permit of full treatment of what has been referred to, but as illustrations the system in some markets of returning empty packages, the preference in one market for small apples and in another for red varieties, the San Jose scale restrictions in Germany and the almost total lack of native fruit in Scotland may be mentioned.

Europe is also supplied with fresh apples from South Africa and Australia, while the native production is very large in some countries. The quantities and marketing period of the principal varieties from these latter sources, as well as the conditions referred to above, all have a very important bearing on the demand for certain varieties at certain times from America, so that the folly of exporting with little or no knowledge of market requirements and supplies, with the blind hope of coming out right, is apparent. Some poor results obtained in the past from such procedures are largely responsible for the wails of the opponents of this trade.

The principal feature of the European markets of interest to apple growers in

the Northwest is the reception which they will in the future extend to boxed fruit. There is a too general impression among these growers that the Newtown is the only variety they produce that is suitable for European shipment. That

this theory is all wrong was effectively demonstrated during the past season.

There has been, and for perfectly legitimate reasons, a prejudice in Europe in favor of barrels, but the excellence of the fruit itself and the possibility of delivering it in better condition are rapidly promoting the popularity of the box as a carrier. For export a box a little wider and not quite so high as the one now in use and a pack with little or no bulge are recommended.

The cost of transportation across the continent is a problem worthy of serious consideration. California oranges that are exported pay ten cents per one hundred pounds less railroad freight than the same goods destined for local consumption in Eastern cities. A similar concession on apples would make it possible to export an enormously increased quantity with no diminution of average net results, and the relief to American markets would be correspondingly effective. W. M. French, of Simons, Shuttleworth & French Co., New York.

It is our hope and belief that this edition will be of benefit to everyone connected with the fruit industry, and we trust, and believe, that every advertiser in "Better Fruit" will get results that will repay him many fold for the cost of his advertisement.

VEHICLE SPRINGS.—It is the attention to small matters about the farm that makes the difference between success and failure. Not the least of these is the equipment of the heavy farm wagon with springs. A good pair of bolster springs will frequently save their cost on one load of fruit, vegetables or eggs, or in fact on any article spoiled by the jolt and jar of rough roads and springless wagons. They add greatly to the usefulness of any vehicle. They save repair bills—make the pulling easier, effect a saving of harness, and add to the comfort of the driver. We have often been asked: "What are the essentials of a good spring?" A heavy truck spring must be live and resilient, yet tough and durable. It must be properly constructed and tempered for its special function, that of doing heavy work slowly. It must be strong and easy-riding. For the heavy farm wagon the bolster spring is best suited to the needs of the farmer. It has all the essentials of a good spring and can be put on any standard wagon with but little trouble. A pair of bolster springs will last a lifetime and give excellent service all the while. No farmer can afford to be without them, as he can now secure first-class springs for any farm wagon at a very reasonable price. An especially good spring of the bolster type is manufactured by the Harvey Spring Company of Racine, Wisconsin, which will no doubt be glad to give you any information on springs you may desire.*



FRUIT AND PRODUCE PUBLIC MARKET, INDIANAPOLIS, INDIANA

LEADING APPLE MARKETS OF THE MIDDLE WEST

ADDRESS BY R. H. PENNINGTON, AT WESTERN JOBBERS' MEETING AT SACRAMENTO, CALIFORNIA, FEBRUARY 15, 1911

WERE I to undertake to locate "The Middle West" I should say it is bounded on the west by Samuel E. Lux and T. D. Turner, on the north by Ross A. Gamble and E. P.

and in the boxes pack limbs, leaves, bark, etc., and continue to mark the box three and one-half tier extra fancy, the trade of the Middle West is likely to drift back from whence they came, to Western

are having better care, and vast improvement is being noticed in packing and grading.

Short barrels in the East have been the greatest menace that the trade has known in former years, but they have practically been eliminated and a standard barrel in the East is now absolutely known to contain three standard bushels, and the Middle West demands a full bushel box also. Western growers should take heed and get to a full bushel box before there gets to be too much prejudice against short boxes. If seven-eighths of a bushel sells for \$2 10, then at the same rate only, a full bushel would sell for \$2.25, therefore pack full bushels and get paid for a bushel instead of seven-eighths, for when we can't guarantee a full bushel the trade is hard to convince that there is even seven-eighths, and it is hard to get the relative value for what the box actually contains.

Chicago is the largest distributing apple market in the world (even larger than Evansville). Also in this Middle West there are a great many more large distributing centers, most of which are well located on trunk lines East, with excellent storage facilities and inhabited by the liveliest bunch of fruit jobbers on the American continent. These jobbers are members of the Western Fruit Jobbers' Association and are ready to cooperate with the dealers and the growers in this Western country for the advancement of the apple industry. Give us justly graded and honestly packed fruit in full bushel boxes and the future of the Western apple is assured. But the dealers and the consumers are getting



The financial rating of the Bigalow Fruit Company of Cleveland, Ohio, according to mercantile agencies, stands very high. They are members of the National League of Commission Merchants. They probably handle over 1,500 cars per year, being large handlers of apples, oranges, peaches, and in fact all kinds of fruit and produce, and as will be seen by referring to their ad in this edition, they give first-class references and represent a number of prominent associations, fruit distributors and exchanges all over the United States.

Stacy, on the east by William L. Wagner, N. G. Gibson and Charley Kerr and on the south by Sam Segari and Jac Stich. This area would, in my opinion, take in the principal consuming and distributing markets of the Middle West.

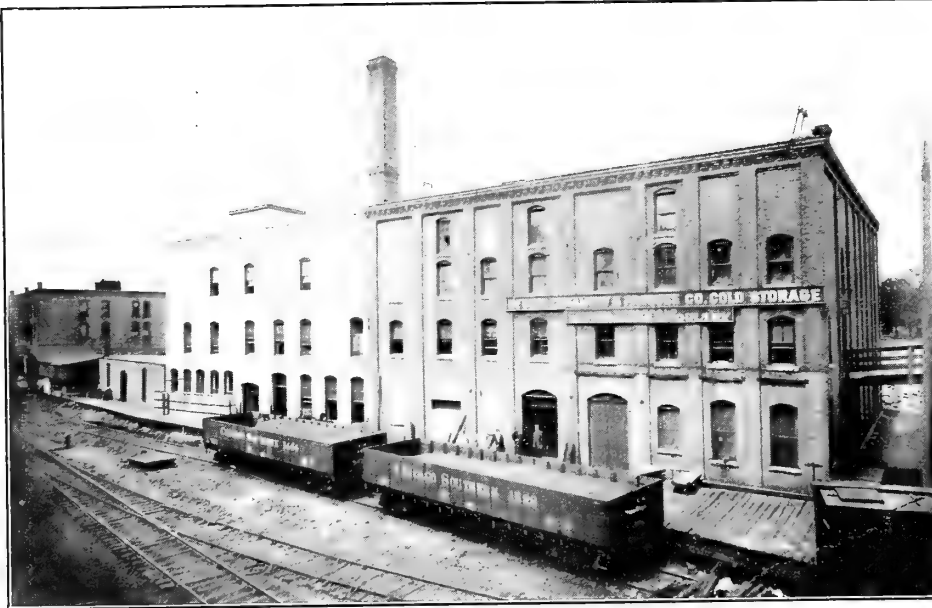
It has been only a few years since this entire section, with the possible exception of a few markets like Kansas City and other points in that immediate vicinity, looked entirely to the East for their apples. Even the short time I have been in business the growers in Western New York, Virginia and New England have always waited until the prominent buyers from Chicago, St. Louis and Evansville had looked over their orchards before they were ready to talk business. But things have changed wonderfully in the last five years. The trend is westward, and the Kansas City, Chicago, St. Louis and Evansville operator is now looking to the West for his supply of fancy apples.

Now, there is a reason. The Eastern growers had their way so long and had gotten the idea in their heads that the Middle West had to go East for their apples. The Eastern growers got so very careless and independent that the trade naturally drifted to newer and better fields in the Northwest, and the result is that within a comparatively few years the West has taken the lead in the apple industry. But to the growers in the West and the Northwest I want to say that if they continue to use short boxes,

New York. The Eastern growers are already alert to the situation, and new orchards are being planted, and orchards



INTERIOR VIEW OF MARKET HOUSE—SHERIFF STREET MARKET AND STORAGE COMPANY, CLEVELAND, OHIO



DE SOTO CREAMERY AND PRODUCE COMPANY, 69 NICOLLET STREET, NICOLLET ISLAND, MINNEAPOLIS, MINNESOTA

"Our cold storage rooms are modern, having been entirely rebuilt the past year. They have a capacity for 150 cars of apple storage, and also have the best switching facilities in the Twin Cities, as we can place seven cars on our own switch track to be loaded or unloaded, and as we are on the main tracks of the Great Northern it entitles us to the best switching service to be had anywhere."

more discriminating every season, and the public will not continue to pay their good money for poorly graded, carelessly packed fruit.

This Middle West until recently has been very loyal to the barrel as the logical standard for apple packing. The box is just getting a real substantial foothold in the Middle West, especially the southern portion of this section. Five years ago Evansville handled possibly fifty boxes of Western apples. Four years ago possibly one hundred boxes, while three years ago the entire market probably used as much as a carload. Two years ago there were possibly as many as five cars and last season as many as ten cars, while for the season

of 1910 and 1911, the present season, the market will use almost as many boxes as barrels. This shows the rapidity in which they are growing in favor in at least one market in the Middle West, and the same is true of other markets. Their popularity is also growing in the Southern markets, and we are now selling box apples daily in markets which a few years ago would not touch them.

Missouri, Arkansas, Indiana, Illinois, Kansas, Oklahoma, Indian Territory and Nebraska are known as the Ben Davis group, and there are people who yet think that the Ben Davis is a real apple. In the Middle West it is grown to a good size, and with seasonable weather has much better color than the Ben Davis from any other section. The barreled Ben Davis is very popular in the South, where they don't care what color they get, just so it is red. Illinois, Kentucky,

Virginia and several other Central States raise some excellent Winesaps, and orchards are being put out in all of these sections. Henderson County, Kentucky, in ten years will be a factor in fancy Winesaps. Virginia is known for its York Imperials, and there is no other place on earth where we can get as good Albemarle Pippins. Illinois gives us some very high quality Jonathans. These apples are mostly marketed in the Middle West markets, and mostly in barrels.

The demand for apples is growing, and we need more fruit and better fruit, and if the West will give us good stuff the Middle West and the dealers in these markets will market them intelligently and profitably to the grower, shipper and themselves.



D. CROSSLEY & SONS
Commission Merchants Apples for Export
200-204 Franklin Street, New York

June 16, 1911.

Editor Better Fruit:

We have your favor of the 31st ult. acknowledging receipt of photo which we sent, also the few lines as to the opening of our London house. With further reference to this we would say that for several seasons past we have had the handling of the Davidson Fruit Company's pack of apples on the other side. We would also say that during the past season we were the heaviest exporters of boxed apples during the time when the highest prices were ruling on the other side. We also have the distinction of having the longest export season of any of the exporters, our shipments out of New York running from July 29, 1910, to May 10, 1911, the month of June being the only month that we did not export. While we did a much larger business in the handling of boxed apples in New York, our export business did not suffer by the increase in the New York business. We are trying to use both home and foreign markets in a way that will best serve the shippers' interests, and, in our opinion, the greatest need in the apple business is co-operation between the shipper and the receiver or distributor. While the shipper will always agree that the receiver should act with him, he does not realize that the shipper or grower can aid the receiver very materially in the marketing of his own crop by advising with the receiver and giving him full information as to time of shipments, varieties, quantity etc., so that the distributor can act more intelligently as to the markets, etc. We are strong advocates of the use of both home and foreign markets, and believe that the foreign market is bound to act as a balance wheel in the apple industry, not only for the present time, but for years to come. With this end in view, we are trying to cope with the situation as we find it.

Very truly yours,
D. CROSSLEY & SONS.



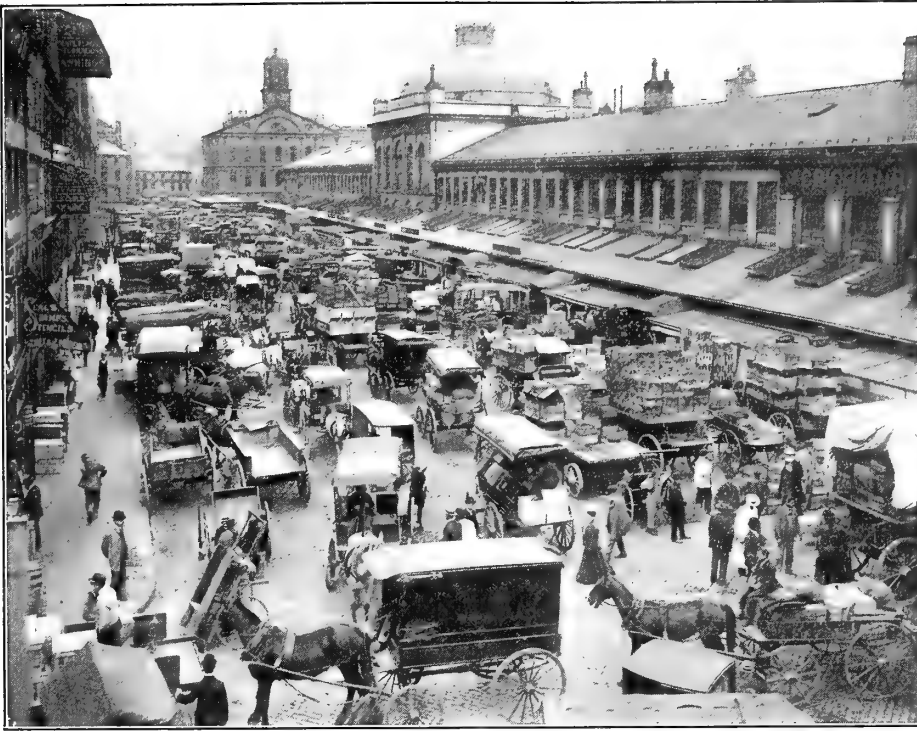
W. B. CLORE

Vice President and General Manager
Crutchfield, Woolfolk & Clore, Chicago, Illinois
The firm of Crutchfield, Woolfolk & Co., the parent house, is located in Pittsburg, Pennsylvania. These two firms have a large list of connections and do a large distributing business in car lots all over the United States.



THE EVANS & TURNER COMPANY OF COLUMBUS, OHIO

Whose advertisement appears in our columns, is one of the pioneer houses of Columbus, established in 1878 and incorporated in 1909. Mr. O. M. Evans, one of the original partners, is president, and associated with him are some of his employes of years. They want Western connections on apples.



FANEUIL HALL MARKET

"Sands, Furber & Co., Inc., are located about in the center of the market, occupying stalls 88, 90 and 92, which are operated as hotel and retail supply departments. Our wholesale business is done in cellars 16 and 17, giving us the largest frontage on the street of any firm in our line of business and enabling us to back up to our own sidewalk seven loaded trucks at one time."

APPLE OUTLOOK GOOD IN EUROPE

THE outlook for the apple business in England is very promising. The British public is gradually, though surely, recognizing the fact that the apple is no longer a luxury but a necessity, and apples are now consumed in almost every home. This is encouraging news for those who have orchards soon coming into bearing, and proves an adequate answer for those who hold pessimistic views of the future in reference to a possible stage of overproduction.

It has been a splendid Australian apple season this year and some very high prices have ruled right through, although large supplies have been coming to hand every week.

We have had an excellent Australian season ourselves, and handle all consignments by private treaty only, as we find this method of selling is the best for all parties concerned, the fruit being sold entirely on its merits. Yours faithfully, Ridley, Holding & Co., London.



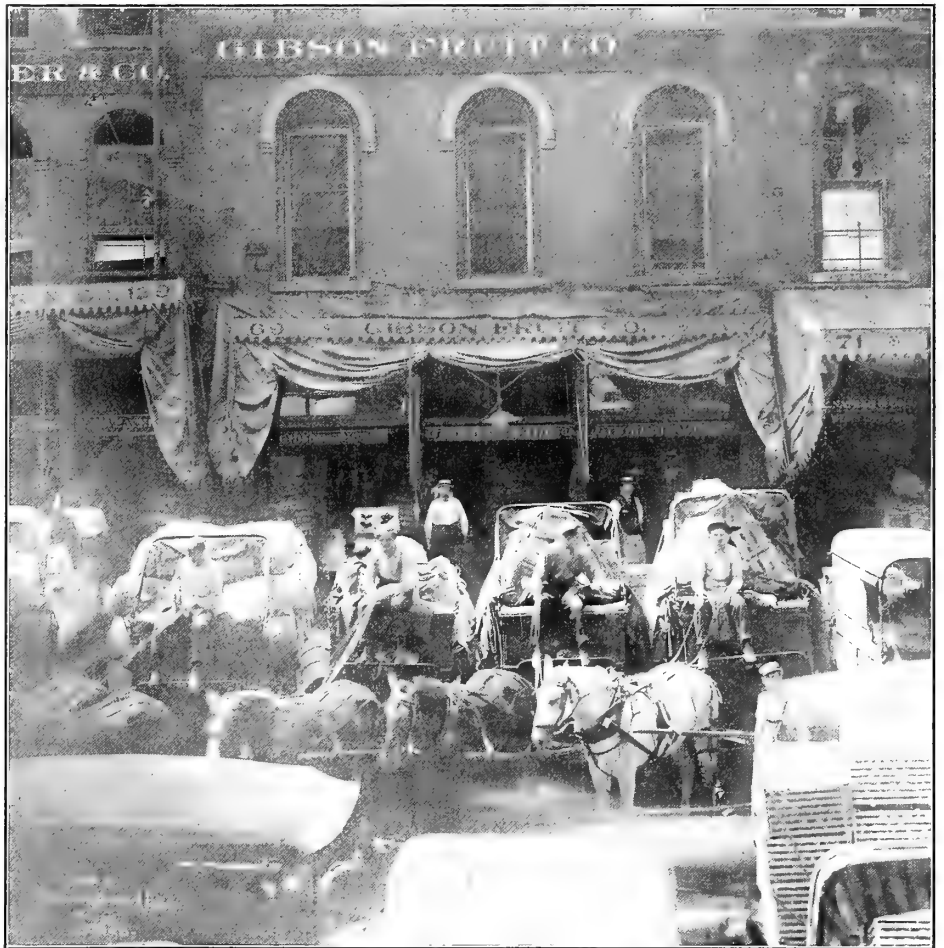
CORRUGATED PAPER FOR PACKING

MAY I be permitted to offer a suggestion to the fruit grower whereby he can improve upon the carrying qualities of his apples or pears when packed in boxes and at the same time overcome having bruised fruit on the face, or pressed end? If a sheet of corrugated paper or board is placed in the box and the fruit placed on the smooth side and a sheet placed on top of the fruit, smooth side down, before nailing the top on it will overcome having bruised fruit. Corrugated paper, being soft and pliable, allows the fruit, when pressure is put on, to imbed itself to the depth of about one-eighth of an inch.

This holds the fruit in place and does not allow it to come in contact with the wood. The use of corrugated paper overcomes having black marks on pears. These marks are caused by the pears getting bruised by coming in contact with the rough surface of the wood. Last year the progressive fruit growers in the East used over two million sheets of corrugated paper for the face and pressed end of their apple barrels, as well as a large number of sheets for use in their boxes. The cost of using corrugated board in boxes is a mere trifle compared with the protection it gives to the contents of the package. If any of your readers are interested in seeing samples of corrugated paper or board I would take pleasure in sending same. Respectfully, G. P. Read, 199 Duane Street, New York.



SPOKANE INDUSTRIAL FAIR will be held in Spokane from October 2 to 8, 1911. Premium list will be sent on request. We regret that they are offering so many premiums that "Better Fruit" has not space enough to spare to give the list. Inasmuch as the National Apple Show of Spokane will be held in some Eastern city, fruit growers in the interstate districts should show their local pride by making splendid displays of fruit at the Interstate Fair.



FRONT VIEW OF GIBSON FRUIT COMPANY'S STORE, CHICAGO, ILLINOIS

This is a characteristic scene at this store, with wagons, trucks, etc., crowded in front, some loading and some unloading. The first floor is 30x160 feet and given up to a salesroom, and there is a duplicate first floor cold storage area across an alley to the rear. Offices are on the second floor, while the third and fourth floors are devoted to cold storage, as is also the basement.

MARKETING PROPOSITION AS AFFECTING PRODUCER

SPECIALLY CONTRIBUTED TO "BETTER FRUIT"

ONE of the most difficult propositions placed before a dealer is to be asked to define clearly the relations existing between his end of the business and that of the producer. Not only is it difficult to answer a number of serious questions which come up from time to time, but the suggestions and advice given are bound to be looked upon in a different light, both from the standpoint of the writer and that of the reader, who naturally has preconceived notions of what is or what ought to be.

procuring of hired help, but who will also take care of the selling of the products of their members.

Where there is a union and the board of directors of that union has no one in its membership who can act as sales manager, then it is time for that union either to close up shop and go out of business or hire a thoroughly competent man to take care of its sales department. In fact, to sum up the entire marketing proposition, which is now the most important problem confronting the pro-

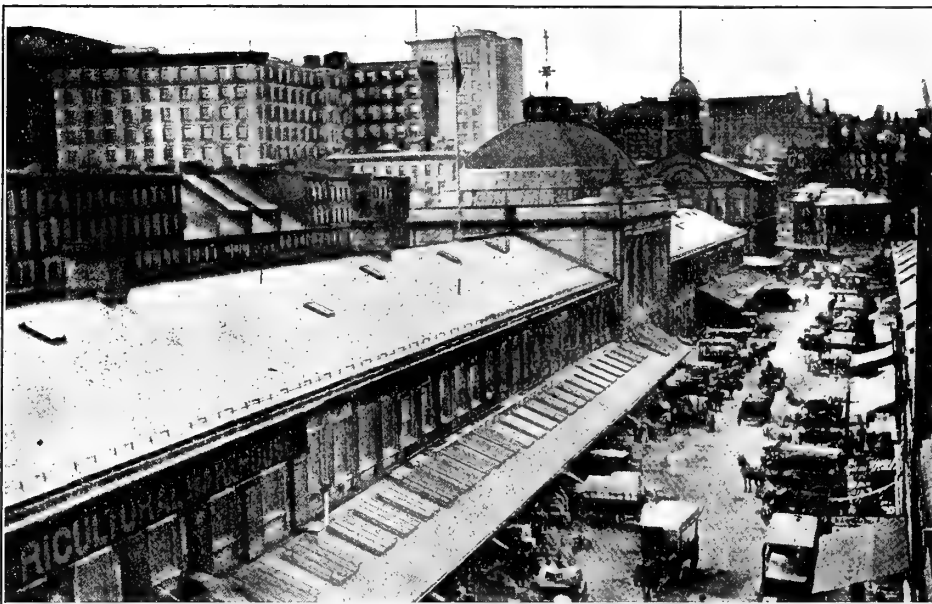
ducer, the only salvation for the farmer is the selling of his produce on a strictly f.o.b. basis, and this can only be thoroughly accomplished through the medium of the co-operative union in the different districts.

The old proverb that "In Union There is Strength," is as true today as it ever was. Therefore, the growers of every district are advised to get together—get together—form unions, form them on a strictly co-operative, honest business plan, pack your fruit to the very best of your ability, and then try to pack it better and better every year. Cater to the cash f.o.b. buyer—don't do anything to keep him out of your district, but do everything possible to get him to come year after year. Regulate your prices so that it will pay him to come, and give him a chance to make a legitimate profit. If you do that it will only be a matter of a year or two when all your crops will be sold long before they are matured, and you will indeed live in a land flowing with milk and honey.

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THE object of "Better Fruit" is to improve the fruit industry, to ascertain all new methods in combating fruit pests and diseases, to advance improved methods of packing and to give the fruit grower a better understanding of marketing problems, so far as we are able. With this object in view, our assistant editor visited a large number of the important fruit cities in the United States. We have asked the different fruit dealers to write articles for us explaining their marketing conditions.

Among the fruit dealers visited was Barnett Brothers, South Water Street,



MARKET DISTRICT OF BOSTON, MASSACHUSETTS, SHOWING NORTH MARKET STREET, QUINCY MARKET, AND FANIEUL HALL, SO FAMOUS IN HISTORY

The jobbing houses occupy the first floor, which is a semi-basement, and entire sidewalks. The retail markets are located in the interior of the building on the first floor, and in the second story are situated the offices and the large meeting room for the fruit trade.

Thus let us start from the very beginning. Just as long as the world continues to go around there must be someone to produce and someone to dispose of the products, for it is practically impossible for the producer to keep in continuous touch with the consuming public by direct connections. For this reason the commission merchant has become an important factor, distributing and selling fruits and other produce for the benefit of his clients, the producers.

However, within the last few years there has come quite a change over the methods of doing business—a great many districts throughout the United States pooling their crops on a co-operative basis and appointing sales agents, or selling their crops strictly to buyers from the larger markets on an f.o.b. basis. The last mentioned method of disposing of large crops is absolutely the only sane and sensible way of marketing the products, and this can only be accomplished by organizing unions throughout the producing sections. The well managed and honestly conducted union is the solution of the marketing problem. Of course, when referring to unions we mean the unions that not only take care of the packing and the multitude of other details, such as supplies and the



F. J. POMEROY LOOKING OVER HIS STOCK

The F. J. Pomeroy Company, 84 Detroit Street, Milwaukee, Wisconsin, is one of the firms of that city doing a large business, particularly in barrel apples, handling about two hundred cars of barrels from Western New York, and making a specialty of their own pack. It is their claim to give the trade a square deal in every way and in order to carry out their aim they state that they prefer to do their own packing. The firm is also engaged in the exporting business to foreign markets, with large trade throughout the central West, but more important than this to the readers of "Better Fruit," as the bulk of our subscription list is west of the Mississippi River, is the desire on the part of F. J. Pomeroy Company to make connections with box apple producers of the Northwest and also the central states. They apologize for the appearance of the cut, as the photograph was taken in one of their cooling rooms by flashlight and was snapped unawares. They are anxious to make connections in the Northwest and will be pleased to receive correspondence, and state that it will be a pleasure for them to give full information regarding their system of doing business to anyone who would be interested in seeking a market.



SCENE SHOWING WHERE FRUIT, PRODUCE, ETC., IS UNLOADED ON THE MISSISSIPPI LEVEE AT ST. LOUIS, MISSOURI

Chicago, Illinois. Their establishment is one of the large ones in the Chicago market, and the space devoted to handling and selling fruit considerably larger than that of many other firms. They occupy two large stores, which enables them to dispose of an immense volume of shipments. They claim they have a dozen wagons continually hauling less than carload consignments, arriving daily. In addition to this they also do a large carload business, which is handled with ease and in a way which gives evidence of a thorough organization and up-to-date business methods. Their salesmen are energetic, intelligent and excellent judges of fruits and vegetables. Barnett Brothers are doing an extensive business not only with the city trade but with the country trade as well, and it is a well known fact that the country trade is very valuable to large fruit dealers as distributors. A firm with a good out-of-town trade can make shipments to outside points to splendid advantage when local conditions are suffering from over-supply.

This firm invites correspondence and will be glad to have anyone interested in establishing connections for marketing Western fruits write them in order that they may enter into correspondence and fully explain their system and methods for handling fruit so as to get proper results. Their statement is that they are one of the firms that have aimed to hold trade secured not by promises, but by deeds. The Continental Commercial National Bank of Chicago is the banking house of Barnett Brothers, and a letter addressed to that bank will bring any grower or dealer any additional information they may desire regarding Barnett Brothers.

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THERE are many ways for a fruit grower to dispose of his crop. He can market through a local association, sell it to some local dealer, sell it to some Eastern buyer, ship it on commission, dispose of it on guarantee advance or he can ship to be sold at auction imme-

diately. Another method of disposing of fruit is through exchanges or distributors. Of these there are two classes, one the incorporated company, conducted the same as any other line of business to a great extent, and the other style is through exchanges or distributing associations, which are run on the co-operative plan, many of the stockholders and directors being fruit growers. Local associations are sometimes banded together as district associations, which is another means of disposing of your fruit crop. Your association can dispose of your fruit on the f.o.b. basis, consignment or on guarantee account. A part of your fruit crop can be sold for immediate delivery and part you can place in cold storage at "in transit" points for future sale.

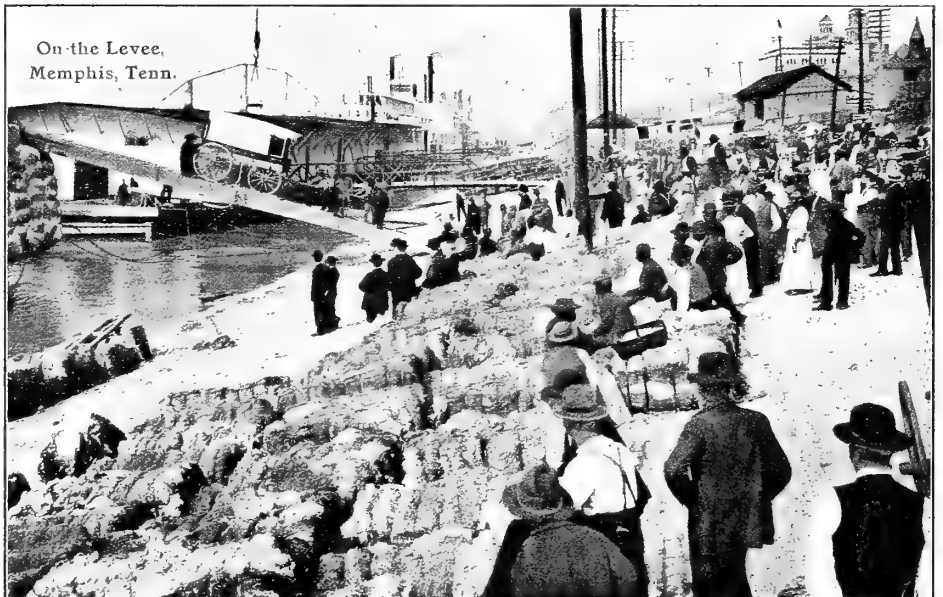
We have endeavored as far as possible, in the July issue, to present the views of fruit dealers on the various methods of selling fruit and to have them express

their opinions about the fruit industry in general. The August edition will present the views of the fruit growers as far as we are able to obtain them in the limited time before going to press. We believe a better condition will result when the fruit growers read the dealers' edition in July and the fruit dealers read the growers' number in August. "Better Fruit" has seen fit to produce two editions in succession which, in many instances, may be in direct opposition, but as a result of which, we trust, will spring up harmony of action along substantial lines that will benefit both the fruit grower and the dealer.

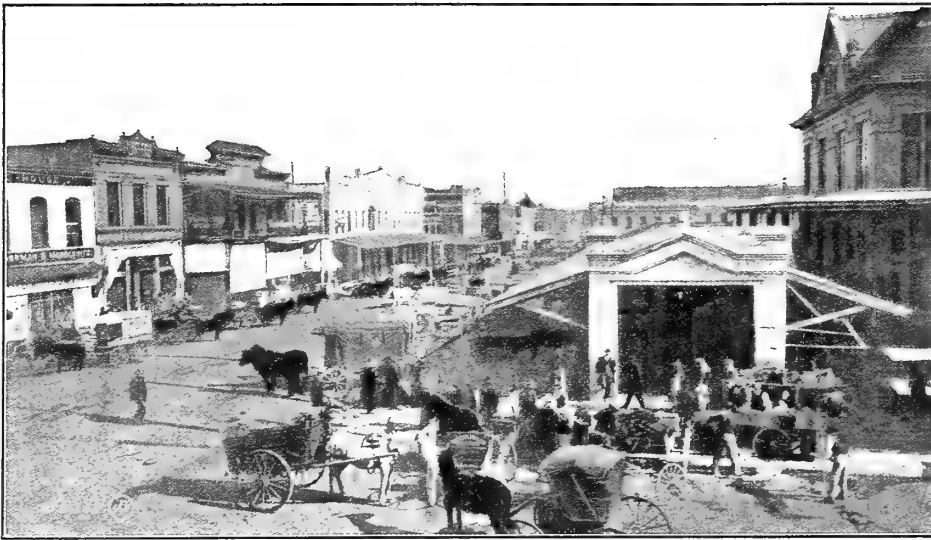
This year probably more experiments will be tried in the marketing of fruit than in any previous year of the business of the Northwest; more plans will be tried, and the results, of course, remain to be seen. We believe the July, August and September numbers will give so much valuable information in connection with the marketing and selling of fruit that the many plans of marketing advanced will furnish such information that the final result will be some harmonious plan of selling and distributing fruit by which both the grower and the dealer will profit in succeeding seasons. It is only by the careful weighing of many ideas that the "greatest good to the greatest number" can become an accomplished fact.

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PRACTICALLY all of the articles in this edition are written by Eastern fruit dealers, giving their individual views on the different marketing and selling plans. Most of them have advertisements in this edition, giving their postoffice addresses, and will be pleased to receive correspondence from association managers or others who are seeking opportunities for their output. The association number of "Better Fruit" will be the September edition, in which we will endeavor to furnish as complete information as possible along fruit shipping and



ON THE LEVEE AT MEMPHIS, TENNESSEE, DURING THE COTTON SHIPPING SEASON
 FRUIT IS HANDLED AT THIS PLACE DURING THE FRUIT SEASON



THE MARKET HOUSE, IN THE FRUIT AND PRODUCE SECTION OF HOUSTON, TEXAS

market lines through articles written by officers of the different associations and by others who have been prominent in shipping the output of fruit from the Northwest.

In the September number we shall try and give some advance statistics with reference to the number of carloads of each kind of fruit already shipped by the associations, the number of carloads already shipped outside of the associations and the number of carloads of each kind of fruit which the associations expect to market during the balance of the year as well as the number of carloads of different kinds of fruit that will be shipped from different districts outside the associations. We realize in advance that it is early to supply definite data along these lines, but we are giving the different districts an opportunity to express their views for the benefit of themselves and the fruit dealers.

In the September issue we expect to have the matter condensed so that we can give a very reliable estimate of the



FRUIT AND PRODUCE SECTION, LOUISVILLE, KENTUCKY



LEXINGTON PUBLIC MARKET, BALTIMORE, MARYLAND

number of carloads of apples that will be marketed from each district and each state during 1911. These two numbers ought to be very interesting to both the fruit grower and the fruit dealer. The better the fruit dealer and the fruit grower become acquainted the more satisfactory their exchange of information will be, consequently better results will follow for both.

MR. FRUIT DEALER, if you want Northwestern fruit to sell there is no question about the advisability of your advertising in "Better Fruit"—it will get you results. We know this from fruit dealers who have advertised with us for five years, and who have increased their space regularly. It will get you results because we have an immense subscription list in the Northwest and quite a good list of subscriptions of fruit growers throughout the Middle West and Eastern States. All these people are

looking for markets. By advertising you will get in touch with them through correspondence; this will bring you the business. The July edition is 15,000 copies. We publish 14,120 copies regularly every month, and we can furnish sworn statements as to this number from ourselves and from our printer. "Better Fruit" is exclusively a fruit paper, and, therefore, it has no waste circulation as affecting your business. No man or firm buying in car lots can fail to get results from their advertising in "Better Fruit" if they give the correspondence proper attention, and we would suggest there is no better way of supplementing this advertising and correspondence than by personal visits to become acquainted with the fruit growers, and to learn what the different districts in the Northwest have to sell.

Editor Better Fruit:
I thank you for the copies of the January, February, March and April issues of your publication. There is no question about the value of the work you are doing for the fruit industry in the Northwest. With kind regards, and wishing you continued success, I am, yours very truly, A. M. Cleland, St. Paul, Minnesota.

O. E. Spooner

94 South Market Street
BOSTON

Car Lot

Deciduous and Citrus Fruit Distributors

Connections in Principal Foreign Markets



NO ACCOUNT TOO LARGE

Distribution Through Auction a Specialty. Sales Every Day

Check and printed account sales mailed day following. No drafts turned down; no adjustments to be made; you are guaranteed value received; each size and brand sold on its merits. Daily attendance at sales around two hundred from all over New England. ARE YOU INTERESTED?

**Boston, the Hub and Center
of Distribution**

ASK

The Produce Reporter Co. Chicago
The Better Fruit Publishing Co. Hood River
The Packer New York
The Pink Sheet New York
The Green Sheet Philadelphia
Anybody Anywhere

The Autocrat of the Breakfast Table—King of Table Apples

THE HOOD RIVER NEWTOWN

AS SOLD BY STEINHARDT & KELLY



STEINHARDT & KELLY, New York

Handled practically the entire output of this most magnificent of apples
as packed by the Hood River Apple Growers' Union

WHEN WRITING ADVERTISERS MENTION BETTER FRUIT

HOOD RIVER SPITZENBERGS



STEINHARDT & KELLY, New York

The Fruit House "Par Excellence" of the Western Hemisphere

The high standing and long experience of this firm place them at the very top of the
FRUIT MERCHANTS OF THE WORLD

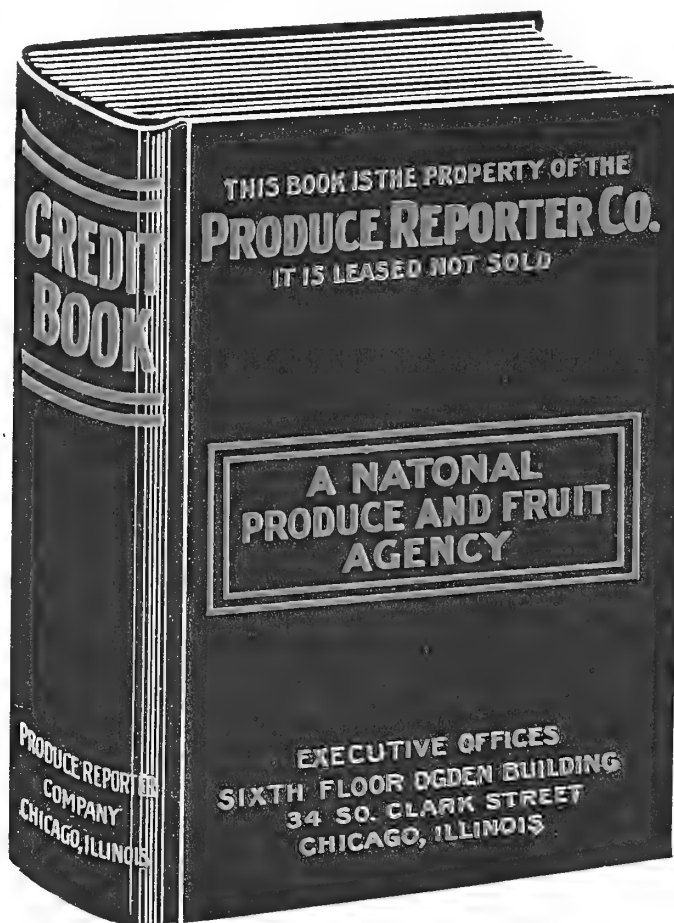
WHEN WRITING ADVERTISERS MENTION BETTER FRUIT

HOW IS HE RATED?

The recognized authority on the financial and credit standing of the Wholesale Fruit and Produce Trade is the

Produce Reporter Co.'s Credit Book

It shows their specialties, volume of business, financial responsibility and credit standing, based on actual "experience" of their distant customer



Size
7 1/2 x 11 1/2 x 3 1/2
inches
1430 pages
Weight 8 lbs.

Trading Members,
Bonded Commission
Merchants,
Bonded Brokers
in
Black Face Type

A National Protective Organization's Reference Book

ADJUSTERS in every market of importance in the United States to inspect adjust or resell rejected shipments.

WELL ORGANIZED Collection, Legal, Railroad Claim and Arbitration Departments.

What it is doing for others it can do for you. **WORTH INVESTIGATING.**

Yours truly,

Produce Reporter Co.
CHICAGO

Tear this off and mail to
Produce Reporter Co., Chicago
Send us terms of membership and explanation of benefits.
Signature

Address



SMALL CORNER OF SALESROOM, J. & G. LIPPMAN, INC., SHOWING MR. LIPPMAN TREASURER OF THE COMPANY

Mr. Lippman (marked A) has control of the sales and gives each detail of the department his personal supervision. Thus with officials of the company overlooking each department personally, the interests of shippers are securely safeguarded. Those marked B are the regular salesmen of this concern.

SPEAKING OF WEALTH, Pittsburg, Pennsylvania, has more than any city of its size in the world. It is the second city in the United States in banking capital and surplus. It has a jobbing market serving ten million people, and doing an annual business of \$1,000,000,000. The annual payroll of Pittsburg's manufacturing establishments is \$500,000,000, having five thousand manufacturing plants, employing three hundred and fifty thousand operatives, and the amount of capital invested in these work shops is in excess of \$1,000,000,000. Western Pennsylvania does not produce any fruits or vegetables worthy of mention.

The above facts should be of interest to Northwestern fruit growers. Crutchfield & Woolfolk, Pittsburg, Pennsylvania, are, and have been for years, the leading factors in Western box apples and Northwestern deciduous fruits. They occupy a commanding position in the Pittsburg district, and their trade also extends to all parts of the country. They own a large, well equipped and splendidly located store room in the heart of the Pittsburg produce district.

ONE of the largest concerns in the country is E. P. Stacy & Sons, of Minneapolis, Minnesota. Besides doing business in Minneapolis and St. Paul under the firm name of E. P. Stacy & Sons, they have twelve associated houses as follows: Stacy Fruit Company, Fargo, North Dakota; Stacy Mercantile Company, Valley City, North Dakota; Stacy Fruit Company, Bismarck, North Dakota; Stacy Fruit Company, Carrington, North Dakota; E. P. Stacy Fruit Company, Watertown, South Dakota; E. P. Stacy & Sons Company, Mason City,

Iowa; Stacy Fruit and Produce Company, Albert Lea, Minnesota; Stacy Bros. Fruit Company, Lincoln, Nebraska; Davidson Bros. Company, Des Moines, Iowa; Davidson Bros. Company, Fort Dodge, Iowa; Davidson Bros. Company, Marshalltown, Iowa; Davidson Bros. Company, Moberly, Missouri. The Twin Cities are large consumers of fruit and

E. P. Stacy & Sons supply a large territory with fruit, not only in the entire state of Minnesota, but in North Dakota, South Dakota, Iowa, Missouri and Nebraska. The list of branch houses indicate the immense business done by this firm.

AS a fruit enthusiast Mr. Clinton L. Oliver of Denver, Colorado, holds a peculiarly distinctive position, and is doing excellent work for the fruit grower in many ways, particularly in the Colorado section. He was first manager of the National Apple Show held at Denver and afterwards became one of the editors of the Intermountain Fruit Journal, one of the nicest papers which comes to the editor's desk. It is gotten up beautifully typographically, giving lots of practical information relative to the district in which it circulates. In addition to his other duties, Mr. Oliver has accepted the position as secretary of the American Apple Congress and is now working hard to hold the National Apple Show in connection with the American Apple Congress meeting during the coming year. He has done much in a publicity way and therefore deserves the thanks of people connected with the fruit industry, for the main compensation in publicity work consists in glory and not in dollars and cents.

Editor Better Fruit:

Apropos your article entitled "A Prominent Northwestern Fruit Grower," page 73 in your May issue, it may perhaps interest you to know that the records in prices obtained for the Hillcrest Orchard's brand of pears in London are held by ourselves, we having obtained 20 shillings (\$4.80) per half box for a car of 800 half boxes in October last, which was a repetition of our achievement of two years ago. We may also add that in September last we made a record price for Hudson River Bartlett pears, realizing 50 shillings (\$12.00) per barrel. Yours faithfully, W. Dennis & Sons, Ltd., London, England.



GENERAL SALESROOM, GIBSON FRUIT COMPANY'S STORE, CHICAGO, ILLINOIS

This is one of the largest stores in the West South Water Street market. The high ceiling of the room affords opportunity for excellent displays of fruits, and some of the most artistic arrangements of Western fruit ever shown in Chicago have been arranged here. This picture was taken June 21, after the heavy box apple deal was over.

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

E. H. SHEPARD

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SUBSCRIPTION PRICE \$1.00 PER YEAR

IN ADVANCE, IN UNITED STATES AND CANADA

FOREIGN SUBSCRIPTIONS, Including Postage, \$1.50

ADVERTISING RATES ON APPLICATION

Entered as second-class matter December 27, 1906,

at the Post Office at Hood River, Oregon,
under Act of Congress of March 3, 1879.

THE DEALERS' EDITION OF "BETTER FRUIT."—This number (July) is devoted exclusively to the fruit dealers, shippers, commission men and buyers in the United States. It is a special edition and contains nothing about growers' methods or orcharding in any way. The object is to present the dealers' point of view. We have extended a general invitation to the prominent dealers in about fifty large cities of the United States, and some in Europe, to write short articles for this edition, commenting upon marketing problems, that is, the selling of fruit. We have requested them to criticise the pack where faulty, to complain of grading when not properly done, to suggest and explain the selling of fruit in various cities in an intelligent way, with a view to bettering the fruit industry in general.

Our belief is that the grower should thoroughly understand the marketing requirements; if the grade is off he ought to be told, if the quality is not up to the standard he should be advised, if the pack is poor he should be notified. We believe an expression of opinion from the prominent fruit dealers of large cities in the United States should result in raising the standard and quality of the fruit shipped from the orchard. If this edition be instrumental in accomplishing this, even to a small extent, a step has been taken in the right direction. If the fruit dealer, jobber, commission man or seller is intelligently supplied with quality fruit in

accordance with market requirements it seems that it is reasonable to expect that he will obtain better prices, and consequently make more money. If the dealer can get better prices it cannot help but benefit the grower, but the grower and shipper must understand all these features to know what to ship, how to ship, when to ship and where to ship.

A great many of the firms we have invited to furnish articles have complied. A few requests have not been complied with at this writing, but as it is ten days before we go to press it is our sincere hope that every dealer invited to contribute an article to "Better Fruit" will have done so. Those who have been asked to contribute and have failed to do so, or have failed to get their copy to our office before we go to press, will be given the privilege of writing an article for the August edition, or if their article has been written and received too late for publication in July it will appear in the August number of "Better Fruit."

Mr. Fruit Dealer:

The July edition is a sample copy of "Better Fruit." While most of the articles in the different editions, as a rule, refer to fruit growers' methods, you will find considerable reading matter that will be valuable to fruit dealers in the United States, and we do not hesitate to say that every fruit dealer should subscribe to "Better Fruit." Over 200 fruit dealers are already on our list, and some esteem "Better Fruit" so highly that to insure being able to read it thoroughly they request that it be mailed them at their home address instead of to their office. We want every fruit dealer to subscribe, and our aim will be to furnish you with reliable information which will be of benefit to you, and whatever helps the fruit dealer to dispose of the fruit crop to better advantage helps the fruit grower just the same.

THE editor of "Better Fruit" was invited to address the International Apple Shippers' Association at Niagara Falls in 1910 and the Western Fruit Jobbers' meeting at Sacramento in 1911, on both occasions receiving a cordial reception, for which he extends his sincere thanks. It is the belief of "Better Fruit" that the fruit grower ought to be more or less familiar with the different markets, and that fruit dealers ought to understand and be posted on the different varieties, grades and qualities of fruit grown in different sections of the country in order to get the best results for both; and we further believe that honesty is the best policy on the part of both the grower and the dealer. Crop reports from all sections should be reliable. Underestimating and overestimating can-

not help but result in evil one way or another sooner or later. It is a mistake to exaggerate the crop for the purpose of depressing prices, and it affords the writer great pleasure to say that it was with great satisfaction that he heard Mr. C. P. Rothwell, late secretary of the International Apple Shippers' Association, a man whom all admired, argue in a most convincing way for a crop report on New York State in the year 1910 to be put down at eighty per cent when some members argued for one hundred per cent. We felt at the time that Mr. Rothwell was absolutely sincere in his opinion, as was evidenced by the crop marketed.

Some sections, in their line of promotion work, have adopted a policy of talking of thousands of carloads in advance of the season for the purpose of booming their district. This is certainly a mistake on the part of any fruit growing section. In the first place it has an unjustly depressing influence on market prices, and, secondly, when the crop is harvested the result is like a big boomerang.

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EDITORIALY "Better Fruit" has urged, and the editor publicly, privately and by correspondence, a better acquaintance between grower and dealer, and we are pleased to say that more dealers are covering the fruit producing sections now than ever before in the history of the business. We believe the results would be beneficial to both the selling end and the growing end of the fruit industry. The dealer will become more familiar with the products of each particular section, which will be to his interest and, we might add, at the same time to that of the grower. The grower will become better acquainted with the dealer and learn what kind of a man he is. No one can deny that it is easier and more satisfactory to do business with a man you personally know than with a man whom you have never seen.

It has been our aim to get advertising from the principal fruit dealers in the large cities of the United States in order that the grower might, by correspondence and otherwise, become better acquainted with the different firms in the different cities for the mutual interest of both. We have asked for photographs of the stores of different concerns advertising in this issue, or photographs of one of their members, with a description of their business. We have endeavored to secure photographs of all public fruit markets, scenes in auction markets and scenes in the principal produce streets in every large city. In addition to this, we have secured scenes from Covent Garden Market, London, England, and fruit market scenes in Liverpool, Glasgow and London. We also show in this edition the fruit docks at Hamburg, Germany, as well as the interior display room for fruit inspection before the auction takes place, and the immense building in which the produce dealers have their offices.

Continued on page 59.

A TALK

to Mr. Commission Man or Apple Buyer and Seller Apple Growers that Are, and Apple Growers that Will Be

We have worked like beavers at Hood River to gain two ends. To raise the finest quality of fruit at the lowest possible cost, and to realize for these apples a legitimate profit consistent with our efforts and quality.

In doing this we have made an enviable reputation. All over the apple-eating world we are known as the growers of the finest quality Spitzenbergs and Yellow Newtowns. At home here in the West we are taken as the standard—our teachings are followed and our results striven for. We are known as the most scientific producers of apples of quality. Hood River is the place where all fruit growers may learn.

What does this dual reputation mean to the man who intends to grow apples or the man who sells apples? It means our reputation has been won on quality fruit that is honestly packed and guaranteed. The seller puts the Hood River product before a discriminating public at a fair profit and pleases that public. That means continued trade in a staple high class article every year. It means a contented trade that finds every apple and every part of the apple as it should be—as it is guaranteed. It means a pleased consumer.

The apple grower can ask for no more than to grow fruit with the stamp of quality upon it, that goes to the pleased consumer, who returns every year and demands Hood River apples. This assures a continued sale at good prices.

This gives a legitimate profit for your investment and labor.

Besides all this, you will enjoy the greatest scenic beauty found in any fruit district—a climate that is good for your trees as well as pleasing to you—and neighbors, fellow fruit growers, who are cultured, refined and intelligent.

Your work will give you health, appetite and muscle. Your children will have excellent schools to attend—will become men and women of intelligence and strength. It is the ideal life, combined with the practical, making life worth living.

A conservative, progressive community, through their Commercial Club, is telling you plain, uncolored facts in an honest manner. We only want progressives at Hood River, who do not want profits without work. We are in the business of growing apples, superior quality apples, for all time to come. For these apples we want to keep a fair profit for ourselves, give the seller his legitimate reward for his labors, placing the apples before the consumer and allowing him to enjoy the fruits of our labor at a fair price.

We ask you, the Seller, to investigate—it means money to you. We ask you, "Mr. Apple Grower to be," to investigate—it means more money to you, and also it means happiness, contentment and life.

Hood River Commercial Club



Secretary.

P. S.—We will tell you more about it if you will drop us a line.

To the Jobbing Trade:

We cordially invite correspondence from all high class fruit jobbers relative to supplying their trade the coming season with the finest apples grown on earth. Our brilliant red *Spitzenbergs* for early *winter* trade and our beautiful *Yellow Newtown Pippins* for the *spring* trade are the two ideals of the Apple World, and for flavor, beauty and keeping qualities they are not equalled. Buy goods of *quality* and your trade will appreciate the same. Write

Hood River Apple Growers' Union

HOOD RIVER, OREGON

The Hood River Standard Nursery Co.

HOOD RIVER, OREGON

Offer for delivery for the fall of 1911 and spring of 1912
an exceptionally fine line of

Gravenstein	Spitzenberg	Yellow Newtown
Ortley	Baldwin	Rome Beauty
Delicious	Jonathan	Winesap

AND MANY OTHER VARIETIES

Our trees are tall, straight one-year-old top on three-year-old root, propagated from selected trees in the most celebrated orchards of this famous valley

Write for Catalog and Price List

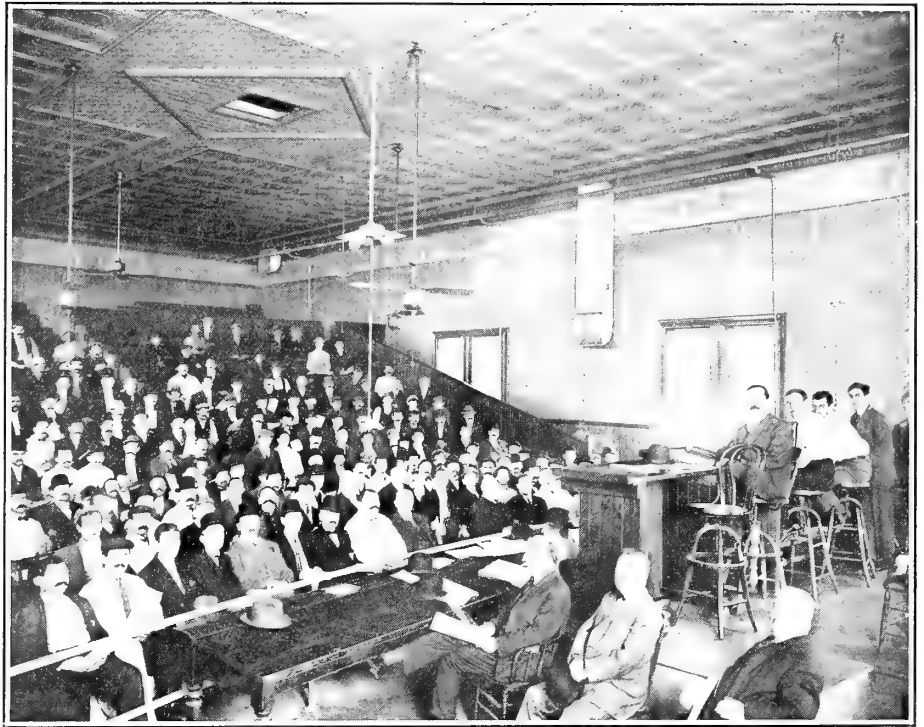
Continued from page 56.

The idea of this edition is original in conception and execution, and we believe it will do much in the way of giving the fruit shippers an intelligent understanding of nearly all the different markets in the larger cities of the United States.

We believe this edition will be instrumental in enabling the fruit grower to meet the requirements better in the future than he has been able to do in past, and we believe the result will be that the dealer will be able to sell the fruit at better prices, making a better profit, and as a consequence the grower will get a better price for his fruit. The editor has many personal friends, whom he esteems highly, among fruit dealers in the United States, but realized that this edition was a task too large to be accomplished by correspondence in the short time allowed to get out the July edition.



MORE special editions have been published by "Better Fruit" than any other fruit growers' paper in the United States, and ours have actually been special editions, not general editions with a special title. "Better Fruit" has published more original editions than any other journal of its kind in America. Among some of our special editions, devoted exclusively to one subject, are the following: Packing, Spraying, Walnut Culture, Orchard Heating, Floral Culture, Irrigation, Pear and Grape, Peach and Cherry. Each one of these editions has been more thorough on its particular subject than any special issued by any other publication, and most of them have been original in conception and execution. While we regret that others have copied our methods, still we must consider it as a compliment to

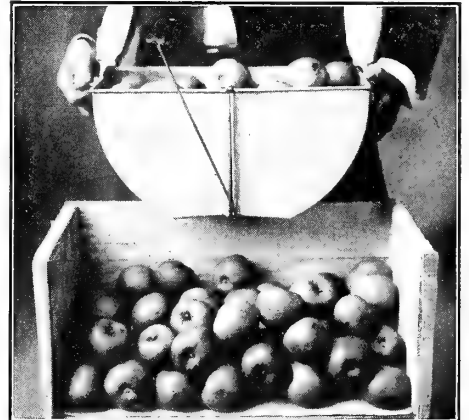


AUCTION SCENE ON THE SECOND FLOOR OF THE ERIE DOCK, NEW YORK, SHOWING THE AUCTIONEER'S AS WELL AS THE RECORDERS' DESKS

"Better Fruit" that they have done so. It is better to copy something good than to originate something worthless.

"Better Fruit" is the only fruit growers' publication west of the Mississippi River that has the nerve and can afford the expense of sending a special representative on a trip throughout the entire East annually. Last year the editor of "Better Fruit" visited some forty-five of the principal marketing centers of the East and Middle West and the assistant editor covered about the same number.

This year the assistant editor is just completing a very thorough trip, covering some fifty-three cities.

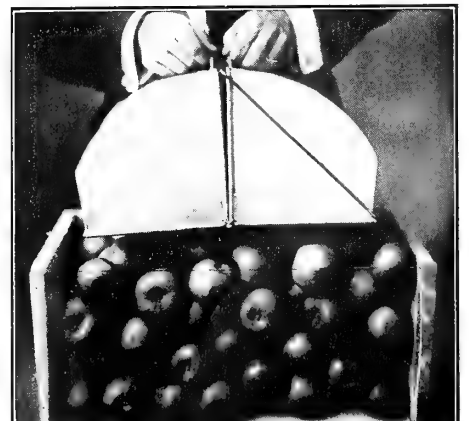


EMPTYING THE PALMER BUCKET INTO THE FIELD BOX WITHOUT BRUISING A SINGLE APPLE

The greatest invention of the age for emptying fruit from the bucket into the field box without bruising the fruit. For further particulars, see elsewhere in this edition, or write to the Palmer Bucket Company, Hood River, Oregon.



EXTERIOR VIEW OF ERIE DOCK, NEW YORK, SHOWING WAGONS OF FRUIT DEALERS READY TO TAKE AWAY THE FRUIT THAT HAS BEEN BOUGHT AT AUCTION



WE believe the July edition of "Better Fruit" will be far more interesting, instructing and valuable than we anticipated it would be when we began. Our last forms are being closed, and we want to say that we have advertising from about eighty-five firms in Eastern, Middle West and Southern cities, and about fifteen in Western cities, and we believe we have got some mighty good dealers represented in the advertisements in this issue.



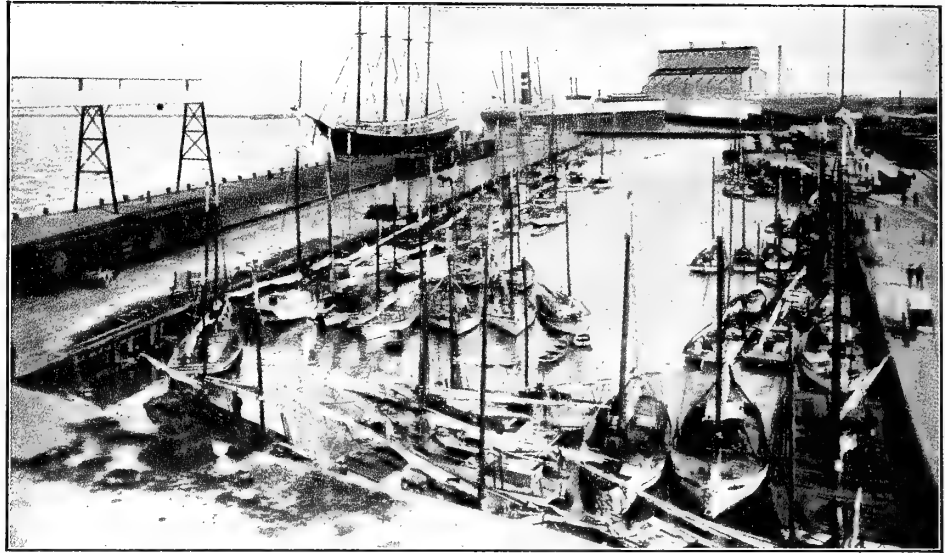
The editorial staff has written no articles for this issue except the editorials. It is our idea to give the dealers full swing to present the problems in marketing fruit that confront them, and I believe these articles about the marketing of fruit and the descriptions of different firms will be not only interesting, but valuable information for every fruit grower, shipper and association in the Northwest. In order that their ideas might be presented from their own point of view we have not added to or taken from any article, or made any changes.



The illustrations in this issue, the Dealers' Edition of "Better Fruit," we believe will present scenes and views that not one fruit grower in a thousand has ever seen. The illustrations in this edition alone are worth the price of a year's subscription to "Better Fruit."



Some articles, some scenes and some advertisements arrived too late to be included in this issue. It was an immense undertaking, and the cost of production of this issue is about \$5,000. The work was so great that we are delayed in getting out the edition, for which we apologize. Fruit scenes and articles about



PUBLIC MARKET OF GALVESTON, TEXAS

The best harbor in Texas, showing one of the most peculiar public market scenes of any city in the United States. Fruit and produce are placed on small boats, which are known as the mosquito fleet, and sold from the decks to the public. This is probably the strangest scene showing the disposition of fruit appearing in this edition. Texas is a large consuming market of all kinds of fruits. M. S. Ujffly is one of the largest handlers of Western apples in this city.

marketing problems that arrived too late for the July edition will appear in the August edition.



The Northwest, at the present time, is producing a large amount of fruit. It is certainly a great fruit country. Its output will increase steadily, and will be a more important factor in the fruit trade in a few years than is generally realized.



The fruit growers of the Northwest want to get acquainted with the fruit dealers of the East, and we invite you to come and visit us.

WE will be pleased to receive from all sources letters of comment on this edition, and will publish in the next issue as many as our space will permit.

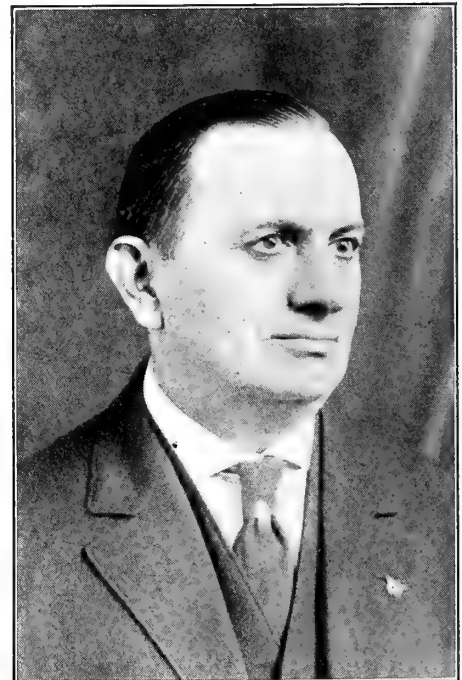


The object of presenting this edition is to bring about a better understanding and better acquaintance between the fruit dealer, the commission man, the fruit jobber and the fruit operator with the fruit growers of the Northwest, the associations and the shippers.



VIEW OF THE ERIE DOCK, NEW YORK CITY

As shown here, sections are provided all the way through the building, and whatever fruit is put in a certain section, the number is recorded on the auction sheets, and if any buyer after looking over the fruit decides to buy a certain kind, he marks the number of the section on the auction sheet from which he is going to bid.



N. G. GIBSON

Of the Gibson Fruit Company, 69 West South Water Street, Chicago, Illinois.

The Gibson Fruit Company handles the output of Wenatchee Fruit Growers' Association, Wenatchee, Washington, and immense quantities from other districts, amounting to something over 1,200 cars during the season. Although a very quiet and rather reserved man, still Mr. Gibson is not only popular, but well liked, with an extensive acquaintance with the trade and fruit dealers.



FANEUIL HALL MARKET, BOSTON, MASSACHUSETTS, SHOWING SURROUNDING STREETS, WHICH ARE ALSO FRUIT AND PRODUCE STREETS

THE prominent New York firm, Robert T. Cochran & Co., 290 Washington Street, a member of the International Apple Shippers' Association, has been in business for sixteen years, and is not only popular, but well spoken of by everybody. This firm does an immense business, probably handling over fifteen hundred cars of fruit and produce per year, dealing largely in apples, peaches, deciduous and citrus fruits, also vegetables. Like a good many other firms represented in "Better Fruit," they are progressive people and wish to extend

their business, and desire to get in communication with associations, fruit shippers and fruit growers who put up quality of fruit and guarantee their grade. For such people Robert T. Cochran & Co. are satisfied that they can show splendid results, and invite correspondence with anyone desiring to market fruit in New York City.

THE International Apple Shippers' Association will hold their annual session at Detroit early in August. Every dealer interested in the apple business

ought to attend this meeting, and growers can get much valuable information also by attending. For further particulars, requirements for membership, etc., write the secretary, Mr. R. G. Philips, Rochester, New York.



The great problem before the fruit grower today is distribution and selling, and we urge every advertiser in this issue as well as others who are interested and expect to be interested in handling fruit from the Northwest, to visit this country and get acquainted with our people. Acquaintance goes a long way in helping a man get business.



Editor Better Fruit:

Herewith please find one dollar as a continuation of our subscription to your publication. We do not feel as though we could do without it. If you have missed sending us the May number please send it, as we want a continuous file. Consider that you are publishing the "best magazine" pertaining to the cultivation of the fruit industry. Yours very truly, Earl Fruit Company, Newcastle, California.



R. S. FRENCH

Business Manager National League of Commission Merchants of the United States.

Mr. French was elected to this office in January. His long traffic experience particularly qualifies him for this important office, and the wisdom of his selection as the guiding hand of the league's affairs has been demonstrated in the important development of the interests of the league members along all lines. The league now has a membership of 387 of the most reliable and responsible commission merchants, located in twenty-eight of the leading markets of the United States.

WANTED

Position by young man as orchard manager. Several years experience in handling commercial orchards. Best references.

Address C. L. G., care Better Fruit Publishing Co., Hood River, Oregon.

RELIEF VALVE?
WHAT RELIEF VALVE?
THE
"Crown" Relief Valve

Watch this space each month

Crown Specialty Company

P. O. Box 297

CHICAGO, ILLINOIS



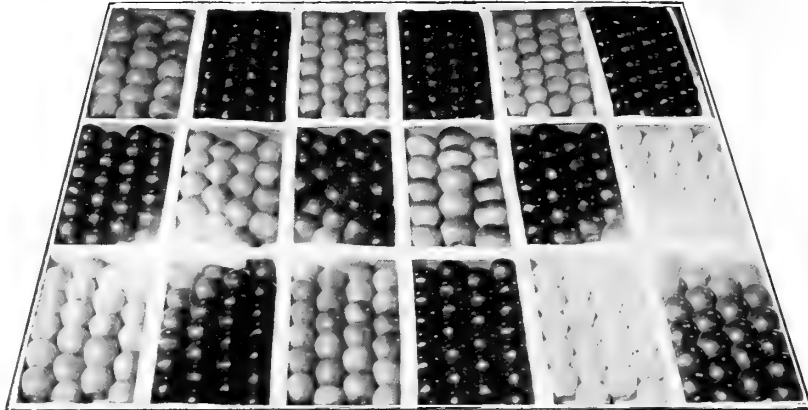
LEXINGTON MARKET, BALTIMORE, MARYLAND, ONE OF THE GREATEST PUBLIC MARKETS IN THE UNITED STATES, WHERE THE GROWERS SELL THEIR PRODUCE TUESDAYS, FRIDAYS AND SATURDAYS OF EACH WEEK

HOOD RIVER APPLES

Are justly famous, not only for perfection in size, shape and color, but also for the great final test of

Flavor

In comparison to which all other quality tests sink into insignificance.



Hood River Apples are grown in a mountainous district, where the snow fall is heavy and there is enough of winter weather to develop the maximum of flavor, as well as the highest degree of beauty.

We can ship in the fall at picking time, or hold until such time as needed. Apples not shipped early are held in our storage plant in fresh, pure, cold air until they are wanted, when they are packed in clean, new, non-odorous boxes for shipment. This insures in late shipments the same high qualities as in the early shipments, fresh pack and perfect fruit, and all the delicious flavor of the apple.

Will make early quotations on carloads, and solicit your business.

DAVIDSON FRUIT CO., Hood River, Oregon

A BUSY PLACE.—The B. Presley Company is the oldest wholesale fruit and commission firm in Minnesota. It received the first carloads of California fruit, strawberries and bananas sold in the St. Paul market. It was a pioneer at the beginning and is a pioneer still, blazing the way for others to follow. This firm is by far the largest receiver of deciduous and citrus fruits in St. Paul. Its Pacific Coast receipts alone last year exceeded five hundred carloads. There is no better market for Coast products than St. Paul, and no better house in St. Paul than the B. Presley Company. Mr. Shipper, you cannot afford to overlook the St. Paul market, and when using it you cannot afford to overlook the B.

Presley Company. Let them hear from you, whatever you have to offer.



The Western Pacific Railway Company has taken active measures to help the territory that is tributary to their line. Their spirit shows a broad comprehension of the development of the country and indicates that the welfare of the railroad depends on the welfare of the territory tributary to their road. Their road runs through some of the best fruit sections in California, to the north of the state, and in their desire to help the fruit growing sections along their road they have paid for one hundred subscriptions to "Better Fruit" to be sent to fruit

growers in the different fruit sections along their line. This certainly looks like progressiveness to us.



CARL W. KIMBALL

Member of the firm of C. H. & C. W. Kimball, large handlers of fruits and vegetables in New York City, was elected to the office of president of the National League of Commission Merchants at the nineteenth annual convention, held in Minneapolis January, 1911. Mr. Kimball advanced to this position from the vice-presidency, which he held in 1910, and is taking the most active interest in all league affairs.

PROTECTION FOR SHIPPERS



Shipping Associations and individual growers find safety and sincere cooperation in 28 principal distributing markets of the U. S. by dealing with members of

National League of Commission Merchants

387 Merchant Members whose financial responsibility, personal integrity and moral standing, commend them to shippers everywhere.

FREE DIRECTORY Membership List, copies of the League Bulletin and any specific information sent promptly on request. Address.

R. S. FRENCH, Business Mgr., NO. 204 FRANKLIN STREET, NEW YORK.

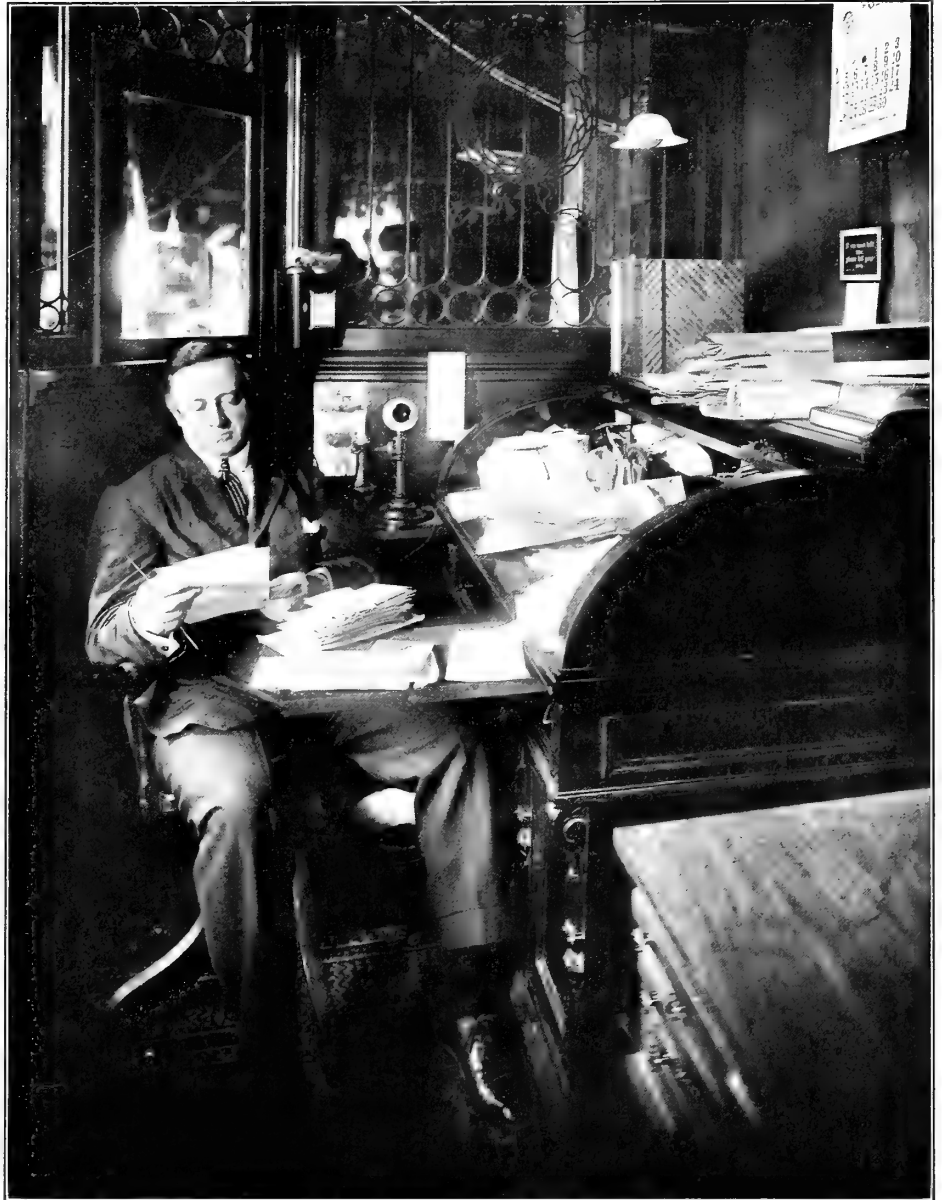
COLUMBUS, OHIO, A STEADY MARKET

ONE of the best markets in the Central West, with a location excelled by none, and with railroads and cold storage plants of the very highest reputation, is Columbus, Ohio. Situated in Central Ohio, with a vast surrounding territory to supply, the Columbus jobbing houses draw no line, but reach everywhere in distribution of perishable products. The coming year in Columbus should see the usual increase in consumption of Northwestern fruits, especially peaches and apples. A certain outlet is always available for Bartlett pears, and conditions will govern the outlet on plums and prunes.

Prospects for light crops of peaches in the South means that Western peaches will be in demand all season. Always a demand for fancy Bartlett pears, and with the information at hand that the Eastern crop is being injured prospects look good for Western shipments. Trees are full of plums, and unless there is a considerable shrinkage before maturity there will only be a demand for fancy varieties from the West. The Western box apples have a recognized place in this market, and even with a heavy crop throughout the East a considerable quantity will be wanted for storage purposes. Respectfully, The Evans & Turner Company.



WITH the year 1911 Barnett Bros., 159 South Water Street, Chicago, Illinois, has entered on its forty-fifth year of business in the Chicago market. This record signifies stability and success. We have not, however, grown old, nor have we become fossilized, but on the contrary have overcome and cast aside those obstacles which stand in the way of a beginner. For ourselves we have preserved the best, most enduring and most satisfying elements. Our establishment is conducted by young, but tempered blood; we have the best that money can obtain in the field of salesmanship; our location, size of build-



PRIVATE OFFICE OF M. WESLOSKY
Vice President J. & G. Lippman, Inc.

Mr. Weslosky looks after the correspondence and has charge of the inner affairs, etc., of the firm



CENTRE MARKET, WASHINGTON, D. C., ONE OF THE FINEST RETAIL FRUIT AND PRODUCE MARKETS IN THE UNITED STATES

ing, equipment and general facilities are unsurpassed. Our trade is a most extensive and, above all, a steady one; we cater to the best. A visit to our place of business, when you are in Chicago, will convince you of all we have said, and we welcome you most sincerely. In the meantime we ask you to write to any reputable commission merchant in the United States or Canada, to any of the railroad or express companies centering in Chicago, to any of the commercial agencies or to the Continental Commercial National Bank of Chicago. From any of these sources you can obtain information regarding us. Wm. L. Loeffel, president.

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Editor Better Fruit:

I wish to acknowledge with pleasure receipt of two sample copies of the magazine, "Better Fruit." Although I have been interested in the subject of fruit growing for some little time it happens that this is the first time I have seen your magazine, which has been my misfortune, as I have never seen anything published to equal it. I expect to send in my regular subscription a little later on, as I do not see how a person actively interested in apple growing can be without "Better Fruit." Sincerely yours, L. G. Vair, Secretary The Davey Tree Expert Company, Kent, Ohio.



Five Stories
and Cellar
Corner
Harrison and
Washington
Streets.

J. & G. LIPPMANN

IN BUSINESS OVER 30 YEARS

Incorporated—Capital \$100,000.00

On one of the most conspicuous corners of the fruit and produce district. Handle all kinds of produce and want to get in touch with Western shippers of peaches, plums, prunes, etc. Box apples we shall make a specialty. Prepared to handle business of large associations, being fortified with ample capital to take care of any deal. Correspondence solicited.

J. & G. LIPPMANN

338-340 Washington and 46-48 Harrison Streets, NEW YORK CITY

THE progressive fruit merchants, A. B. Detweiler & Son Company, 246 South Front Street and 117 Dock Street, is one of the old firms of Philadelphia, having been established in business since 1866. They are splendidly equipped for doing business, occupying large quarters fronting on two streets, South Front and Dock Streets, which are in the center of the fruit and produce section of Philadelphia. Apples is one of their specialties during the entire apple season, and they are among the heaviest receivers in this line. They also handle large quantities of all kinds of fruits, and, like other progressive firms, they want to increase their business, and solicit correspondence with the view of extending their connections.

Editor Better Fruit:

Acknowledging your letter of the 15th: We are glad to see you are taking an interest in the dealers throughout the country and we are quite sure the July issue of "Better Fruit" will be one of interest to all subscribers. Thanking you very kindly for the courtesy extended, we are, yours truly, O. W. Butts, Omaha, Nebraska.

◆ ◆ ◆

Editor Better Fruit:

I want to thank you very sincerely for your kindness in forwarding me the extra copies of "Better Fruit" which I requested in my letter of the 19th, and I assure you that whenever a good word can be spoken for "Better Fruit" there will not be any hesitancy in speaking it. Yours truly, B. B. Cannon, Boston, Massachusetts.

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Editor Better Fruit:

The May number of "Better Fruit" has just come to my desk. I have spent the last half hour looking it over carefully. I cannot refrain from writing you a brief note of congratulation on this number. While "Better Fruit" has set a high mark for itself, this issue even surpasses the beautiful

numbers that you have gotten out in the past. It is a delight, mechanically, artistically and typographically. I wonder if you realize how influential "Better Fruit" has been in attracting attention to Oregon and the wonderful possibilities of fruit growing in this state. There is one thing sure, your subscribers are getting big value for their money. Yours very truly, Fred Lockley, Manager Pacific Monthly, Portland, Oregon.

◆ ◆ ◆

Editor Better Fruit:

I am not quite sure when my previous subscription to "Better Fruit" expires, but I am making sure by enclosing money order for £1 (\$4.86). One-half (\$2.43) is my own subscription, and the other half is from a new subscriber I have secured for you, Mr. T. H. Waight, Warrenkeip Orchard, Roxburgh, New Zealand. Please send "Better Fruit" to us both, acknowledge receipt of money, and let us know when our next subscription will be due. "Better Fruit" is undoubtedly the best publication devoted to fruit culture I have ever read; its advent is eagerly looked for, and you are deserving of every support in providing so interesting a paper. Yours faithfully, Albert Birch, Roxburgh, Teviot.

W. E. BIGALOW, President

Capital and Surplus \$75,000.00
Established 1883

H. J. BIGALOW, Secretary and Treasurer

REFERENCES:

The First National Bank, Cleveland
All Commercial Agencies
The Produce Reporter Company
Any reliable house in our line in the
United States

*Commission
Merchants*



CLEVELAND, OHIO

SOME OF OUR SHIPPERS—REFERENCES:

The California Growers' Exchange, Los Angeles, Cal.
The California Fruit Distributors.
The Earl Fruit Company.
The Pioneer Fruit Company.
The Producers' Fruit Company, Sacramento, Cal.
The Stewart Fruit Company, San Francisco, Cal.
The Atwood Grape Fruit Company, Manavista, Fla.
The Georgia Fruit Exchange, Atlanta, Ga.
The Florida Citrus Exchange, Tampa, Fla.
Crutchfield & Woolfolk, Pittsburg and Chicago.
Redlands Golden Orange Association, Redlands, Cal.

*Jobbers and
Wholesalers*

*Apples, Plums, Prunes, Pears,
Oranges, Lemons*

We have the largest and best trade in the Cleveland territory; our facilities are unsurpassed
We have had years of experience in handling box apples and fancy fruits

We solicit your correspondence and shipments

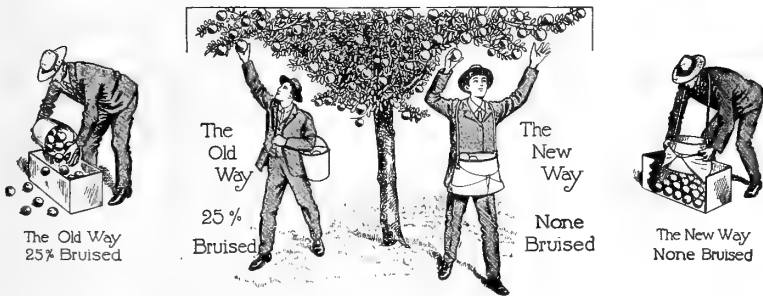
WE ARE HEAVY OPERATORS IN
BOX APPLES and the **P** **EARS**
 three big **P** **EACHES**
RUNES

We handle more box apples than any concern in Ohio and want to hear from every grower and shipper who will have either large or small lots to offer.
 Let us hear from you at once.

OUR SPECIALTY, BOX APPLES

E. N. PRICE & COMPANY, CINCINNATI, OHIO

REFERENCES: ANY BANK OR CREDIT AGENCY



This vessel is endorsed by horticultural colleges, fruit associations and growers. You cannot afford to be without them. Each one will pay for itself many times in saving your crop. For further particulars see advertisement on page 15.



G. W. BUTTERWORTH, PHILADELPHIA

Car lot handler of Northwestern fruits
 Mr. Butterworth, active in the commission business for many years, is well and favorably known throughout the East. He writes us that he has a good outlet for boxed apples, pears and deciduous fruit, and solicits correspondence with associations and other large shippers.

Editor Better Fruit:

Your rose number is lovely. H. E. Van Deman, Washington, D. C.

Editor Better Fruit:

My attention has been called to an article on page 40, April number, concerning fruit in "The Piedmont Region at Cornelia, Georgia." Somehow my April number lost out and I had not seen the printed article until it appeared in a Georgia paper, with remarks about the tons of fruit, without saying anything as to the wisdom of that party who could not see the typographical error in calling crates tons. I really owe the typist of "Better Fruit" an apology for poor writing. But the only point is to correct the error and make crates crates instead of tons at \$1 to \$2 f.o.b. Cornelia, Georgia. That accomplished, then every item is true and can be readily verified. Of course, as you say, Mr. Editor, my name ought to have been signed to the article, as it certainly was in the original article. In conclusion, only this to say, "Come and see this beautiful, healthful section up here on the Piedmont plateaus of Georgia." Yours truly, I. C. Wade, Cornelia, Georgia.

SITUATION WANTED

By young man of thirty, as foreman or horticulturist for some company or some college. Had many years of practical training. Can handle help to best advantage. Good references.
 T. W. SABRANSKY
 Address care "Better Fruit"



J. G. WOODWORTH

General Traffic Manager Northern Pacific Railway
 St. Paul, Minnesota

Mr. Woodworth is comparatively a young man and has been associated with many of the large railroads in prominent positions. For many years he was located at Portland, Oregon, with the Oregon Railroad & Navigation Company. His promotion has been rapid and has been well earned through his ability, judgment and conservatism. In his position as general traffic manager of the Northern Pacific, one of the transcontinental lines, he has taken an active interest in the Northwest and its development, and it may truthfully be said that his love for the Northwest, when he first began to ascend the ladder of prominence in the railroad way, has never ceased, and consequently he is ever ready and willing to listen to any proposition that may be beneficial to the Northwest and the country tributary to the Northern Pacific.

WE MAKE A SPECIALTY OF

BOX
Apples, Prunes
Pears, Peaches

We have best of cold storage facilities
 Reference: Your bank

M. Fugazzi & Company

204 West Sixth Street
 CINCINNATI, OHIO



J. GRAINGER & CO., LINCOLN, NEBRASKA

Is one of the most popular houses in the Middle West, doing an immense business in a thriving city, one of the most progressive cities in Nebraska. This firm has done a large business for years and has many friends among the growers as well as among the trade, and is generally conceded to have earned its popularity by progressive business methods. Lincoln, Nebraska, has one of the best and largest markets west of Omaha, surrounded by a large and prosperous territory.

MANKATO, MINN.
GAMBLE-ROBINSON F&P CO.

ABERDEEN, SO. DAK.
GAMBLE-ROBINSON FRUIT COMPANY

ROCHESTER, MINN.

ST. PAUL, MINN.
GAMBLE-ROBINSON FRUIT CO.

PIPESTONE, MINN.
GAMBLE-ROBINSON FRUIT & PRODUCE CO.

MILES CITY, MONT.

DELWEIN, IOWA
GAMBLE-ROBINSON FRUIT

INCORPORATED CAPITAL & SURPLUS - \$400,000.00

WE DISTRIBUTE ANNUALLY OVER 3500 CARS.

CIPHERS - CITRUS - ARMSBY - INTERSTATE - U.S. ECONOMY.

GAMBLE-ROBINSON AND ITS ASSOCIATE HOUSES. COMMISSION CO.

WE WANT TO TALK BUSINESS

WITH EVERY SHIPPER OF

**APPLES
PEACHES
PEARS**

IN

California, Oregon, Washington, Idaho, Colorado, Utah, Nevada

WRITE US TO-DAY, stating varieties, quantity and probable quality of fruit you expect to ship. Look up our standing; ask "Better Fruit" or your bank

ROBT. T. COCHRAN & CO. 290 Washington Street
NEW YORK

FRUIT LAND

In tracts of 5 to 10 acres each. Some cleared, some partly cleared; some all timbered and some planted to commercial orchards, at surprisingly low prices and on easiest terms. They are in the heart of a rapidly developing fruit section adjoining good railway town in the valley. Here is a chance to buy **good land cheap.** We will plant it for you if you wish. Write for particulars.

OREGON APPLE ORCHARDS CO.

432 Chamber of Commerce Building, Portland, Oregon

Eastern office, Bloomington, Illinois

IF You like this publication
 You find it helpful
 You are in earnest about

“Better Fruit”

Tell your fruit growing neighbors about it—Help us in this way to help you.

JOHN NIX & CO., ONE OF NEW YORK'S WHOLESALERS

WE invite the attention of our readers to the advertisement of John Nix & Co., New York, which appears in this issue. We take pleasure in introducing this firm to our many subscribers as being one of the most reliable houses for handling consignments of cantaloupes, apples, celery and all vegetables from the Pacific Coast, they having been established for three-quarters of a century and having gained for themselves

the enviable reputation of being leaders in their lines in the greatest market of this country. The business of this firm has grown to such an extent that they recently found it necessary to increase their capital stock to \$150,000, fully paid in. They are recognized as one of the largest fruit and produce commission houses in New York City, having developed a large carload distributing business with a branch office in Chicago during

the Western carload season, a branch office in Hastings, Florida, during the Hastings potato season, and a branch office at Miami, Florida, during the Florida East Coast season. These branches are under the personal supervision of one of the members of the company. During the past season they sold over 600 carloads of new potatoes from Hastings, Florida, within a period of seven weeks, rendering account sales with checks for proceeds to shippers daily, amounting to over \$350,000. This company is now handling the crops of cantaloupes grown by several large associations in Arizona and Colorado. They are also selling agents in New York for the Southern Texas Truck Growers' Association of San Antonio, Texas, for whom they have sold over 400 carloads of onions during the past season, and also make a specialty of handling in carlots California asparagus, cauliflower, celery, tomatoes and other vegetables during their respective seasons. We recommend all who may be interested to correspond with John Nix & Co., New York City.*

APPLES PEACHES PEARS STRAWBERRIES

In Car Lots

THE HUMPHREYS COMMISSION CO.

JOHN M. WALKER, President

Wholesale Fruits and Produce

1516 to 1522 Market Street, Denver, Colo.

Denver is a Good Market

Desel-Boettcher Co.

The Fancy Fruit House of Texas

WHOLESALE COMMISSION MERCHANTS AND JOBBERS OF

APPLES

AND OTHER FRUITS

Ample warehouse facilities

Private cold storage plants

HOUSTON, TEXAS

Branch distributing plant

Corpus Christi, Texas

Car Lots Broker and Distributor
of

Apples, Pears Peaches, Prunes

Now distributing for the largest deciduous shippers of Northern California, also agent for Chase & Co., packers, Florida.

R. H. WYTHE

809 North Fourth Street

ST. LOUIS, MISSOURI

ESTABLISHED 1877

Patten & Williams

144, 146, 148 Michigan Street

BUFFALO, N. Y.

Can handle a few cars Fancy Apples to advantage

Correspondence Solicited

Yellow Newtown and Spitzenberg Trees a Specialty
All Buds and Scions Selected from Bearing and Tested Trees

TRUE-TO-NAME NURSERY

H. S. GALLIGAN
HOOD RIVER, OREGON

The Old Reliable True-to-Name Nursery

Offers to planters for the coming season our usual choice but limited stock of the leading commercial varieties adapted to the Northwest. It is important to know that the trees you buy will prove true-to-name; if not you have suffered an irreparable loss. You can avoid this loss and disappointment by purchasing your trees from the True-to-Name Nursery—the nursery that has made good.

We personally select all our propagating wood from bearing and tested trees, and are therefore in a position, as we have been in the past, to guarantee our trees *true-to-name*.

If you are contemplating planting a large orchard it will pay you to come and see our stock. If you cannot personally examine our stock, write us at once, so we can take care of you. Address

TRUE-TO-NAME NURSERY

NO AGENTS

HOOD RIVER, OREGON

One year's subscription to "Better Fruit" with every \$25 order.

THE CHERRY CITY NURSERIES

Claim their trees are the best, their prices right, and solicit your patronage for their fine line of

Apple, Pear, Peach, Prune
and Plum Trees

and small fruits. Also ornamental trees and shrubs. Special attention given to roses. Send for catalogue and price list.

J. H. LAUTERMAN, Salem, Oregon

SGOBEL & DAY, A RELIABLE OLD NEW YORK FIRM

ABOUT the first car of Hood River Spitzenbergs that ever went to the far East was sent by Bell & Co. of Portland to Sgobel & Day of New York. It sold for big money and the shippers have many times told Mr. Day that they made more money out of that car of apples than out of any car of this fruit they had ever handled. Naturally the cost at that time was very low compared with the prices lately paid for the magnificent apples from Hood River.

The following year Horace W. Day of the firm came to Hood River, and he has been coming every year—excepting the present spring—ever since. His firm purchased for a small syndicate of buyers in New York all the Spitzenbergs for many years, paying from \$1.35 to \$1.95, and, as a matter of fact, Sgobel & Day introduced Hood River apples into the markets of the Atlantic Coast.

Sgobel & Day is one of the oldest and most prominent firms in the business in New York City, established over forty years ago. They are heavy receivers of box apples from all over this Coast, and not only apples, but pears, prunes, etc., and while their sales are mostly at auction they dispose of box apples generally at private sale and export to their own representatives in London and Liverpool Newtowns and other box apples which shippers care to send. This house has a world-wide reputation for its sterling integrity, and they have always urged growers and shippers to go in for quality rather than for quantity, pointing out that it costs just as much to market a box of common apples as it does one of high grade. Their business is extensive in Oregon, Washington, Idaho, California, Utah, Colorado, Florida, Porto Rico, Cuba, France, Spain and Italy. In fact, they have also received consignments of

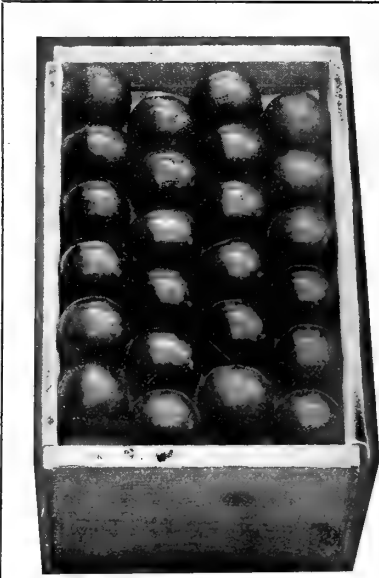
fresh fruits from South Africa, something like 10,000 miles from New York. During the past few years they have extended their business and are now heavy shippers of apples to Rio Janeiro and Buenos Aires, markets which they think will take increasing quantities of fine box apples.

Editor Better Fruit:

Herewith we hand you our check for \$8.50 for eighty-five copies of your excellent May number. Enclosed we hand you list of seventeen persons to whom we wish you to mail one copy each. Send the other sixty-eight copies to us. We wish every person considering engaging in the orchard business in the Pacific Northwest would subscribe for and read your splendid publication. We want to do all we can to enlarge the circle of its usefulness. Yours sincerely, Reed & Reed, Kansas City, Missouri.

IT IS FREE
 Our new 1911 catalog and price list of fruit and ornamental trees is free for the asking. Let us figure on your wants.
 Richland Nursery Company
 Agents Wanted Richland, Washington

J. M. Schmeltzer, Secretary
Hood River Abstract Company
 Hood River, Oregon
ABSTRACTS INSURANCE CONVEYANCING



Yoncalla Orchards Company

OREGON FRUIT LANDS

Plymouth Building, Suite 714

MINNEAPOLIS, MINNESOTA

This orchard tract adjoins the town of Yoncalla, Oregon, which is situated on the main line of the Southern Pacific Railway. No better land in the West. This tract of orchard land is being subdivided and sold in 5 and 10-acre tracts.

For further information write

THE YONCALLA ORCHARDS COMPANY

Plymouth Building, Minneapolis, Minnesota

GET CATALOG AND PRICE LIST
 420 Acres Devoted to Nursery Purposes

THE WOODBURN NURSERIES

Established 1863 by J. H. Settlemier

Grower of Choice

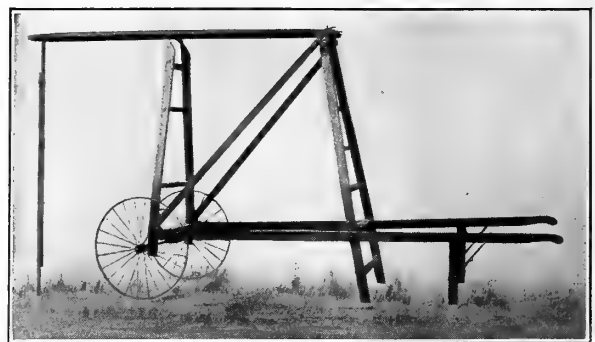
NURSERY STOCK

F. W. SETTLEMIER

Woodburn, Oregon

Selling Agents Wanted
 Good, live, high grade representatives wanted in all fruit growing sections in the United States to handle the Bolton Orchard Heater for the coming season. A liberal commission will be allowed. This heater is the pioneer in its line, is the cheapest, and today stands without a peer.
 Address, with references,
The Frost Prevention Co.
 Bank of Italy Building
 SAN FRANCISCO, CALIFORNIA

Swengel's Portable Orchard Ladder



SET UP

Makes orcharding a success. Made of first-

class material throughout, and designed especially for thinning and gathering fruit. Fruit-gathering directly into the boxes; no pouring and bruising from pail to box. Picker stands comfortably on the top of the ladder, making a wide range at once. This enables him to do twice the amount of work usually done on an ordinary ladder.

No party will do without it when once he has used one of these ladders.



FOLDED

The Orchard Ladder and Manufacturing Co.

Phone Columbia 255

McDonald Block, ST. JOHNS, OREGON

Established 1842

Capital paid in \$90,000.00

Incorporated 1910

SANDS, FURBER & CO. INC.

*Commission Merchants**Fruits and Produce*

88, 90, 92 }
 16 & 17 North Side } Faneuil Hall Market, BOSTON, MASSACHUSETTS
 Telephone, 1552 Richmond

W. S. GLIDDEN, President

H. F. RICE, Vice President

C. H. CUMMINGS, Treasurer and General Manager

APPLES

"THE HOUSE TO DO BUSINESS WITH"

COYNE BROTHERS

APPLE SPECIALISTS

Write for Memo Loose Leaf Book. Mention "Better Fruit"

119 W. South Water Street, CHICAGO

Associations, Independent
and Individual Shippers

We desire to get in touch with you for the purpose of
 arranging to handle your apples. To that end we ask
 you to please write us at once, giving estimate of what
 your crop will consist of and the varieties of apples
 you will have.

ASSOCIATED HOUSES

E. P. Stacy & Sons, St. Paul, Minn.
 Stacy Fruit Company, Fargo, N. D.
 Stacy Mercantile Company, Valley City, N. D.
 Stacy Fruit Company, Bismarck, N. D.
 Stacy Fruit Company, Carrington, N. D.
 E. P. Stacy Fruit Company, Watertown, S. D.
 E. P. Stacy & Sons Company, Mason City, Iowa
 Stacy Fruit & Produce Company, Albert Lea, Minn.
 Stacy Brothers Fruit Company, Lincoln, Neb.
 Davidson Brothers Company, Fort Dodge, Iowa
 Davidson Brothers Company, Marshalltown, Iowa
 Davidson Brothers Company, Moberly, Mo.
 Davidson Brothers Company, Des Moines, Iowa

E. P. STACY & SONS

Largest Handlers of
 Western Deciduous
 and Citrus Fruits

Correspondence Solicited

MINNEAPOLIS, MINNESOTA

Founded 1839

Capital, \$150,000.00, paid in

Incorporated 1904

JOHN NIX & COMPANY

281 Washington Street, NEW YORK CITY

Pacific Coast Fruits and Vegetables

Our Store Centrally Located. One Block from Erie R. R. Depot

A. LEVY & J. ZENTNER CO.

NORTHWEST CORNER OF DAVIS AND WASHINGTON STREETS

SAN FRANCISCO, CALIFORNIA

The largest dealers in and distributors of Box Apples on the Pacific Coast
Get in touch with us. Let us know what you have to dispose of. Best modern cold storage facilities
Inquire about us of any bank, mercantile agency, Produce Reporter Company, or the manager of your
association

LET US HEAR FROM YOU

S. SEGARI & COMPANY

No. 109 Poydras Street
New Orleans, Louisiana

Next door to the auction room, will be our headquarters for California deciduous fruits and box apples. Remember, we keep experienced salesmen at the Illinois Central Railroad fruit and produce sheds, also at the Louisville and Nashville Railroad watermelon and produce sheds. We are now ready to handle

Apples, Pears, Cantaloupes, Peaches

WRITE OR WIRE WHAT YOU HAVE

NEW ORLEANS

GEO. H. APPEL

The Acknowledged
FANCY FRUIT HOUSE
of New Orleans

IMPORTERS
JOBBER
LAUX &

Wholesale
Commission

APPEL

THE HOUSE
YOU WANT

All Fruits in Season

Storage for 50 Cars

Fruit Ranch

We can sell all or half of a fine eighty-acre ranch, located in the famous White Salmon Valley, Washington, and only one and one-half miles from railway and steamer landing.

This place will pay nice income and make beautiful home in ideal country and climate.

Six-room house, with large living room and fireplace, bathroom, hot and cold water, etc.; about twenty-five acres cleared and in fruit, consisting of strawberries, apples, pears, peaches, etc.

Immediate possession can be given and price is right.

For further particulars address

INLAND EMPIRE COMPANY

212-14 Railway Exchange Building
Portland, Oregon.

J. L. BEER & CO.

Fruit and Produce

306-310 Poydras and 507-509 South Peters, NEW ORLEANS

Box Apples
Peaches, Pears and Cantaloupes

We are distributors. We reach all points tributary to New Orleans, including Cuba, Panama and Central America

SOUTHERN OREGON NURSERIES

YONCALLA, OREGON

No Agents

Prices Wholesale

GENERAL NURSERY STOCK PROPAGATORS

Stock clean and true. Budded or grafted from bearing trees

E. P. DREW

Consulting Horticulturist

30 years in business

THE NORTHWESTERN APPLE MARKET IN BOSTON

WE were the first dealers to handle Northwestern apples in Boston. In 1905 we bought about one hundred boxes of different varieties and made an "apple show" in our retail department. It attracted a great deal of attention and

other dealers immediately became interested, and we sold over one thousand boxes that season. The next year we bought car lots, and sold fifteen cars. Demand has been increasing every year, and last season we sold seventy-five

cars that were all put into consumption in Boston and surrounding towns. There were about two hundred cars of Western and California apples shipped to Boston this past season, out of which some seventy-five cars were exported, leaving one hundred and twenty-five cars that were actually consumed by Boston and its immediate vicinity.

We believe that the demand for table apples will increase, and notwithstanding New England is producing a large quantity of apples we shall be obliged to look to the Northwest for our supply of fine table apples for a number of years to come, and if the Northwest keeps up its standard of grading and packing its output will always command top prices in all the markets of the world. Sands, Furber & Co., Inc., C. H. Cummings, Treasurer.

◆ ◆ ◆
W. DENNIS & SONS, LTD.
 Fruit Brokers, Salesmen and Auctioneers
 Potato Growers and Merchants
 Importers and Exporters
 Contractors to His Majesty's Government
 and Other Public Bodies
 Covent Garden Market, London, W. C.
 June 10, 1911.

*Mr. E. H. Shepard, Editor Better Fruit
 Hood River, Oregon:*

I am in receipt of your letter of the 8th of May and note what you say as to your scheme for the July number of "Better Fruit." Unfortunately I have not a photograph of Covent Garden Market, and as it would take some time to get one done and would doubtless not arrive in time for the July number, I have thought it best to send you a photograph of the members of the firm of W. Dennis & Sons, Ltd., which I shall be glad if you will have reproduced in "Better Fruit." I also enclose a small article which I should like to appear underneath it. I don't know whether the tenor of it is in accordance with your wishes, but as it would take more than one hundred words to explain the fruit conditions in England we thought it better to speak up for ourselves. Our Mr. John W. Dennis will be in Medford and Hood River about the end of July or beginning of August and will do himself the pleasure of calling upon you.

Yours faithfully,
WILLIAM DENNIS, Director.
 For W. Dennis & Sons, Ltd.

◆ ◆ ◆
 Simons, Jacobs & Co. Glasgow, Scotland
 Garcia, Jacobs & Co. London, England
SIMONS, SHUTTLEWORTH & CO.
 European Receivers of American Fruits
 34 Stanley Street
 Liverpool, England, June 10, 1911.

*Mr. E. H. Shepard, Editor Better Fruit
 Hood River, Oregon:*

We have to acknowledge receipt of your favor of the 23d ult., contents of which have been noted with interest. We were under the impression that we had already made clear to you the circumstances which, in our opinion removed the disparity which hitherto existed between the United States and British markets as an outlet for Newtowns. We woke up to this fact early in the season, and disposed of many of the apples which were entrusted to us on your side. The prices which we realized for the Rogue River Newtowns have been published by the Union. We do not know how much they deducted for their charges, but we understand that the Newtown pool was the most satisfactory part of their deal. As regards the package, you have come to exactly the same conclusion that we ourselves have reached, and we have, both directly and through Mr. Wilmeroth, been recommending the very things which you suggest. For an export package, too great a swell is disadvantageous. A tight pack, with a half-inch swell, and the same thickness at top as at the sides, would in our opinion make the ideal export package. We take steps to minimize the rough handling by watching both loading and unloading, and making claims on the steamship companies for any loss that may arise through carelessness. We have had a long spell of dry weather here and as a result unfavorable reports are beginning to come in as to the prospects for the fruit crop. Apples and plums, however, will still be saved and give a heavy yield if the rain comes at an early date.

Yours truly,
SIMONS, SHUTTLEWORTH & CO.

Editor Better Fruit:

A friend of mine who has an orchard in the Nicola Valley, British Columbia, tells me that your paper is the best authority on the subject it treats of. Will you have the kindness to send me a copy of it for a year? One dollar enclosed. Yours faithfully, C. C. Abbott, Stratford, Ontario.

LARGER PROFITS

VERY LITTLE CAPITAL INVESTED

No industry pays larger profits than the canning of fruit and vegetables. Yet millions of dollars worth of fruit and vegetables go to waste every year.

If others can make large profits from the canning industry, why not also you?

Why turn the cannery profits over to the big corporation?

Why let your fruit and vegetables go to waste?

CAN YOUR OWN PRODUCTS AND DO IT AT HOME

It pays equally well on a small or large scale.

BUY A CANNING OUTFIT

Put the canning profits in your own pocket.

WE SHOW YOU HOW

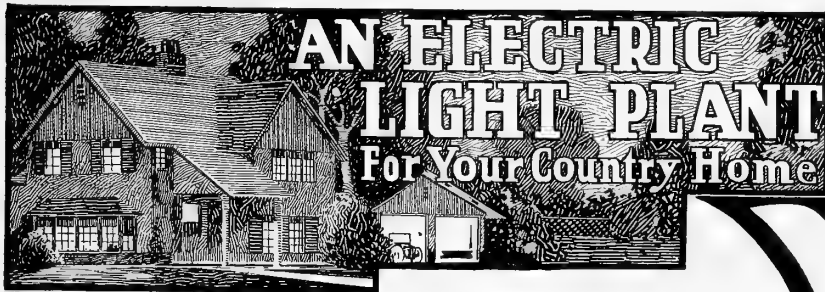
Outfits furnished in various sizes at a total cost of from \$15.00 up to meet your requirements.

Write today for our catalogues and free information on "Successful Home Canning."

FOOTT-TITUS MACHINERY HOUSE

181-187 Union Avenue

PORTLAND, OREGON



**AN ELECTRIC LIGHT PLANT
 For Your Country Home**

COMPLETE ELECTRIC LIGHT OUTFITS

8, 15 and 30 Lamps. Combination Dynamo-Storage Battery Type

Especially designed for the electric lighting of ranches, country homes, stables and factories. While common coal oil lamps, acetylene systems and gasoline lamps sometimes explode, this electric outfit positively cannot explode. The force of current is so harmless you cannot even feel the current.

Make Your Own Electricity

With this system you generate electric current by the means of a small gasoline engine driving a dynamo or generator during the day. The current is run into a storage battery. Charging of the storage battery is done once or twice a week, or whenever the engine is being run for other work.

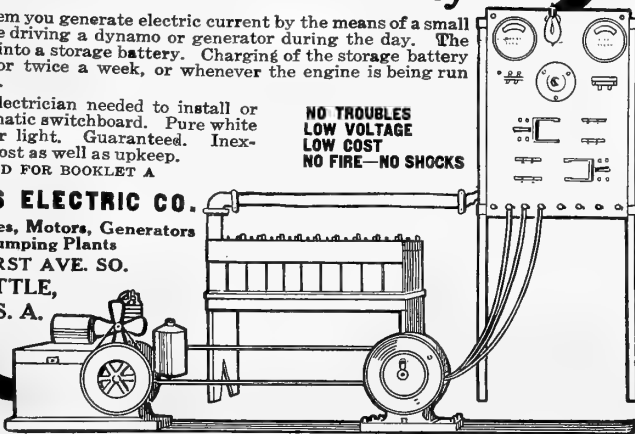
No skilled electrician needed to install or attend. Automatic switchboard. Pure white 16-candle-power light. Guaranteed. Inexpensive—first cost as well as upkeep.

SEND FOR BOOKLET A

**NO TROUBLES
 LOW VOLTAGE
 LOW COST
 NO FIRE—NO SHOCKS**

REYNOLDS ELECTRIC CO.

Gas Engines, Motors, Generators
 Pumping Plants
 522 FIRST AVE. SO.
 SEATTLE,
 U. S. A.



CENTRAL SELLING AGENCY and OTHER GOOD PLANS

UNDER date of June 20, 1911, Mr. H. O. Stechan of Seattle, Washington, writes very interestingly on the subject of a central selling agency, and advances some new thoughts leading up to it. We take pleasure in publishing his letter in full:

You may recall that during the past winter there was a considerable agitation looking to the formation of a central selling agency, through which it was intended that the fruit growers of the Pacific Northwest should co-operate in the marketing of their crops. As I assisted in gaining some newspaper publicity for the movement, I became interested in it.

As one of the strongest reasons why the growers should get together in this enterprise it was pointed out that the orchardmen of the Northwest are utterly lacking in authentic facts and figures relating to their own industry, such as are necessary to eliminate guess-work methods and to enable them to proceed on the basis of accurate knowledge of conditions in the marketing of their products.

Had the central selling agency been approved by enough districts so that it could have become an operating fact, such statistics could have been assembled through it, just as the organized lumbermen, wool growers and other allied interests keep track of the conditions and currents prevailing in their lines. Before the fruit growers of the Northwest can correct some of the misfortunes of distribution, as now known to them, they must have a medium for gathering the information so necessary to the reformation thereof.

In this connection I believe it is of the utmost importance to the horticultural interests of the Northwest that steps be taken toward the immediate establishment of a fruit statistics bureau. To this end I have been sounding various persons active in fruit growing, and without exception the idea is approved. It is also pointed out that this bureau can be made the nucleus about which the central selling agency will ultimately be formed, when the proper time comes, as it will be the logical means of revealing the need for further co-operation in marketing, if they really exist.

The bureau of statistics could make itself useful in more ways than one. At first it would have a lot of preliminary work to do. Apples being the largest money-making crop among Northwest fruits, I believe its first duty would be to get in touch with all the apple-producing districts, not only of the United States, but of the whole world. Even today the growers of Tasmania are preparing to export large quantities of apples to this country, according to consular report. All such information would have to be assembled by correspondence through various sources, which would entail a large amount of detail work. Later on other fruit conditions could be taken up, such as peaches, pears, prunes, etc., so as to make the bureau of value to all growers in the Pacific Northwest. A press

department would also be an appropriate adjunct, through which authentic information about fruit conditions would be furnished to all papers in fruit districts, so that they might print them for the guidance of their readers.

Now, as near as I can estimate, it will cost about \$5,000 to organize and operate such a bureau the first year. There are some eighty fruit growers' associations in the Pacific Northwest. Of course, not all of them would support such a bureau from the start, but I believe that on the basis of an annual cost of \$150 per association, at least thirty-five should be enlisted, considering the possibilities and usefulness of such a department. Were it possible to get in fifty associations, the cost might be reduced to \$100 each. These payments could be made quarterly, so as not to become heavy on any one association.

If the fruit growers of the Northwest want to get a check on their own affairs it occurs to me that this bureau of statistics cannot be started too soon. Because

of the nature of the work it will necessarily be some time before it can show results; and the longer it operates the more valuable will become its services. If this matter appeals to you I should be glad to have your approval. This offers the growers a chance to get "down to cases" on a matter concerning which there has been much talking. It will be a tangible step in the direction of harmony, which is so necessary to get the best results along any line.

W. F. LARAWAY

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THE time lost between the orchard and railroad station is often vastly greater than the time lost between the railroad station and the markets. Too much time is wasted in getting the fruit to the railroad station. That is a big reason why you are so often "docked for spoilage."



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It saves two-thirds of the time, enabling you to make three times as many trips—it saves actual cash money in feed cost and upkeep, in stable rent, in repairs, and in many other ways which we will gladly tell you if you write us.

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INTERNATIONAL HARVESTER COMPANY
OF AMERICA

(Incorporated)

Chicago U S A



The Gink and the Goat

Says the Gink to the Goat, "My, the apple growers are a lot of chumps, and their association officials are as bad. Why not get into the band wagon? We're going to export them to Mars, Jupiter and all other foreign countries this season."

Says the Goat, "Bah, b-a-h, bah."

Says the Gink, "We'll make it worth your while, we will."

Says the Goat, "Bah, b-a-h."

Says the Gink, "We'll put you on our cush list for the season; easy money; not even the village soothsayer will know."

Says the Goat, "Bah."

Says the Gink, "By the light of the Harvest Moon we'll slip it to you under the old apple tree, under the self-same tree that bears the Chief Jewel we need for our Crown."

Says the Goat, "Speak not to me of regal sway nor silvery harvest moons; I'm a plain citizen. only a lesser star in the group of Capricorn. Shall I dim the light of our constellation by yielding to your perfidy?"

Says the Gink, "Ear has ne'er been more treacherous nor tongue more unkind. My plan is not perfidy, but business. Besides, the 'square deal' is a mudsill in our plan of success."

Says the Goat, "So?"

Says the Gink, "So."

Says the Goat, "I humbly crave your forgiveness; maybe we can reach an understanding."

Says the Gink, "Five thousand ducats on the sly shall compensate in part for kind words in our behalf when opportunity offers and contracts are to be signed, provided they are given to our co-operative Kingdom Come. You can turn the trick."

Says the Goat, "I'm your huckleberry."

And thus closes another incident in the history of the fruit industry in the far West which may or may not be the modus operandi that has enabled about a score of lesser lights to form a phalanx to battle for liberty and the death of the "middle man."

Verily, this is a free country, and yet it isn't.

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Like our "Black Leaf" Extract, "Black Leaf 40" may be applied when trees are in full bloom and foliage, without damage to either.

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PRICE:

10½-lb. can, \$12.50. Makes 1000 gallons, $\frac{5}{100}$ of 1 per cent Nicotine."

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½-lb. can, .85. Makes 47 gallons, $\frac{5}{100}$ of 1 per cent Nicotine."

These prices prevail at ALL agencies in railroad towns throughout the United States. If you cannot thus obtain "Black Leaf 40," send us postoffice money order and we will ship you by express, prepaid.

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WHOLE ROOT TREES

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A. J. KNIEVEL, President and Manager

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Let us hear from you at once as to what you have to sell.

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The officers and committees of the International Apple Shippers' Association for 1910-11, with the postoffice address of each, are as follows:

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Editor Better Fruit:

I am pleased that you have incorporated rose growing as one of the pleasures of the apple orchardist. My ideal apple orchard is to contain a rose garden, a few fancy chickens and bees, together with the fruit. Yours cordially, C. L. Wonacott, Portland, Oregon.

J. F. LITTOOY

CONSULTING HORTICULTURIST

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MOUNTAIN HOME, IDAHO

WHEN WRITING ADVERTISERS MENTION BETTER FRUIT

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The names and addresses of the officers and committees of the National League of Commission Merchants of the United States for 1910-11 are as follows:

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A booklet descriptive of the many resources of this city and the surrounding country will be sent free on applying to the Publicity Department of the Ashland Commercial Club, Ashland, Oregon.

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PROPAGATORS OF

Reliable Nursery Stock

All stock budded from bearing trees, fruit and ornamental



BY WAY of introducing Mr. O. E. Spooner, the well known fruit broker of Boston, Massachusetts, to the readers of "Better Fruit," we publish an extract from a recent interesting letter. For about ten years previous to entering the brokerage field he traveled extensively for John B. Drake & Co., fruit commission merchants. The past five years he has given his undivided attention to the distribution of car lots of fruit, and commands a prestige of unusual strength among all the buyers of New England. He has also several valuable connections in foreign markets. His ambition is to be the leading car lot selling representative in New England. The past two or three years he has been representing several large organizations on citrus and deciduous fruits, sold through the auction, and in fact giving special inducements to shippers of fruits for auction distribution. He was honored this year with the chairmanship of the trade committee of the Boston Fruit and Produce Exchange. He has spent considerable time the past few months improving conditions on this market, endeavoring to put into force the motto that "Right is right," in instances where might has been right. This applies to some irregularities

that have existed at the auction rooms. His facilities are equal to handling additional large accounts and without doubt you are working along lines that will aid him in that direction. Boston appreciates quality and will pay the price.

The appended quotation from a recent issue of the Boston Record is to the point: "Orin E. Spooner, one of the active forces for wholesome, up-to-date methods in the handling of fruits and produce in this city, has received letters of commendation from all sections of the country for his fight against the methods now in vogue at the fruit auction sheds at the railroad terminal in Charlestown. Mr. Spooner is chairman of the trade committee of the Boston Fruit and Produce Exchange. He insists that the small receiver should get as square a deal as the large dealer."

The Port of Boston is rapidly coming to the front; extensive improvements are being made in the harbor, and the time is not far distant when the largest ocean liners will sail regularly from there.

ALPHONSE J. CONROY

Bonded Fruit and Produce Broker

ALL CODES USED
REFERENCES, MERCANTILE AGENCIES
PRODUCE REPORTER CO.

CHAMBER OF COMMERCE BUILDING
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Specialties—CITRUS & DECIDUOUS FRUITS
SOUTHERN & PACIFIC COAST VEGETABLES

Apple Shippers Attention!!

Get in touch with one of the OLDEST APPLE DEALERS in the West; write us what you will have to offer—get our proposition before selling.

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SPECIALIST IN

Western Box Apples, Pears and Deciduous Fruit

EFFICIENT HANDLING OF ASSOCIATION ACCOUNTS

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Reference, Everybody

IF YOU WANT UP-TO-DATE SERVICE GET IN TOUCH WITH US

BARNETT BROS. 159 South Water Street
CHICAGO

A Minute's Talk

with Western Fruit Associations, particularly those dealing in Apples, Cantaloupes and Peaches, are invited to correspond with us. We are able to put before you a plan for marketing your output in a manner satisfactory to you and mutually profitable.

by bulletins from the United States Department of Agriculture and the Oregon Agricultural College on both subjects, and he subscribed for several farm journals. He hired a team from a neighboring farmer and hauled all the manure he could buy within a mile or two of his place and spread it on the celery acre.

In the spring his incubators began turning out chicks and his celery plants came up. He went into the celery business with the idea of growing a fancy article, and the first crop was a failure from that standpoint. He was unable to bleach the celery to the degree demanded for the fancy grade and was obliged to accept a low price for his product. However, he made a profit of \$50 on the acre the first year.

By this time his hens were beginning to lay and he began to get an income from that source. His capital was slowly dwindling, but he began to see daylight ahead, and that did not discourage him.

The second year his poultry yards were placed on a good paying basis. He became acquainted with a celery expert who explained the art of bleaching and helped him to get his second crop in shape. It was a big success and instead of \$50 it netted him almost \$400. His original capital was about exhausted, but the cash profit from the farm at the end of the second year amounted to over \$600. The third year he built a dam in the creek and created a pond for ducks.

At the end of five years, when the mortgage became due, the man had twice as much money as he needed to pay it off. The remainder he put into improvements, building a neat bungalow to take the place of the made-over house.

Since then his net cash income from the place has never been less than \$2,000. He is sending his children away to school and has employed a man to help him all the year round, while his wife has a hired girl.

When he moved to the farm the man weighed 145 pounds and was pale and anemic. He did not know what it meant to be hungry. Now he weighs 180 and can hardly wait for meal time.—Oregonian.

COME TO THE LAND FOR HEALTH AND WEALTH

A PORTLAND bookkeeper, 37 years old, was on the verge of a breakdown when the doctor told him he must live out of doors if he expected to get well. He had a wife and two children, a boy of 12 and a girl of 10. He knew nothing of farming, but he determined to learn. He had saved something out of his salary of \$150 a month and a year before had received a bequest amounting to \$2,500 from the estate of an aunt, so that he had a cash capital of a little more than \$4,000.

The bookkeeper decided to try poultry raising, and to experiment with growing celery. He wanted to keep his position as long as possible, so his wife undertook the task of finding a suitable farm. They watched the advertisements in the papers and every one that seemed to offer what they were looking for was answered by the wife. She visited a score of places within easy reach of the city before one was found that met their requirements. The place comprised ten acres and was situated on Johnson Creek, a few miles from the city. The soil was good and the land all cleared except about two acres, which was in low brush and stumps. There was an old house on the place which had not been occupied for over a year and was in a bad state of repair. Close-in acreage had just begun to rise in price and the bookkeeper was asked \$350 an acre, with the house thrown in. He bought the farm early in the fall, paying \$2,000 down and giving a mort-

gage at six per cent for the remainder. This left him a working capital of \$2,000.

The new owner thought the house was too dilapidated to live in, so the family moved to the place and started house-keeping in tents. Although he was not a farmer, the bookkeeper was handy with carpenter's tools and he decided to see what he could do toward repairing the place, rather than expend most of his capital building a new one. He hired a neighbor by the day to help, and together they put the old house in good shape to withstand the winter, and the family moved in.

The man spent the winter building chicken parks and houses and putting one acre of the choicest land in shape for raising celery. He was greatly aided



ONE OF THE MANY BEAUTIFUL FARM HOMES ALONG THE SNAKE RIVER AT WEISER, IDAHO

The apple is the king of fruits. Our apples are kings of apples.

We are apple specialists. We sell the very best apples at very attractive prices.

Fine Eating Apples
Cooking Apples
Special Purpose Apples

Carefully packed in boxes or barrels. Remember, apples are staple goods, but we have made them a specialty.

We wish to handle the output of fruit associations as well as shippers. It will pay you to get in touch with us.

Sutton Brothers
Wholesale Fruit Dealers
COLUMBUS, OHIO

Belmont School
(FOR BOYS)

BELMONT, CAL.
(Twenty-five Miles South of San Francisco)

The school is trying to do for the moral and physical, not less than for the intellectual, welfare of each boy what a thoughtful parent most wishes to have done. Contributing to this end are the location of the school, removed from the temptations and distractions of town or city; the fineness of the climate, the excellence of its buildings and other equipment, and the beauty and extent of its grounds, with the wide range of foothills surrounding them. We are glad to have our patrons and graduates consulted. For catalogue, booklet and further specific information address the head master,
W. T. REID, A. M. (Harvard)
Fall term begins Aug. 14th.

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The Live Oak and Sunset Colony Farms in Sutter County, Sacramento Valley, California, are now offered on our EASY PAYMENT PLAN, one-fourth down, the balance spread over ten years.

If you want to apply all the profits each year on the purchase price, you can easily have a deed to your own farm, worth then several times what it cost you, all paid for out of the crops within five years or less. But you NEED pay us only ONE-TENTH each year and use the balance as you see fit.

If you prefer, and as an absolute guarantee of what our lands will produce, we will sell you one of our farms on one-fourth down, the balance from ONE-HALF THE CROPS each year. NO CROPS, NO PAY.

FREE government reports on the soil, irrigation system, climate and markets of our colonies. Also maps and booklets.

The most liberal offer ever made to secure a farm in California.

For the whole story address
SACRAMENTO VALLEY FARMS CO.
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JOHN M. WALKER
Of the Humphrey Commission Company
Denver, Colorado
Presiding officer at recent Western Fruit Jobbers' Association, Sacramento, California

THE Humphreys Commission Company, established in 1887 by Messrs. Humphreys and Wolf, and incorporated in 1900, has a capital stock of \$75,000, is a wholesale dealer in foreign and domestic fruit and produce, and has its commodious premises consisting of three stories and basement located at 1516-1522 Market street, Denver, Colorado, in the basement being room for the ripening of bananas by warm air currents. The company has a large force of employes and retains the services of seven experienced and able traveling salesmen. It has a very extensive trade and a very desirable class of patrons, not only in the city of Denver, but throughout the states of Colorado, Wyoming, New Mexico, Arizona, Kansas and Nebraska; in fact, two-thirds of the company's immense trade is with merchants outside of the city. The company deals in domestic fruits and produce and also receives large shipments of choice fruits from California, Old Mexico and Florida. The president of the corporation is Mr. John M. Walker, a man known and esteemed in the commercial world, and who is now president of the Western Fruit Jobbers' Association.

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Wonderful Work Engine

"Eats Work"

Farmers and Shop Owners, Stop Sweating! A few dollars gets this grand little work engine, complete and ready to run Cream Separators, Corn Shredders, Grist Mills, Feed Mills, Dynamos, Printing Presses, etc., etc. Gives a lifetime of steady service! All Sizes: 2 to 20 h. p. No cranking! No cams! No gears! Only 2 moving parts. Finest construction. Thousands in use. Guaranteed 5 years. Write for Special Introductory Proposition.

DETROIT MOTOR CAR SUPPLY CO., 238 Canton Ave., Detroit, Mich.

WHEN WRITING ADVERTISERS MENTION BETTER FRUIT

Are You A Quality Man?

When you go into a store to get a suit of clothes do you say to the salesman, "I want a good suit of clothes," or "I want a suit of clothes that will cost me about eight dollars"? Is the price your one and only thought, or do you give some consideration to quality? The thought which is uppermost when you go after a suit of clothes is the same one that will be uppermost when you go after nursery stock. We can supply you with nursery stock of unquestioned superiority, at a price which will please you. If you are the "Quality" man, you want our catalog, and we want your business. Let us show you what we have.

WE NEED MORE SALESMEN

If you can sell trees, we want you with us, and you want us with you.

Toppenish Nursery Company

Toppenish, Washington

Unsurpassed nursery stock grown in the famous Yakima Valley

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.

Editor Better Fruit:
Find enclosed my personal check for one dollar in payment of one year's subscription to "Better Fruit." I wish to compliment you on the high quality of your magazine. It is certainly a credit to its editor and to the great State of Oregon. Every fruit grower should have it. I always look forward with pleasure to receiving it. Sincerely yours, O. R. Sterling, Idaho Falls, Idaho.

Joseph Flaherty

65 Twenty-First Street
PITTSBURG

Box Apples and Pears
OUR SPECIALTY

DISTRIBUTORS

and handlers of Apples, Peaches, Plums, Grapes, Pears, Etc., Etc.
Write to **C. H. WEAVER & CO.**
65-67 West South Water Street
Chicago, Ill. We offer honorable capable, responsible, experienced service. Established in 1863

PERFECTION OF THE ROSE REACHED IN OREGON

A COUNTRY-WIDE discussion is going on as to what constitutes a perfect rose. A recent editorial in the Sunday Oregonian is so apt that we take pleasure in printing it in full:

A timely article in conjunction with Portland's Annual Rose Festival, now but a week off, appears in the current number of Everybody's Magazine, under the head, "The Quest of the Perfect Rose." Daintily illustrated and written by an enthusiast in rose culture, this article is a seasonable embellishment of the pages which it covers as well as a timely presentment of the queen of flowers, so soon to hold sway over Portland streets.

"The perfect rose!" exclaims one of our local devotees at the shrine of the queen of this coming carnival. "We already have it. Look at Caroline Testout!"

"Nay," exclaims another, "look at Viscountess Folkstone," and yet another and another claims perfection for La France, and Richmond; for Lady Battersea and Duchess De Brabant; for Marie Von Houtt and Catherine Mermet; for Maman Cochet and Madame Alfred Carriere. And so on and on through a list of floral queens arrayed in shell or silver pink; in gorgeous crimson, in tints of sunset and gold, or in purest white, each and all of whom will hold court in the hearts of citizens of Portland during the week beginning June 5.

To be sure, we need a few days of sunshine, warm and bright, to bring our roses to perfection; but we need no new types of roses, no new variety or "sport" of any type in order to be able to show perfect roses by the thousands and tens of thousands in early June days.

We are told that the "blue rose" is the dream of rose breeders and hybridists. Here the question, "Why should anybody want a 'blue rose'?" is pertinent. "Of course," comes the answer, "there is nothing beautiful about a blue rose. The effort to produce it is simply one of those strivings for the always desired—for the impossible."

With this explanation we can afford to drop the "quest of the perfect rose," feeling sure that it is pursued, not because we have not already perfect roses in abundance, perfect in form, fragrance, tints, habits of growth, vivid coloring and profusion of bloom, but because of the unappeasable desire to produce something new or quaint, or striking, that will serve to show man's power in the domain of Nature.



THE second precooling station of any importance in the United States will be established in Salem, Oregon, during the next two months by the federal government. A. W. Dennis and his wife have arrived there to take up the work. He is connected with the Department of Agriculture. The object of the station is to give instruction in the science of precooling fruit by doing away with the old system of refrigeration. Fruit precooled withstands the hardships of a long journey to Eastern markets much better than when handled under the old process. Wide experimentation has been carried on successfully along these lines on the Pacific Coast, and experts believe it will be equally successful, if not more so, under the Department of Agriculture's officers.

O. W. Butts

Wholesale Fruits and
Commission

Strawberries and Apples Our
Specialty

A strong house—Pioneer dealer of
thirty years' experience

OMAHA, NEBRASKA

THE Lawrence-Hensley Fruit Co.

JOBBERS OF

Fruits and Vegetables, and
Apple Packers

Largest Strawberry Dealers
in the West

DENVER, COLORADO

Editor Better Fruit:

Since I began receiving personal letters from you I have had a strong desire to meet you personally, and it would appear that you are one of the men who has met difficulties, obstacles and adverse conditions and overcome them. Some of us are destined to have many heavy storms during our lives. Any fool man can do the ordinary things, but it takes the man of red blood, brains, energy and an accurate insight of human nature to produce as magnificent a magazine as "Better Fruit." In a limited way I know what difficulties you have had to encounter to bring the magazine up to the present state of perfection, and "I take off my hat to you," and the first opportunity I get I am coming to Hood River and do myself the honor of having a chat with you. Very truly yours, M. C. Miller, Ashland, Oregon.

C. C. EMERSON & CO.

Wholesale

FRUIT and PRODUCE

Car Lot Distributors

Apples Pears Peaches

Potatoes Onions

ST. PAUL, MINN.

Ginocchio-Jones Fruit Co.

KANSAS CITY, MO.

APPLES

are our main Specialty

Established in Kansas City 25 years

Gilinsky Fruit Company

Wholesale Jobbers of

FRUITS and
VEGETABLES

1017 Howard Street OMAHA, NEB.

Telephone 763

F. BORDER'S SON CO.

THE PIONEER BOX APPLE HOUSE OF

BALTIMORE

THE GATEWAY OF THE SOUTH

We represent the leading Pacific Coast shippers, including Mutual Orange Distributors, Stewart Fruit Co., San Joaquin Grape Growers' Association and others

We Want to Correspond

with some of the up-to-date shippers and packers of fancy apples in your section. We have a market for fancy apples that is second to none in this country, and believe it will be to your advantage to get acquainted with us and this market.

We want to do business only with those who put up a well packed box, and who will respect grades.

H. B. FISKE & CO.

51-59 Dyer Street

PROVIDENCE, RHODE ISLAND

HOW TO SELECT FRUIT LAND IN THE NORTHWEST

PROFESSOR W. S. THORNBUR, WASHINGTON AGRICULTURAL COLLEGE

THE large amount of money that is annually being invested in fruit lands in the Pacific Northwest and the multitude of people who are depending upon fruit crops to make their place in life easier and more pleasant, or wholly to support them, makes this phase of fruit growing one of the most important to consider before buying or permanently locating.

The vital and most unfortunate phase about this problem is that a multitude of buyers are blindly buying land, planting orchards and attempting to grow fruit regardless of the adaptability of such lands or the varieties of fruit suited to their conditions.

The only redeemable feature is that the apple will successfully grow on a great variety of lands and under more uncertain conditions here in the West than in most American districts, nevertheless failure and loss can only result from acres of heedless, unguided planting. This is already apparent in some of the fruit districts of the state.

The average buyer, if reasonably familiar with the elementary principles of agriculture and horticulture, need not make a serious mistake in selecting his orchard site if he will constantly keep in mind the common fruit growing determinants of the Pacific Northwest. Should he lose sight of these he may blindly succeed or miserably fail.

The orchardist, like every other group of men, have sharks as well as honorable men in their ranks, and so in making a purchase it is quite necessary that you know your man as well as your land.

In starting out to select a piece of land one should be provided with a good sharp spade, a few strong paper sacks and a note book. It is better to examine the soil while it is dry than wet, as wet soil always looks richer and better to the average man than it really is.

Factors to considered: 1. Poorly air-drained lands. 2. Poorly water-drained lands. 3. Railroad or boat transportation facilities. 4. Local transportation conditions. 5. The probabilities of sufficient fruit to make unions feasible. 6. The depth and fertility of the soil. 7. The presence of hardpan, shale or solid rock. 8. The presence of "marl" sub-soil. 9. The chances of alkali. 10. The so-called sour or acid soil. 11. Windy exposures. 12. A pleasant place in which to live.

While it is a fact that refrigerator cars and fast fruit trains have shortened distances and saved time, yet one should carefully consider the opportunities open for the moving of crops from any particular valley before he finally locates for the growing of fruits. One transportation company is a good thing, but two or more are far better, for at least two reasons, i. e., the rapidity with which the crops can be moved and the wider range of markets reached by two or more

"Northwest"
trees
are best

"Northwest"
trees
are best

We have for the coming season a complete line of

NURSERY STOCK

Including everything handled in the nursery line

Write for our new prices and catalog

NORTHWEST NURSERY CO.

North Yakima, Washington

AGENTS WANTED

Dore-Redpath Company

Wholesale Fruits, Vegetables
and Produce

Peaches, Pears and Box
Apples Our Specialty

Get acquainted with us

St. Paul, Minnesota

**CARLOT DISTRIBUTORS
OF**

BOX APPLES

Box Pears Box Peaches

Largest handlers of box fruit in this territory. Best modern storage facilities. Reliable market reports.

Top Prices
Prompt Returns

E. H. SHAFER & CO.

508 Columbia Building
Louisville, Kentucky

Members of the International Apple Shippers
Association

We use Revised Economy Code

The F. J. Pomeroy Co.

84 DETROIT ST. Milwaukee, Wis.
Branch at Medina, N. Y.

RECEIVERS AND DISTRIBUTORS

**Apples, Fruits, Potatoes
Melons and Cabbage
Provisions and Grain**

CAR LOTS A SPECIALTY

We handle 200 carloads of Apples and
better per Season

roads at little or no extra expense. A promise of a road is a good thing, but the road should be sure before planting large quantities of soft or small fruits, as it is impossible to haul large quantities of these crops any distance by wagon and then ship them by rail or boat.

The wagon roads of a district must also be good if the best results are to be secured. Five miles over the average wagon road is the limit for thin-skinned apples, pears and peaches, and half this distance over a stony mountain road is much too far for the best results with distant markets.

The problem of winter injury and cold enters into the consideration of fruit lands in the Pacific Northwest only in respect to newly transplanted trees in some of the districts or lands far into British Columbia, where the extremes of temperature are much more marked than is ordinarily the case west of the Rocky Mountains. When the bearing fruit trees are properly ripened up in the fall, and the tillage and irrigation has been reasonably applicable to the conditions, this factor need not be considered.

The most serious temperature problem that we have is the late spring frosts, which occasionally kill the crop just as the trees are in blossom. Some districts are more subject to this than others. If the temperature records are available anyone may judge for himself, but if they are not the would-be buyer must resort to other means in securing this information.

The more common way is to visit the homesteaders or old settlers of the district and try to get at the facts of the case. This is usually difficult, as I have yet to find the district where the homesteaders welcome the coming of the fruit grower, because it means the shutting up of stock and cutting up of the big farms, and so the information gained in this manner is unsatisfactory and frequently misleading.

If there happens to be an old farm orchard of many varieties (and these orchards are variety tests in themselves) go to that, better in the fall if possible, but at any rate examine the fruit scars. It is comparatively easy to tell whether the trees have been bearing crops annually, every other year or never. Apple trees are good for this test, but pears are better. If they show a uniform lot of large scars the chances are they have produced good annual crops; if one age of scars are large, another small and still another large, the crops are sometimes good and sometimes not good, but if they are all small the probabilities are that frost catches them annually.

Editor Better Fruit:

The results from our advertisements in "Better Fruit" last season were so satisfactory that we wish to advertise with you again this season. We have made some small, but we think valuable, improvements which it will take a new cut to show up properly. Owing to delays in receipt of materials we have not been able thus far to get a machine ready for the photographer, although we have several hundred in different stages of construction. "The Edgemont Lid Press will be better than ever the coming season." H. Platt & Sons, Como, Montana.*

The Fruit Marketing Question Solved

Numerous articles have been published recently covering the matter of a suitable solution of the important question of properly marketing the rapidly increasing fruit crop. Many ideas have been advanced which theoretically appeared feasible, but practical demonstration has proven that the real solution of this problem is to place the fruit in the hands of thoroughly equipped marketing experts who make a specialty of this feature of the fruit industry.

We have conducted a car lot distributing business for the past number of years, and by honest dealing, coupled with good judgment, have made a success. This season we are even better equipped, having added to our staff several fruit salesmen whose ability cannot be questioned, and we are now in position to offer to growers and shippers a fruit marketing agency second to none.

One of the largest new accounts which we have obtained this year is that of the Grand Junction Fruit Growers' Association, of Grand Junction, Colorado. This association is the most successful growers' organization in the country today, and they have been doing their own marketing for the past fifteen years, but they realized that better results were possible by turning this part of the business to a reliable marketing agency, thus giving their management opportunity to confine their efforts to the matter of grading, packing, loading and shipping the fruit. It was natural that they should select the very best agency doing business today, and a contract was signed with Denney & Co. of Chicago.

We will have a thoroughly equipped office located in Omaha, Nebraska, in charge of Mr. H. G. Fletcher, ex-assistant manager and general Eastern agent of the Grand Junction Fruit Growers' Association, covering the territory west of the Mississippi River and the South. Our general office, located in Chicago, in charge of Mr. John Denney, whose ability as a fruit distributor is well known, together with competent representatives located in all of the principal markets, giving us the opportunity of taking advantage of the very best markets at all times, we are in position to offer shippers and growers the very best service that marketing science can produce. We invite investigation as to our ability and integrity and solicit correspondence as to our manner of doing business and terms.

DENNEY & CO.

193 South Water Street

CHICAGO, ILLINOIS

(INCORPORATED)

SCALZO-FIORITA FRUIT CO.

ST. LOUIS, MISSOURI

Headquarters for
Box Apples
Oranges, Lemons

PRUNES
PEARS
PEACHES

Largest Fruit and Produce House in America
70,000 Square Feet of Floor Space
Members Western Fruit Jobbers Association

FORTY YEARS IN BUSINESS

Correspondence invited with associations and individual growers desiring first-class connection in St. Louis. Auction facilities unequalled. Will buy outright or handle consignments, private sale or through St. Louis Fruit Auction.

References: Franklin Bank, Dun and Bradstreet, any wholesale fruit house in the country.



PROMPT SAFE RELIABLE

LINCOLN, NEBRASKA J. GRAINGER & CO.

ESTABLISHED 1887

WHOLESALE FRUIT MERCHANTS

Extensive Dealers in Extra Fancy Washington and Oregon

Apples, Pears, Peaches, Plums, Prunes

Managers of Associations will do well to correspond with us

REFERENCES

"Better Fruit"
First National Bank, Lincoln, Nebraska
Corn Exchange National Bank, Chicago, Illinois
Chatham & Phoenix National Bank, New York, N.Y.

J. H. Bahrenburg, Bro. & Co.

103-105 Murray Street New York City, N. Y.

WE ARE PREPARED TO HANDLE YOUR SHIPMENTS OF APPLES
in Foreign or Domestic Markets

Our representatives in foreign markets are merchants with whom we have been associated in the apple business for a great many years, and whose ability we have learned to know.

We are also prepared to offer you

THE BEST STORAGE FACILITIES TO BE HAD
in New York State as well as in New York City

For any further particulars, write the above address.



DISTRIBUTORS

For Shippers and Associations

Green and Dried Fruits

Unlimited Storage Facilities

Correspondence Solicited

Indianapolis, Indiana

ESTABLISHED 1866

A. B. DETWILER & SON CO.

Commission Merchants and Wholesale

Fruiterers—Foreign and Domestic

246 South Front Street and 117 Dock Street, PHILADELPHIA

APPLES—CALIFORNIA, YORK STATE

FLORIDA, WEST INDIA, MEDITERANEAN FRUITS

Rae & Hatfield

317 Washington Street, New York

Largest Handlers of Pacific Coast Fruits in the EastREPRESENTING THE FOREMOST WESTERN SHIPPING COMPANIES AND ASSOCIATIONS
ON THE NEW YORK MARKET*Operating in All Producing Sections***RELIABLE****EXPERIENCED****PROMPT****L. S. Donaldson Company**

MINNEAPOLIS, MINNESOTA

**Car Lot Dealers in High Grade
Fruits of All Varieties**

WRITE

OLIVER D. HEFNER, MANAGER AND BUYER
FOOD AND FRUIT MARKET**APPLES!**

We want the best the market provides

FLIEGLER & CO.

ST. PAUL, MINNESOTA

Members St. Paul Board of Trade

Let us keep you posted on the St. Paul market
It will pay you**We Want all Shippers of Green and Fresh Fruits to Write Us**

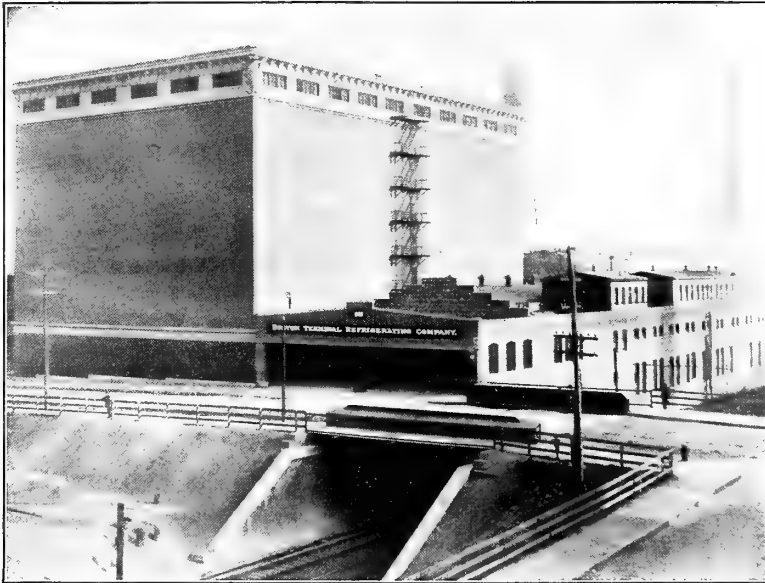
Auction Facilites Unequaled by any House in America

THE B. PRESLEY CO.

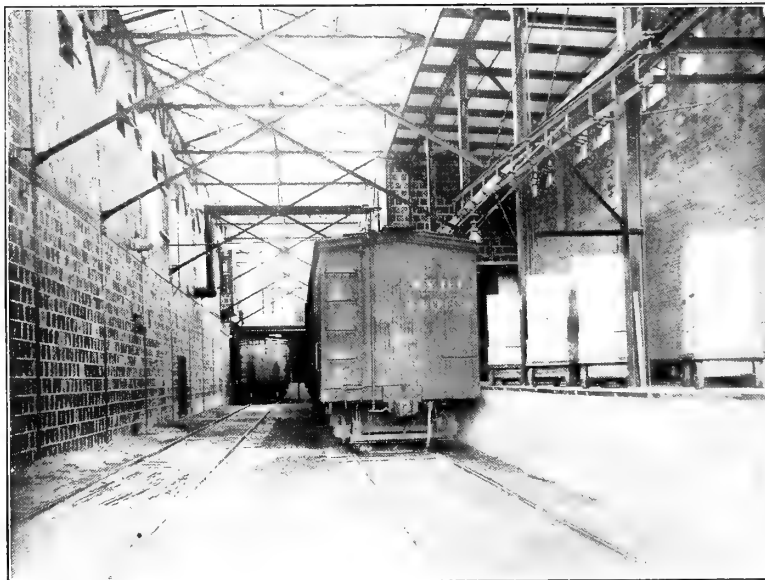
ST. PAUL, MINNESOTA

WHOLESALE FRUITS

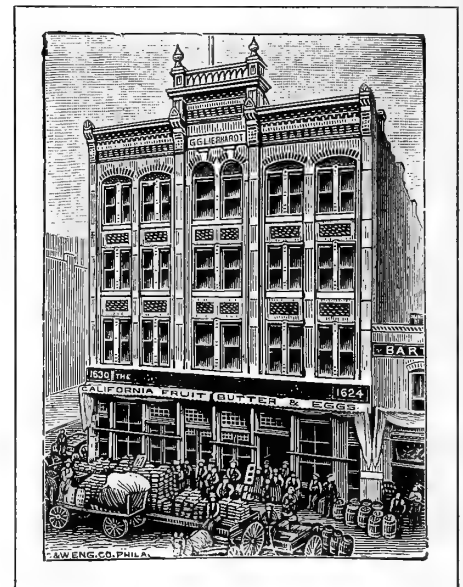
We handle thousands of cars of fruit yearly, Apples, Pears, Peaches, Prunes, Etc.



Boston, in addition to its increasing consumption of Western box apples, is looming up as a superior point for the export of fruit. Handlers who have transferred their point of storage and ultimate export to Boston are loud in their praise of the facilities offered there and freely express themselves to the effect that they will not return with their business to New York or any other seaboard point. After a personal inspection of the situation at Boston, we are convinced that our readers should be informed in regard to the export facilities there and are producing herewith two pictures of the Boston Terminal Refrigerating Company's superb building, situated at Grand Junction Wharves, East Boston, Massachusetts. One view shows the exterior of the building and the other the inside of the train shed, where the goods are unloaded absolutely under cover. Goods when exported are loaded into cars switched directly into the docks adjoining, where again they are unloaded under cover into the steamers, providing the most perfect export facilities for the handling of perishables known in this country, and facilities which will be readily appreciated by all the large handlers of apples.



tive, but rattling good sport. There's a fascination in pitting your skill against a five-foot giant stump, and putting it out of the way without much exertion. It is a very simple process; anyone can learn it thoroughly in a few hours, and by using this method the man with a strip of prime raw land can clear it at his convenience and without expense. Our purpose in promoting the charpfit method is to do away with the terror so many people have of buying raw lands when they know the fearful labor involved in clearing them by the old methods. I believe that the fact of the charpitting discovery should be heralded far and near for the benefit of the entire state and the Northwest in general. Then scores of people of limited means who look at raw lands and pass on because they can't afford to buy cleared lands or clear raw lands with dynamite and donkey engines, will avail themselves of the new opening." ♦ ♦ ♦



THE Lawrence-Hensley Fruit Company commenced business January 1, 1907, succeeding to the business and good will of the Liebhardt Fruit Company, which had been in continuous and successful operation since 1881. During this period the Lawrence-Hensley Fruit Company has established a reputation second to none for progressiveness and fair dealing, and is a leader in this line in the Rocky Mountain region. It is the only house in Denver that has handled the celebrated Hood River strawberries each year, and it is well and favorably known throughout the Northwest and especially in Hood River. ♦ ♦ ♦

Editor Better Fruit:

Enclosed find check for one year's subscription to "Better Fruit." Your sample copy appealed to me very much. As I intend to take up residence in Hood River shortly and "fruit ranch" I feel that I cannot afford to refuse the service of an advance friend like your magazine. Yours very truly, L. G. Nicolai, Washington, D. C. ♦ ♦ ♦

Editor Better Fruit:

Am sending herewith check for one dollar to renew my subscription to the best fruit journal published at the present time—the one that leads and is in a class of its own. I consider it by far the best fruit paper of my acquaintance. Yours for better fruit, H. L. Beaty, Heyburn, Idaho.

SUCCESSFUL LAND CLEARING BY CHARPIT PROCESS

THE announcement in positive form that an end has been put to the time-honored blast-and-sweat way of clearing fertile Oregon stump land has proved a great drawing card. Many prospective buyers have in past years been shy of these stump lands because of the vast amount of labor and expense involved in preparing the land for production. Now with a method at hand which solves that century-old problem, interest in prime raw lands gives promise of reviving on a broad scale and bringing about a brief era of cheap producing lands.

One of Oregon's pioneer farmers has this to say of the "new-old" process:

"We find that charpitting is cheap, economical and effective in every way. We have not had a single failure in charpitting. We get rid of the biggest stumps in the district for fifty cents, or never more than sixty cents each. What such a method means to the poor man who wants to get hold of a good producing area and who can hardly afford to pay the price asked for land cleared by donkey engines and dynamite, is obvious. I find charpitting not only cheap and effec-

John B. Cancelmo

PHILADELPHIA, PENNSYLVANIA

LARGEST DEALER

IN BOX APPLES

ON THIS MARKET

Philadelphia Supplies

WITHIN A RADIUS OF ONE HUNDRED MILES

Over Ten Million People

Make Your Arrangements Now
Cold Storage Facilities Unexcelled

We represent some of the largest fruit
shipping concerns in the world

Do Not Overlook the Philadelphia Market

THE NORTHERN PACIFIC RAILWAY'S APPLE PRIZE

PRESIDENT HOWARD ELLIOTT of the Northern Pacific Railway has offered twenty-five twenty-dollar gold pieces to the apple grower who will exhibit the best twenty-five boxes of apples of any variety or varieties at the American Land and Irrigation Exposition, to be held in Madison Square Garden, New York, November 3 to 12, 1911. The contest is limited to bona fide growers or proprietors of orchards, anywhere in the world.

In addition to this President Elliott has also allotted 160 acres of land in Montana, near the station of Terry on the Northern Pacific, as a gift to be awarded to some one of the visitors at the exposition on a day to be designated by the management of the show. The visitors on that day will each be given a numbered coupon, and at the close of the

day's events a drawing will be made, the one holding the lucky number to get the land. Other land will also be donated by several large land companies.

Besides the Northern Pacific prize for apples there are a number of other prizes offered for the best exhibits of grain and other products. The Northern Pacific has issued a circular describing fully all of the prizes and the necessary procedure for contestants to follow. A copy of this circular will be sent to any one interested upon application to the general passenger office of the road in St. Paul.



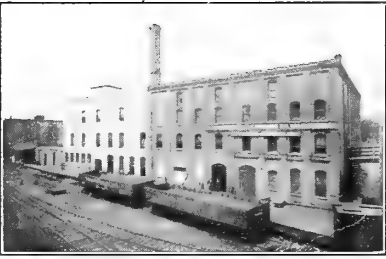
Editor Better Fruit:

You are certainly to be congratulated on the fine showing that you are making with "Better Fruit" and we wish you all the success a man can have. In holding up your paper to ninety-six pages you are doing a piece of work that is hard to equal, and there is now no doubt but that you have the leading fruit paper in the world. Sincerely, Clinton L. Oliver, Denver, Colorado.

CHAS. W. WILMEROOTH
DEALER IN AND DISTRIBUTOR OF
APPLES AND PEARS
102 THIRD STREET PORTLAND, OREGON

If you have fruit to sell correspond with me
PACIFIC COAST REPRESENTATIVE

Simons, Jacobs & Co., Glasgow J. H. Lutten & Son, Hamburg Garcia, Jacobs & Co., London Olivit Brothers, New York	Simons, Shuttleworth & Co., Liverpool and Manchester Simons, Shuttleworth & French Co., New York Stewart Fruit Co., San Francisco and Los Angeles
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**MODERN
COLD STORAGE**

with every facility for handling
and storing

Apples, Fruit, Produce

at any temperature desired.

Finest market and distributing point in the Northwest
Write for terms

De Soto Creamery and Produce Co.
Cold Storage Department MINNEAPOLIS, MINNESOTA

LEO UJFFY
New Orleans, Louisiana
Successor to
APPEL & UJFFY
The largest wholesale exclusive
Fruit and Fancy Vegetable Firm in the South
**IMPORTERS, RECEIVERS, JOBBERS AND
COMMISSION MERCHANTS**
Correspondence solicited

**Announcement to
British Columbia
Fruit Packers**

Realizing the difficulty that our British Columbia customers have had in securing the genuine

**PEARSON
CEMENT COATED NAILS**

for use in their fruit boxes, we are pleased to announce that we have appointed the well known firm

**Vernon Hardware Co., Ltd.
Vernon, B. C.**

as our Sales Agents. They will carry a full stock of our well known Box Nails and they will always be in a position to furnish them at the lowest market rates.

The PEARSON Coated Nail

is recognized as the world's standard for fruit boxes. They drive easier, pull harder, and will not split the shook. Keg for keg, they cost less than the common kind.

Thanking you in anticipation of your giving the Vernon Hardware Company your orders, we are,

Respectfully yours,
J. C. PEARSON CO.
315 Monadnock Building
SAN FRANCISCO, CALIFORNIA

P. S.—On receipt of four cents in United States postage stamps to cover the cost of mailing we will send you free of charge a Pearson Nail Puzzle which will afford you considerable amusement.

We make a specialty of

Western Fruits

**APPLES, PEACHES
PLUMS AND PEARS**

We have our representative in field

The Callender - Vanderhoof Co.
113 North Sixth Street
MINNEAPOLIS, MINNESOTA



**BEE
HIVES**

**WE ARE WESTERN AGENTS FOR
A. I. ROOT CO.'S BEE SUPPLIES**

—the recognized standard of excellence. Also a complete line of "Diamond Quality" Eastern and Western Pine and Cedar Hives.

We can therefore equip you with everything for the profitable and successful handling of bees. Send at once for our complete illustrated Bee Supply Catalog No. 203

Italian Bees hived up ready for work. Strong colonies in dove-tailed hives for immediate delivery

ORDER NOW



**PORTLAND SEED
COMPANY**

PORTLAND, OREGON

NEWPORT

YAQUINA BAY

OREGON'S POPULAR BEACH RESORT

An Ideal Retreat for outdoor pastimes of all kinds. Hunting, Fishing, Boating, Surf Bathing, Riding, Autoing, Canoeing, Dancing and Roller Skating. Where pretty water agates, moss agates, moonstones, carnelians can be found on the beach. Pure mountain water and the best of food at low prices. Fresh fish, clams, crabs and oysters, with abundance of vegetables of all kinds daily.

Camping Grounds Convenient and Attractive
WITH STRICTLY SANITARY REGULATIONS



LOW ROUND-TRIP SEASON TICKETS

from all points in Oregon, Washington and Idaho on sale daily.

Three-Day Saturday-Monday Tickets

from Southern Pacific points Portland to Cottage Grove; also from all C. & E. stations Albany and west. Good going Saturday or Sunday and for return Sunday or Monday

Call on any S. P. or C. & E. Agent for full particulars as to fares, train schedules, etc.
also for copy of our illustrated booklet, "Outings in Oregon," or write to

WM. McMURRAY
General Passenger Agent
Portland, Oregon

FUTURE HOG RAISING IN THE PACIFIC NORTHWEST

BY R. B. MILLER, TRAFFIC MANAGER, O-W. R. & N. CO.

THE prime factor of agricultural prosperity is the hog. The State of Oregon and in fact the entire territory served by the lines of the Oregon-Washington Railroad & Navigation Company and the Southern Pacific Company in the Pacific Northwest offer exceptional advantages for hog raising, not only because of climatic and soil conditions, but because of the close proximity to the large consuming markets on the Pacific Coast. The demand for the product of live stock and the dairy is a large and

growing one, and even now it is necessary to draw on the Eastern states to supply actual necessity. Packing house products are moving in large quantities from the East to the entire Pacific Coast region. We do not raise sufficient hogs in this territory to meet local requirements, and the Portland and Puget Sound packers alone are expending two million dollars annually for live hogs which they are obliged to secure in Nebraska and the Middle West. The Pacific Northwest country is capable of supporting suffi-

cient live stock to fully satisfy home consumption, and enable our farmers to engage in the production and shipment of stock on an extensive scale.

Hog raising is a profitable business. The richest and most prosperous communities are those that are engaged in that industry. The returns are regular and frequent. A start may be obtained with small capital, and with a well bred type of hog and intelligent handling the industry will grow into large proportions. The profits begin to come in soon after the first outlay, and they are continuous the year round, and not dependent upon any particular season. Nor are hogs

affected by frost or other adverse conditions of climate that may result disastrously with other crops, such as grain and fruit. That section in which diversified farming is practiced is immune from drouth, crop failures, or the financial depression which follows short or damaged crops or is the result of adverse market conditions.

The ideal in agriculture is attained when the raising of stock for market is recognized as a necessary adjunct to every farm. A permanent fertility of the soil is a matter of the greatest concern, and it can be accomplished in the most economical manner through the raising of stock. Hog raising will in due time become one of the principal vocations in our Northwest country, and will not only add that much to the value of its products, but will provide a means of maintaining its prosperity at times when other sources may fail. In the interest of the general welfare, the Oregon-Washington Railroad & Navigation Company and the Southern Pacific Company have considered it the part of wisdom to foster and encourage the industry in every practicable way. Not a small part of the success to be obtained in swine culture is dependent upon the intelligent and consistent care and feeding of the animals, and these matters have been featured in an extensive booklet recently issued by the above named companies devoted to hog raising. It has been published for free distribution, and will be found to be of a practical value to farmers and others interested. It will be mailed free to any one upon application to Mr. Miller.

The PACIFIC MONTHLY

has just closed the most successful and prosperous year in its history. We want to make 1911 even more successful than the year just passed. We want *your* name upon our subscription list. Here are a few facts which will help you to decide the question of subscribing,

☐ The Pacific Monthly is recognized as the most successful independent magazine in the West. It publishes each month artistic and unusual duotone illustrations of beautiful Western scenery, studies of Indian heads, or of animal life, ranging from Alaska, on the North, to Mexico on the South, and as far afield as Japan and the South Seas. From its striking cover design to the last page you will find a feast of beautiful pictures.

☐ Each month it publishes from five or six short stories by such authors as Jack London, Stewart Edward White, Harvey Wickham, D. E. Dermody, Seumas MacManus, Fred. R. Bechdolt, and other well known writers of short stories. Its stories are clean, wholesome and readable.

☐ Each month one or more strong articles are published by such writers as William Winter, the dean of dramatic critics, John Kenneth Turner, the author of "Barbarous Mexico", Rabbi Wise, the noted Jewish Rabbi, and John E. Lathrop, who contributes a non-partisan review of national affairs. Charles Erskine Scott Wood contributes each month under the title of "Impressions" a brilliant record of personal opinion.

☐ The Pacific Monthly has become noted for having published some of the best verse appearing in any of the magazines. Charles Badger Clark, Jr., contributes his inimitable cowboy poems exclusively to The Pacific Monthly. Berton Braley, George Sterling, Elizabeth Lambert Wood, Wm. Maxwell, and other well known poets are represented by their best work in our pages.

☐ A feature that has won many friends for The Pacific Monthly has been our descriptive and industrial articles. During the coming year one or more such articles will be published each month. Articles now scheduled for early publication are: "Money in Live Stock on the Pacific Coast", "Success with Apples", "Nut Culture in the Northwest", "Success with Small Fruits", "Fodder Crops in the Western States".

☐ In addition to these articles the Progress and Development Section will give each month authoritative information as to the resources and opportunities to be found in the West. To those who are planning to come West, the descriptive illustrated articles on various sections of the West will be invaluable.

☐ If you want a clean, fearless, independent magazine—one that will give you wholesome, readable stories, authoritative, descriptive articles of the progress being made in the West, a magazine that believes thoroughly in the West and the future destiny of the West—you will make no mistake in subscribing for the Pacific Monthly. Its subscription price is \$1.50 a year. To enable you to try it for shorter period, however, we will give a trial subscription of six months for \$.50.

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THE WOOD WASTE DISTILLERY COMPANY, (INC.)

Free Farmers' Circular No. 9

REPLYING to your recent request for more information relating to industrial alcohol from wood waste and farm products and the simple distilling apparatus that does the work as easily as a corn mill. If interested, read carefully; it will bring you the biggest returns of the year. Take a wash boiler and cook sawdust just as you would potatoes. Pour the juice in a washtub, then ferment with two cents' worth of yeast, lukewarm. Fermentation sets in and alcohol is formed. One hundred gallons of this solution will distill, if rich pine sawdust is used, as follows: Sixteen per cent turpentine, 2 or 5 per cent alcohol, and 3 per cent pine oil. It is best to use 10 per cent or more of vegetable waste boiled the same way. It will ferment easier and quicker the more vegetable matter is used, and it makes a larger percentage of alcohol and less turpentine. A farmer's stock food kettle is best for a five-gallon still. It is as easy for you to make alcohol as it is for a woman to bake bread. They don't need any baker or chemist. The distilling is still simpler. A five-gallon tax-free still the government allows for scientific or experimental purposes. It is a thirty-gallon tank still with copper coil superheater attached that makes its own steam. Just before the steam generates, the alcohol goes over first—it's lighter than steam—and passes down to the middle tank called turpentine separator and up around the inner pipe through a larger pipe into the pine oil separator, thence through a water-cooled coil in the barrel through the syphon below at the rate of one gallon per hour. The alcohol is stored in barrels or tanks. Then the light under the superheater is turned off, the thirty-gallon tank still drained off and refilled fresh again; light the superheater and start distilling again, etc., every half hour twenty-five gallons. Once a day the turpentine is tapped out, also the pine oil, and stored separately. Pine oil sells for \$2.10 per gallon. Turpentine and alcohol fluctuate between 46 and 55 cents a gallon in bulk. The price of the five-gallon still is \$135, freight paid; extra stock-food cooker kettle, 25 gallons capacity, costs net \$48 for wood or coal firing; total \$183 delivered. The still, packed in three parts, weighs 320 pounds, the kettle 160 pounds, making weight of shipment 480 pounds boxed.

If you are interested in this industrial alcohol business and its amazing productiveness in dollars and cents, tax free and simple as a corn mill, free as a motor, and almost automatic, so a boy can operate it, no license, no red tape, only a permit free—the government freed the five-gallon stills for scientific and experimental purposes as a forerunner for larger plants.

The spirit-yielding material in vegetable matter is its fermentable contents. It has been demonstrated that 100 pounds of the following farm products will produce alcohol in the following quantities: Rice, 46 per cent, equal to 6 wine gallons. 190 proof; rye, barley, spelt corn and sorghum seed, 40 per cent, 5 gallons; Irish potatoes, 12 per cent, 1½ gallons; cassava, 20 per cent,

2½ gallons; artichokes, 1¼ gallons; sugar beets, 16 per cent, 2 gallons; sorghum or sugar cane, 32 per cent; waste molasses, 46 per cent, 6 gallons; grapes, 2½ gallons; bananas, 2 gallons, and other fruits 10 to 15 per cent. Corn cobs boiled the same as you would potatoes yield 18 per cent; rich pine sawdust, 3 to 5 per cent alcohol, with 16 per cent turpentine and 3 per cent pine oil; sisal hemp juice, 25 per cent alcohol of 190 proof.

A five-gallon tax-free distilling denatured outfit consists of a thirty-gallon galvanized still with five-gallon doubler, a ten-gallon pine oil, rosin oil and turpentine separator, a nine-foot copper coil superheater, twelve-foot coil worm with barrel condenser, one alcohol tester, one sachtrometer, one steam gauge, two water gauges, two thermometers with pipes, valves and fittings. Actual distilling capacity, one gallon per hour. Cost \$135. Complete weight, ready for shipment, 320 pounds. Plain and non-technical instructions, blueprints and two books sent with plants.

We reserve the right to withdraw this offer without notice. But this offer is open to you now; to every man who wants a still that will do the work better than any other on earth, and at the rock bottom dealer's price. You can save all of the middle profits now by dealing direct with us.

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50 gallons capacity, cost.....\$ 500	\$2,500
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100 gallons capacity, cost..... 1,000	5,000
200 gallons capacity, cost..... 2,000	10,000
500 gallons capacity, cost..... 5,000	20,000
1000 gallons capacity, cost.....10,000	40,000

Now, then, if you really are interested and we can attract your attention, arouse your interest, create a desire to start you in business, and stimulate your action in giving us your order today, we thank you. Yours very truly, The Wood Waste Distilleries Company, Inc., Frank H. Hartzfeld, Secretary, Wheeling, West Virginia. May, 1911. *

EVERY fruit grower in El Dorado County and every man or woman who planted an orchard tract this winter and spring, should not fail to become a subscriber to that superb publication, "Better Fruit." Without any question "Better Fruit" is the best and most carefully edited publication of its sort in the world. It is distinctively Western, and the editor, E. H. Shepard, has been growing fruit for upward of twenty years, and he knows just what problems and perplexities every fruit grower must encounter and overcome. "Better Fruit" is always splendidly illustrated, and from the printer's viewpoint is a work of art. Every issue is brimful of instruction and helpful suggestions for the orchardist, and a subscription to the magazine will be the means of saving you much time, money and annoyance. Send for the "El Dorado Republican" and "Better Fruit" at once.—Republican-Nugget, Placerville, California.

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INDUSTRY PROMISES TO BE HIGHLY PROFITABLE

CHEMICAL research has in recent years resulted in the creation of a number of new industries of world-wide importance, but most of these have been of such a nature as to involve the initial outlay of a large amount of capital. This, however, is not the case with the manufacture of industrial alcohol. This product, for which there is a well nigh universal demand, can now be manufactured successfully with an apparatus so inexpensive and so simple to operate as to be within the reach of practically everyone whose business is of such a nature as to furnish the requisite raw materials. As alcohol can be made from a great variety of different products many diversified interests can use the simplified stills needed to manufacture it. Fruit canning companies are said to be the largest buyers of these stills, while sawmills come second and chemical works next. The making of denatured alcohol is also a profitable industry for varnish makers, chemical wood fiber mills, fruit

growers and packers, paper mills, soap makers, wholesale druggists, oil refineries, distilleries, garbage contractors, cane and beet sugar refineries and many other lines of manufacture.

Chemists have recently shown that sawdust can be made into alcohol, acetic acid, wood naphtha and oxalic acid, not to mention artificial wood and various special products extracted from conifers, birch and some other species of trees. Corn is another highly profitable source of alcohol, a ton yielding ninety-eight gallons of 188-degree alcohol at a net cost, according to official statistics, of a little over nine cents a gallon. Even corn cobs can be utilized in making this product. Firms interested in this new process for utilizing by-products, such as denatured alcohol and wood waste fiber pulp, should write at once for full particulars to Wood Waste Distilleries Company, 1204 McColloch Street, Wheeling, West Virginia.—Dun's International Review.

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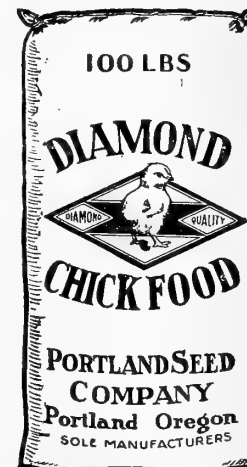
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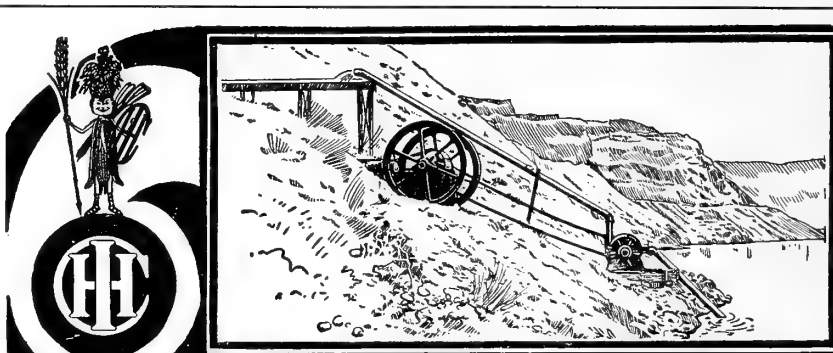
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SIGNS POINT TO GOODLY YIELD IN LANE COUNTY

AT its last meeting, Saturday, which was very largely attended, the Lane County Horticultural Association had reports from different parts of the county on the prospects for the fruit crop this season. The consensus of observation and opinion was that there would be a goodly crop of cherries, apples, peaches, prunes, etc., although in some orchards damage by spring frosts had reduced the maximum crop one-third. Prices for cherries will rule rather high, sustaining the highest prices for several years past.

W. G. Allen, a fruit packer and canner, who has recently made a tour of observation through the Pacific Coast states, pleaded for more production of berries, such as currants, strawberries and loganberries. He said it was remarkable the demand there was for currant juice and loganberry juice. He thought it was an established fact that the berry industry is good for a long time to come. Mr.

Allen further reported that there were very encouraging signs for fruit growers, the outlook being all that could be asked so far as the industry is concerned.

Phases of scientific culture were discussed. The association deplored, and denounced as well, the unscrupulous methods of some realty brokers who are particularly engaged in selling lands "sight-unseen" to buyers living in the East and Middle West, much of such land being unfitted for fruit raising. It was the sense of the meeting that every disappointed land buyer, who made a failure, worked a hardship on the fruit-growing industry.—Contributed.

IT IS reported that the firm of Denney & Co. of Chicago will be a very large factor in the marketing of the fruit crop in the Northwest this year. This firm has been very successful in securing satisfactory prices for the growers and shippers whom they have been representing in the past and have secured for themselves an enviable reputation as car lot distributors and marketing agents. They not only have a good standing with the shippers, but also with the jobbers, all of which has resulted from the fact that anyone trading with this firm is assured of a square deal and of each car receiving careful and prompt attention. Their facilities for securing satisfactory results and for handling a large volume of business are the very best, consisting of a well organized force of selling agents, superintended by men of ability, having full knowledge of the markets as well as of the production from the different sections, places Denney & Co. among the foremost distributing agents in the country.

Editor Better Fruit:

Please send a copy of your May number of your magazine. It is a beauty. A. W. Henning, White Bluffs, Montana.

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140 VARIETIES ANY QUANTITY

Plenty of stock in our 40,000 pounds

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Everything for Building

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That I cannot afford to mark my fruit with bordeaux," says Mr. George T. Powell, of Ghent, New York, a grower of fancy apples. "I have less scale and finer foliage than ever before."

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THE FRUIT BEST ADAPTED FOR EASTERN OREGON

SAYS Professor C. I. Lewis of the Oregon Agricultural College horticultural department: "Care should be exercised in the selection of varieties of fruit for planting in Eastern Oregon, since the higher elevations of that part of the state suffer more or less from the severity of the winter and the drouth in summer. As to apples, the Russian varieties will be the hardiest. These in low altitudes are summer and fall varieties, but often in high altitudes they are long keepers. The Red Astrachan, Gravenstein, Duchess, Wolf River, Wagener and McIntosh Red are the best and most satisfactory varieties to plant. Occasionally nearly any of the standard varieties grow sufficiently well for family use. Varieties of some promise in such sections are Rome Beauty, White Winter Pearmain, Delicious and Gano. The three varieties of pears I would suggest for the region are White Doyanne, Seckle and Clapp's Favorite. Peaches, as a rule, are not successfully grown in the higher elevations of Eastern Oregon, but occa-

sionally such varieties as the Alexander and Amsden do very well. The Gobbs apricot is often successful."

The four kinds of cherries suggested by Professor Lewis as most suitable for Eastern Oregon are Lambert and Bing, sweet cherries, and Early Richmond and Olivette for sour ones. Two varieties of raspberries, Cuthbert and Turner's Red, are named as good, and any of the standard varieties of blackberries, such as Kittatinny, Lawton and Eldorado, may be grown. Red Jacket and Champion gooseberries, and Bederwood, Warfield and Clark Seedling strawberries are also mentioned.



Editor Better Fruit:

We have opened our London house as intended when the writer was with you, and are now in a position to handle your entire output of fruit to the best possible advantage. The writer has been traveling in the various apple markets, and D. Crossley & Sons now have connections in all markets abroad where apples are eaten. We are pleased to say that our firm has had a large percentage of the apples received in Europe during the months of March, April and May. Our last shipment of Hood River apples, seven hundred boxes, sold at very high prices. Yours very truly, William Crossley, Covent Garden, London.

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THE FUTURE FAR EASTERN MARKET POSSIBILITY

REGARDING Providence, Rhode Island, as a marketing possibility for fruits of all kinds, and especially North-western apples, the following letter from H. B. Fiske & Co., commission merchants of that city, will be of interest: "We believe that this market is worthy of consideration from all good sized shippers and packers who are putting up the right kind of a pack and who want to build up a business of the lasting kind. No market appreciates good stuff any more than this one does, and no market will stick to a good brand or a certain mark of stuff any more than the Providence people will.

"We have for several years handled Le Pope peaches for the Le Pope Orchard Company of Le Pope, Georgia. They have always put up a very fine package of fruit, perhaps the best that ever left the State of Georgia, and we have always been able to get the top of the market for it, and understand that our sales have always been very satisfactory to Mr. Hendrickson, the owner of the Le Pope orchard. Anyway, he continues to give us his business from year to year. We have been successful in holding our share of the high class accounts that come to this city. The population of Providence is about 245,000 and is growing rapidly. Providence has been handicapped for a great many years in having only one railroad, the New York, New Haven & Hartford. The Grand Trunk is now laying out its road to make Providence its terminal. There is about one and a quarter million dollars being expended on our bay, in docks and dredging, and we are all looking forward to a great future for Providence.

"It has been a great surprise to many shippers that Providence can use the quantity of stuff that it does, and there

are several reasons why it does, one of them being that we have such a surrounding country that gets its supplies from here, served by a most complete trolley express system, branching out into all the small towns, which gives us very rapid delivery. There are some things that we should want to caution the shippers about. One is that it would not pay to ship any slack, poorly packed or poorly graded stuff. It must be good. There are some varieties of apples that do not take here at all; such varieties as Winesaps, Jonathans, McIntosh Reds, Gravensteins, Baldwins and Bellflowers can be used to good advantage.

"We have been in business since 1874, and the members of this firm are Henry B. Fiske and his sons, William H. Fiske and Daniel S. Fiske, and we have built up a business that we are proud of for its conservativeness and up-to-dateness, two things which we think are hard to combine. We believe that the make-up of our firm is such that we can look after all the small details of the business most thoroughly, from the fact that there are three of us familiar with all things connected with it. We have absolutely no guess work about anything, all commission accounts being made up from actual sales. We keep a tally on everything connected with our business, and no one can steal twenty-five cents' worth from us or make any kind of a mistake without it coming to light. Our store is most centrally located, directly opposite the market, and we believe we do the best commission business with the Rhode Island farmers of any firm here."

Editor Better Fruit:

As a publisher I want to congratulate you as to the appearance of your publication, which is way above the average, and you are going to get the business. Yours truly, C. Troup, Chicago, Illinois.

WE GUARANTEE RESULTS

Crest Spray

A HEAVY MISCIBLE OIL FOR ORCHARDS AND GARDENS



An Effective

EXTERMINATOR

of all

Insect Life, Germs and Vermin

CREST SPRAY is the result of scientific and practical experiments by the best phytopathologists and chemists.

ANALYSIS: Tar and kindred products, Naphthal, Pyroligneous Acid, Douglas Fir Oil, Phenols, Creosote, Turpentine, Resin, Sulphur and Soda.

DIFFERS FROM OTHER SPRAYS

Crest Spray is a soluble or miscible oil and mixes readily with water. It remains in solution, forming an emulsion.

It is non-poisonous and harmless to operator.

Requires no boiling or preparation like the Lime-Sulphur.

Its use is a saving of time and money.

Home-made Lime-Sulphur costs from 1½ cents to 2 cents per gallon.

Crest Spray costs from 1½ cents to 3 cents per gallon.

A gallon of Crest Spray has a covering power almost twice as great as Lime-Sulphur, reducing the cost nearly one-half.

SCIENTIFIC, EFFECTIVE, CONVENIENT, ECONOMICAL

PRICES:

Barrels, 25 or 50 gallons, per gallon	\$1.25
Five-gallon can, per gallon	- 1.35
One-gallon can, per gallon	- 1.50
Half-gallon can	- .90
Quart can	- .50
Pint can	- .30

Testimonials sent on application

Crest Chemical Co.

84 Bell Street

Seattle, U. S. A.

Faculty Stronger Than Ever
More Progressive Than Ever

Results Better Than Ever
Attendance Larger Than Ever

ATTEND THE BEST

Behrke-Walker Business College

PORTLAND, OREGON



10 DAYS FREE TRIAL We will ship you a "RANGER" BICYCLE on approval, freight prepaid to any place in the United States without a cent deposit in advance, and allow ten days free trial from the day you receive it. If it does not suit you in every way and is not all or more than we claim for it and a better bicycle than you can get anywhere else regardless of price, or if for any reason whatever you do not wish to keep it, ship it back to us at our expense for freight and you will not be out one cent.

LOW FACTORY PRICES We sell the highest grade bicycles direct from factory to rider at lower prices than any other house. We save you \$10 to \$25 middlemen's profit on every bicycle. Highest grade models with Puncture-Proof tires, Imported Roller chains, pedals, etc., at prices no higher than cheap mail order bicycles; also reliable medium grade models at unheard of low prices.

RIDER AGENTS WANTED in each town and district to ride and exhibit a sample 1912 "Ranger" Bicycle furnished by us. You will be astonished at the wonderfully low prices and the liberal propositions and special offer we will give on the first 1012 sample going to your town. Write at once for our special offer.

DO NOT BUY a bicycle or a pair of tires from anyone at any price until you receive our catalogue and learn our low prices and liberal terms. **BICYCLE DEALERS**, you can sell our bicycles under your own name plate at double our prices. Orders filled the day received.

SECOND HAND BICYCLES—a limited number taken in trade by our Chicago retail stores will be closed out at once, at \$3 to \$8 each. Descriptive bargain list mailed free.

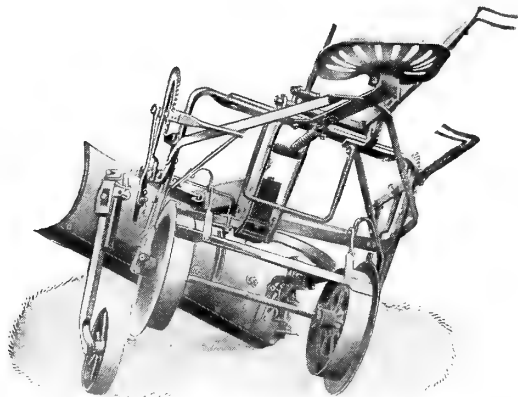
TIRES, COASTER BRAKE and everything in the bicycle line at half usual prices.

DO NOT WAIT but write today for our Large Catalogue beautifully illustrated and containing a great fund of interesting matter and useful information. It only costs a postal to get everything. Write it now.

MEAD CYCLE CO. Dept. L345 CHICAGO, ILL.

20th Century Grader

The Light-Weight Wonder—600 Pounds



Will make your ditches—level your land—grade roads, throw up borders at a third usual expense. It's the Many Purpose Machine—the Irrigationist's best investment—the handy tool which you will find use for every day in the year—thousands in use.

Our new catalog full of pictures of the machine at work, shows how it will save you money. Send post card for it, name of nearest agent and distributing point.

BAKER MANUFACTURING CO.

542 Hunter Building, Chicago, Illinois

Deming Spray Pumps

PLENTY OF PRESSURE

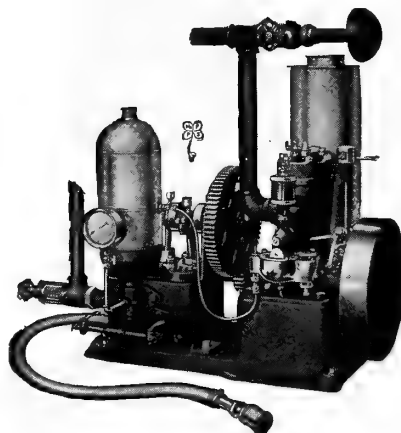
A spraying outfit that develops and holds a high pressure—as Deming Outfits do—has to be mighty well built—as Deming Outfits are.

Big air chambers; free-working yet water-tight valves that keep the liquid moving ahead; brass parts that almost wear forever; these enable Deming operators to cover the whole tree with fine, foggy spray that settles everywhere, and sticks and does the work.

Consult your local Deming dealer or write the nearest branch of

CRANE CO., Pacific Coast Agents

Portland, Seattle, Spokane, San Francisco



The Deming Company
870 Depot Street
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Hydraulic Rams
Hand and Power Pumps
For All Uses

S. P. CALKINS & CO. MEMPHIS

TENNESSEE

WHOLESALE BROKERS

Box Apples

Box Pears

Box Peaches

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PLENTY OF COLD AND COMMON STORAGE FACILITIES

References, Produce Reporter or any bank

G. M. H. WAGNER & SONS

EXPONENTS AND PURVEYORS OF

High Grade Box Fruits

MARKET CREATORS AND DISTRIBUTORS

Located for forty years in the largest distributing market in the world. Correspondence invited

123 W. South Water Street, CHICAGO

The Shenandoah Nurseries

Offer for Fall and Winter Trade
a complete assortment of

IMPORTED FRUIT TREE STOCKS

Mahaleb, Mazzard, Myrobolan and Pear

APPLE SEEDLINGS

American and French grown All grades
Straight or Branched

APPLE GRAFTS

Piece and Whole Root

FINE STOCK OF GRAPES, CURRANTS AND GOOSEBERRIES

Strong, well rooted plants

FOREST TREE SEEDLINGS

Carefully grown and graded

LARGE GENERAL STOCK

Send list for prices

D. S. LAKE, Proprietor

SHENANDOAH, IOWA

For several years we have been supplying most of the nursery stock planted in the famous Wenatchee district. Our business has grown to one of the largest in the Northwest and we have gained a reputation of which we are proud.

Experience has taught us how to grow the **Cleanest, Healthiest, Best-Rooted Trees in the World.**

Our line is large and complete. Over two million trees sold last year. Our customers get what they order.

Send in your list, whether large or small.

COLUMBIA AND OKANOGAN NURSERY COMPANY

Wholesale and Retail

Wenatchee, Washington

BEWARE OF FAKE TREE DOCTORS.—Frauds are being perpetrated in several parts of the state by men who give as their references the names of professors at the State Agricultural College without authority. One claims preposterous things in the way of curing apple trees of anthracnose and protecting them from the codling moth by applying chemicals to the roots. Another is offering a premium with subscriptions to a paper.

Dean A. B. Cordley of the Agricultural School has received a letter from a farmer near Tualatin asking if he gave his indorsement to such men. The letter says:

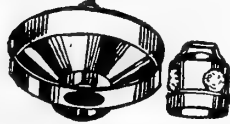
"A man named Saunder claims to have a treatment whereby he renders trees immune from diseases by the application of some chemicals to the roots, especially apple trees. He claims that they will be cured of anthracnose, and that the codling moth will not bother such trees for six years, and that no spraying is required on treated trees other than a light spray of concentrated lye once every two or three years to keep moss off the trees. Mr. Saunder gave me the name of Professor Cordley as reference, so I ask the college to give me its opinion. I regard this fellow as a fraud, pure and simple, and in order to protect my neighbors from his operations I have written to the college."

"I know nothing whatever of him," Dean Cordley replied, "and if I should give my testimony in the case it would be to the effect that any man who claims to be able to render trees immune from the attacks of the codling moth, anthracnose and other fungous diseases by an application of certain chemicals to the roots of trees is a fraud."

Another letter from Lebanon states that a young man claiming to be connected with the college is taking subscriptions for a paper and offering a premium, which turned out later to be a fraud. Dean Cordley has issued a statement that there is no such person connected with the institution, and that he is evidently trading upon the popularity and reputation of the college to make smooth the way for his fraud.

Rogue River Valley

30 acres; 20 acres 3-year-old orchard, consisting of 16 acres of Bartlett pears, 3 acres of Newtown and Spitzenberg apples, 1 acre family orchard; divided into two 10-acre tracts, other 10 acres ready for trees; one mile to Eagle Point and railroad station; less than mile to Tronson & Guthrie's orchard, world's prize-winner at Spokane in 1909. As good soil for fruit as can be found in valley. Terms: \$200 per acre; one-third cash, balance in three years at 6 per cent. Will sell entire or in 10-acre tracts. Sickness compels this sale, which is a sacrifice. Address owner, W. C. EARLE, 314 Couch Building, Portland, Oregon.



Dairymen:

Our general creamery and dairymen's supply catalog is out. If you keep cows you should have one. They are free. Kindly give us the information asked for below and we will send you this large new catalog free:

How many cows have you?

Do you separate your own cream?

If so, how many lbs. per week?

Name

Address

MONROE & CRISELL

145 Front Street, Portland, Oregon

A full line of Dairy Machinery and Supplies



POISONED BAITS TO KILL BUGS.
 "Poisoned baits are desirable for destroying grasshoppers, cut-worms and a few other insects," says H. F. Wilson, entomologist at the Oregon Agricultural College, in a new bulletin on insecticides for the garden, which will soon be off the press.

"Such baits are most effective if used in early spring," he says. "Poisoned slices of potato or some similar vegetable treated with a strong solution of arsenate of lead or paris green are used to poison sow-bugs and wire-worms.

"To make a bran arsenic mash mix thoroughly a pound of white arsenic, half a pound of brown sugar and six pounds of bran, and add enough water to make a wet mash. A spoonful should be placed at the base of each tree or vine. For cut-worms a still better bait may be prepared by mixing thoroughly a pound of paris green, fifteen pounds of middlings and fifteen pounds of dry bran and sowing it broadcast upon the vegetation, about the borders of cultivated fields or gardens. It may also be sown with a seed drill along the rows for destroying cut-worms in onion fields."



Editor Better Fruit:

We wish to acknowledge receipt of and thank you for your very courteous letter of the 22d, and surely appreciate the kindly attention you have given our request of a few days ago. You surely are realizing your original ambition in publishing "Better Fruit," as I have personally very much admired your good publication and consider it the best of its kind that I have had the pleasure of reading so far. Yours truly, The Sherwin-Williams Company, Cleveland, Ohio.

THE NORTHWEST ASSOCIATION OF NURSERYMEN

Oregon—Albany Nurseries, Albany; A. Brownell, Portland; Sunnyslope Nursery Company, Baker City; Carlton Nursery, Carlton; A. McGee, Orenco, M. McDonald, Orenco; H. S. Galligan, Hood River; Tune-a-Tune Nursery, Freewater; J. B. Weaver, Union; S. A. Miller, Milton; G. W. Miller, Milton; C. B. Miller, Milton; F. W. Power, Portland; J. B. Pilkington, Portland; C. F. Rawson, Hood River; F. W. Settlemier, Woodburn; F. H. Stanton, Hood River; E. P. Smith, Gresham; W. S. Sibson, Portland; Sluman & Harris, Portland; C. D. Thompson, Hood River; H. A. Lewis, Portland; Sunnyslope Nursery Company Baker City.
 Washington—C. J. Atwood, Toppensish; J. J. Bonnell, Seattle; A. C. Brown, R. D. 2, Selah; Ed Dennis, Wenatchee; A. Eckert, Detroit; D. Farquharson, Bellingham; George Gibbs, Clearbrook; W. A. Berg, North Yakima; Interlaken Nursery, Seattle; Inland Nursery and Floral Company, Spokane; Rolla A. Jones, R. D., Hill-yard; A. Lingham, Puyallup; G. A. Loudenback, Cashmere; A. W. McDonald, Toppensish; C. Malmo, Seattle; C. McCormick, Portage; W. S. McClain, Sunnyside; T. J. Murray, Malott; G. W. R. Peaslee, Clarkston; Richland Nursery Company, Richland; J. A. Stewart, Christopher; C. N. Sandahl, Seattle; F. K. Spalding, Sunnyside; H. Schuett, Seattle; A. G. Tillinghast, La Conner; Wright Nurseries Company, Cashmere; F. A. Wiggins, Toppensish; C. B. Wood, R. D. 2, Selah; C. N. Young, Tacoma; E. P. Gilbert, Spokane; Stephen J. Hermeling, Vashon; Northwest Nursery Company, North Yakima; H. C. Schumaker, Brighton Beach; E. P. Watson, Clarkston; Yakima Valley Nurseries, Toppensish; Yakima-Sunnyside Nurseries, Sunnyside.
 California—John S. Armstrong, Ontario; F. X. Bouillard, Chico; J. W. Bairstow, Hanford; Chico Nursery, Chico; Leonard Coates, Morgan Hill; California Rose Company, Los Angeles; California Nursery Company, Niles; Charles A. Chambers,

Fresno; L. R. Cody, Saratoga; R. P. Eachus, Lakeport; A. T. Foster, Dixon; E. Gill, West Berkeley; C. W. Howard, Hemet; William C. Hale, Orangehurst; William Kelly, Imperial; James Mills, Riverside; S. W. Marshall & Son, Fresno; John Maxwell, Napa; C. C. Morse & Co., San Francisco; Fred Nelson, Fowler; Park Nursery Company, Pasadena; George C. Roding, Fresno; Kuehl-Wheeler Nursery, San Jose; Silva & Bergtholdt Company, New Castle; G. W. Sanders, Davis; Scheidecker, Sebastopol; W. A. T. Stratton, Petaluma; R. M. Teague, San Dimas; T. J. True, Sebastopol; J. B. Wagner, Pasadena; W. F. Wheeler; Oakesdale; Edwin Fowler, Fowler; Hartley Bros., Vaccaville; Thos. Jacobs & Bros., Visalia.
 Alabama—W. F. Heikes, Huntsville.
 British Columbia—F. R. E. DeHart, Kelowna; M. J. Henry, Vancouver; F. E. Jones, Royal Avenue, New Westminster; Richard Layritz, Victoria; Riverside Nurseries, Grand Forks; Royal Nurseries & Floral Company, Vancouver.
 Colorado—J. W. Shadow, Grand Junction.
 Idaho—Anton Diedrichsen, Payette; J. F. Littooy, Mountain Home; O. F. Smith, Blackfoot; Tyler Bros., Kimberly; J. C. Finstad, Sand Point; C. P. Hartley, Emmet; J. A. Waters, Twin Falls.
 Montana—Montana Nursery Company, Billings. New Hampshire—Benjamin Chase Company, Derry Village.
 New York—Jackson Perkins Company, Newark; McHutchinson & Co., New York; Vredenberg & Co., Rochester.
 Pennsylvania—J. Horace McFarland Company, Harrisburg.
 Tennessee—Southern Nursery Company, Winchester.
 Utah—Harness, Dix & Co., Roy; Orchardist Supply Company, Salt Lake; Pioneer Nursery Company, Salt Lake; Utah Nursery Company, Salt Lake; Davis County Nursery, Roy.

Hood River Valley Nursery Company

Route No. 3, Box 227

HOOD RIVER, OREGON

Phone 325X

Will have for spring delivery a choice lot of one-year-old budded apple trees on three-year-old roots, the very best yearlings possible to grow. Standard varieties from best selected Hood River bearing trees—Spitzenbergs, Yellow Newtowns, Ortleys, Arkansas Blacks, Gravensteins, Baldwins and Jonathans. All trees guaranteed first-class and true to name. Start your orchards right with budded trees from our nursery, four miles southwest from Hood River Station.

WILLIAM ENSCHEDE, *Nurseryman*

H. S. BUTTERFIELD, *President*

Nursery Stock of Absolute Reliability

That's the only kind to buy. Good trees bring success and poor trees failure. Fruit growers know this. They do not experiment. They buy non-irrigated, whole root, budded trees, and we number scores of them on our list of well pleased customers. We have prepared this season for an immense business. That means trees, trees, trees without limit as to variety and quantity. We also have an immense stock of small fruits and ornamentals. We solicit your confidence, and will take care of the rest. Catalogue on application.

Salem Nursery Company, Salem, Oregon

Reliable and live salesmen wanted.

Hood River Nurseries

Have for the coming season a very complete line of

NURSERY STOCK

Newtown and Spitzenberg propagated from selected bearing trees. Make no mistake, but start your orchard right. Plant generation trees. Hood River (Clark Seedling) strawberry plants in quantities to suit. **Send for prices.**

RAWSON & STANTON, Hood River, Oregon

The Old Reliable

Twenty-three years in business. Twelve thousand dollars more business last year than any previous year.

A reputation to sustain.

The Albany Nurseries

(INCORPORATED)

Bigger and better than ever
 A few more salesmen wanted

THINGS WE ARE AGENTS FOR

KNOX HATS
 ALFRED BENJAMIN & CO.'S CLOTHING
 DR. JAEGER UNDERWEAR
 DR. DEIMEL LINEN MESH UNDERWEAR
 DENT'S and FOWNES' GLOVES

Buffum & Pendleton

311 Morrison St., Portland, Oregon

FRUIT

Western Soft Pine. Light, strong and durable.

"Better Fruit" subscribers demand the "Better Box." **BOXES**

CAN MAKE TWO CARLOADS DAILY

Washington Mill Co.

Wholesale Manufacturers

Spokane, Washington

FLORIDA MEETING OF THE POMOLOGICAL SOCIETY

FRUIT GROWERS throughout the country, but more especially the citrus growers and the producers of subtropical fruits, will be interested in knowing that the volume containing the proceedings of the American Pomological Society meeting held at Tampa, Florida, last February has just come from the press. Secretary John Craig of Ithaca, New York, writes that it forms an indexed book of over three hundred pages. He further states that the information contained within its covers is contributed by experts and specialists in their particular fields.

This volume is valuable on a three-fold account. It contains the fullest presentation of methods of handling, transporting and marketing citrus fruits to be found anywhere; it contains an important symposium on the status of pecan

culture in the Gulf region; orchard heating is one of the topics, which is a live issue today, and this is discussed in the light of the most recent advances. In addition to these subjects, orchard management forms another important chapter. The history, classification and propagation of the mango by Professor Rolfs of the Florida Experiment Station is the most important contribution on mango culture thus far published. The Japanese persimmon, its propagation, culture and a method of processing the fruit so that the astringency is removed, forms an interesting chapter of Professor H. Harold Hume of Glen Saint Mary, Florida. Persons interested in these topics and desiring the publication should write to the secretary of this national society.

Buy and Try

White River Flour

Makes Whiter, Lighter Bread

THE TOOL that SAVES a TOOL

What Prof. Bailey Says

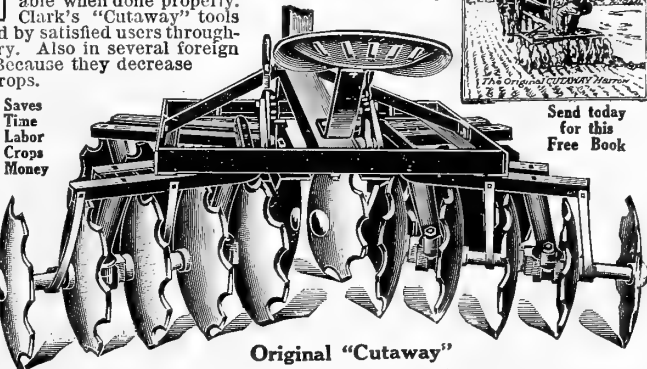
"The Double Action 'Cutaway' Harrow has been satisfactory. I use it almost continuously on our hard clay land with good results."

Why buy two tools when one will do two kinds of work and do it better and easier? Clark's original "Cutaway" Harrow can be used as a field harrow and its extension head frame converts it into an orchard harrow. Drawn by two medium horses and will cut 28 to 30 acres or double cut 15 acres in a day. The genuine "Cutaway" disk slices, stirs, lifts, twists and aerates the soil. Working the soil this way lets in the air, sunshine and new life and kills foul vegetation. Thorough cultivation makes large crops. Successful farmers, orchardists, gardeners and planters know that intensive cultivation is profitable when done properly. Clark's "Cutaway" tools

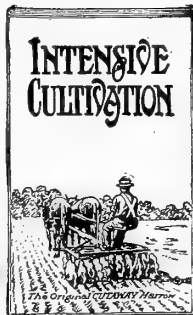
are used and endorsed by satisfied users throughout this entire country. Also in several foreign countries. Why? Because they decrease labor and increase crops.

Our disks are made of cutlery steel shaped and sharpened in our own shops and are the only genuine "Cutaway" disks.

Beware of imitations and infringements. We make a tool for every crop. If your dealer can't supply the genuine "Cutaway," write us your needs. Satisfaction guaranteed. Prompt shipments. Send a postal today for our new catalogue. "Intensive Cultivation." It's Free.



Original "Cutaway"



Send today for this Free Book

CUTAWAY HARROW CO., 940 MAIN STREET, HIGGANUM, CONN.

Mitchell, Lewis & Staver Co., Western Agents, Portland, Oregon

"Hawkeye Tree Protector"

Protects your trees against rabbits, mice and other tree gnawers; also against cut worms, sun scald, and skinning by cultivation. Cost is but a trifle. The value of one tree is more than the cost of all the Hawkeye Protectors you will need. Write for prices and full description.



Burlington Basket Co.

STATE AGENTS

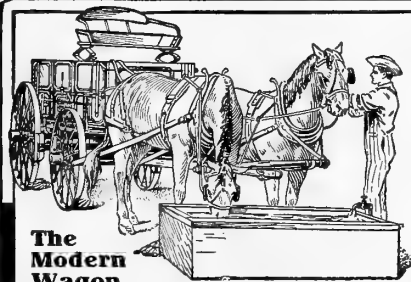
- G. M. Westland, Wenatchee, Wash.
Fair Oaks Nursery Co., Traverse City, Mich.
Welch Nursery Co., Madison, Ala.
Parker Bros. Nursery Co., Fayetteville, Ark.
C. H. Webster, The Dalles, Oregon
F. F. Powell, Stevensville, Mont.
Humphrey Nurseries, Humphrey, Neb.
Geo. F. Hall, Wendall, Idaho
Brown Bros. Nursery Co., Rochester, N. Y.
Elizabeth Nursery Co., Elizabeth, N. J.
H. C. Baker, Route 2, Tunkhannock, Pa.
O. K. Nurseries, Wynnewood, Okla.
Jefferson Nursery Co., Monticello, Fla.
J. A. Hess, Salt Lake City, Utah
Denver Nurseries, Denver, Colo.
Frank Brown & Son Co., Paynesville, Minn.
Elm Brook Farm Co., Hallowell, Me.
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P. T. Sniff, Carthage, Ohio
E. B. Wells, Topeka, Kansas
J. M. Sharp, Delavan, Wisconsin

OUR BOOKLET

When the Going is Hard

Contains information that is well worth your time to read. The discussion on "A Wheel with One Spoke" is worth DOLLARS to you. We tell you why a wooden wheel is dished, which is something many wagon manufacturers do not know. There are about twenty-five other articles just as interesting.

DAVENPORT ROLLER-BEARING STEEL FARM WAGON



The Modern Wagon

There are many reasons why the DAVENPORT is the wagon for the farmer today. Among these are: 30% to 50% Lighter Draft, Increased Carrying Capacity, Does Not Carry Mud, No Repair Bills, No Tires to Reset, and Many, Many More.

Better Investigate. Write for the booklet and also for our Package No. 22. Both sent FREE.

DAVENPORT WAGON COMPANY
Davenport, Iowa



THE ROLLER BEARING

Increase Value of Your Orchard

Lying above irrigation ditches. Pump a big supply of water to any height with Rife Rams without expense or bother. Cost little to install—nothing to operate.



RIFE RAMS

Pump water automatically day and night

Raise water 30 feet for every foot of fall. Pump automatically—winter and summer. Fully guaranteed.

If there is a stream, pond or spring within a mile, write for plans, book and trial offer, Free.

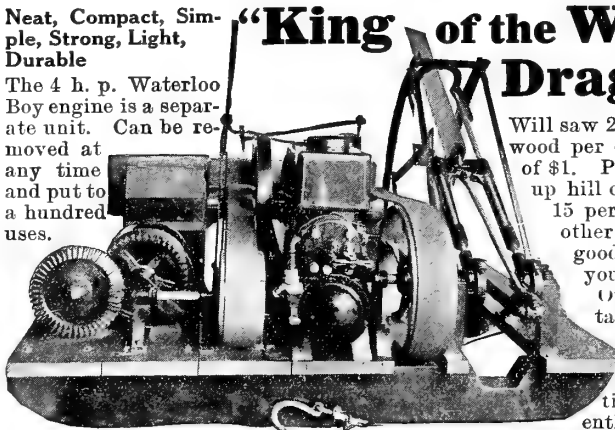
RIFE ENGINE CO., 2525 Trinity Building, New York

\$20 per day Earning Capacity

Will Pay for Itself in Less Than Three Weeks. Operated by One Man.

Neat, Compact, Simple, Strong, Light, Durable

The 4 h. p. Waterloo Boy engine is a separate unit. Can be removed at any time and put to a hundred uses.



"King of the Woods" Drag Saw

Will saw 20 to 40 cords of wood per day at a cost of \$1. PULLS ITSELF up hill or down. Costs 15 per cent less than other makes not as good. There's more you ought to know. Our catalog contains complete description and prices: sent FREE with testimonials from enthusiastic users.

ASK FOR CATALOG C 5

Reierson Machinery Co. PORTLAND, OREGON
SOLE MANUFACTURERS

Seeds

THE KIND YOU CAN'T KEEP IN THE GROUND

They grow, and are true to name
Write for prices on your wants

188 Front Street J. J. BUTZER Portland, Oregon
Poultry Supplies, Spray, Spray Materials, Fruit Trees, Etc.

The High Cost of Living

Can be materially reduced by planting an assortment of trees and berries for home use.

Why buy your fruit and berries when you can raise them yourself and enjoy the luxury of having them freshly picked? There is hardly a farm garden or city lot where space cannot be found for these, greatly enhancing the value of the property and adding to the enjoyment of life.

Our large catalog is free for the asking. It's a beauty and should be in every home.



Toppenish Washington

More Salesmen wanted.

NORTHWEST 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

Eugene Fruit Growers' Association, Eugene; Ashland Fruit and Produce Association, Ashland; Hood River Fruit Growers' Union, Hood River; Hood River Apple Growers' Union, Hood River; Grand Ronde Valley Fruit Growers' Union, La Grande; Milton Fruit Growers' Union, Milton; Douglas County Fruit Growers' Association, Roseburg; Willamette Valley Prune Association, Salem; Mosier Fruit Growers' Association, Mosier; The Dalles Fruit Growers' Union, The Dalles; Salem Fruit Union, Salem; Albany Fruit Growers' Union, Albany; Coos Bay Fruit Growers' Association, Marshfield; Estacada Fruit Growers' Association, Estacada; Umpqua Valley Fruit Growers' Association, Myrtle Creek; Hyland Fruit Growers of Yamhill County, Sheridan; Newburg Apple Growers' Association, Newburg; Dufur Valley Fruit Growers' Union, Dufur; McMinnville Fruit Growers' Association, McMinnville; Coquille Valley Fruit Growers' Union, Myrtle Point; Stanfield Fruit Growers' Association, Stanfield; Oregon City Fruit and Produce Association, Oregon City; Lincoln County Fruit Growers' Union, Toledo; Rogue River Fruit and Produce Association, Medford; Mount Hood Fruit Growers' Association, Sandy; Northeast Gaston Farmers' Association, Forest Grove; Dallas Fruit Growers' Association, Dallas; Northwest Fruit Exchange, Portland; Springbrook Fruit Growers' Union, Springbrook.

Washington

Kennewick Fruit Growers' Association, Kennewick; Wenatchee Fruit Growers' Union, Wenatchee; Puyallup and Sumner Fruit Growers' Association, Puyallup; Vashon Island Fruit Growers' Association, Vashon; Mt. Vernon Fruit Growers' Association, Mt. Vernon; White Salmon Fruit Growers' Union, White Salmon; Thurston County Fruit Growers' Union, Tumwater; Bay Island Fruit Growers' Association, Tacoma; Whatcom County Fruit Growers' Association, Curtis; Yakima Valley Fruit and Produce Growers' Association, Granger; Buckley Fruit Growers' Association, Buckley; Lewis River Fruit Growers' Union, Woodland; Yakima County Horticultural Union, North Yakima; Evergreen Fruit Growers' Association, R8, Spokane; White River Valley Fruit

and Berry Growers' Association, Kent; Spokane Highland Fruit Growers' Association, Shannon; Lake Chelan Fruit Growers' Association, Chelan; Zillah Fruit Growers' Association, Toppenish; Kiona Fruit Growers' Union, Kiona; Mason County Fruit Growers' Association, Shelton; Clarkston Fruit Growers' Association, Clarkston; Prosser Fruit Growers' Association, Prosser; Walla Walla Fruit and Vegetable Union, Walla Walla; The Ridgefield Fruit Growers' Association, Ridgefield; The Felida Prune Growers' Association, Vancouver; Grand View Fruit Growers' Association, Grandview; Spokane Valley Fruit Growers' Company, Spokane; Goldendale Apple Growers' Union, Goldendale; Yakima Valley Fruit Growers' Association, North Yakima; Southwest Washington Fruit Growers' Association, Chehalis; The Touchet Valley Fruit and Produce Union, Dayton; Lewis County Fruit Growers' Association, Centralia; The Green Bluffs Fruit Growers' Association, Mead; Garfield Fruit Growers' Union, Garfield.

Idaho

Southern Idaho Fruit Shippers' Association, Boise; New Plymouth Fruit Growers' Association, New Plymouth; Payette Valley Apple Growers' Union, Payette; Parma-Roswell Fruit Growers' Association, Parma; Weiser Fruit and Produce Growers' Association, Weiser; Council Valley Fruit Growers' Association, Council; Nampa Fruit Growers' Association, Nampa; Lewiston Orchard Producers' Association, Lewiston; Boise Valley Fruit Growers' Association, Boise; Caldwell Fruit Growers' Association, Caldwell; Emmett Fruit Growers' Association, Emmett; Twin Falls Fruit Growers' Association, Twin Falls; Weiser River Fruit Growers' Association, Weiser.

Colorado

San Juan Fruit and Produce Growers' Association, Durango; Fremont County Fruit Growers' Association, Canon City; Rocky Ford Melon Growers' Association, Rocky Ford; Plateau and Debeque Fruit, Honey and Produce Association, Debeque; The Producers' Association, Debeque; Surface Creek Fruit Growers' Association, Austin; Longmont Produce Exchange, Longmont; Manzanola Fruit Association, Manzanola; Delta County Fruit Growers' Association, Delta; Boulder County Fruit Growers' Association, Boulder; Fort Collins Beet Growers' Association, Fort Collins; La Junta Melon and Produce Company, La Junta; Rifle Fruit and Produce Association, Rifle; North Fork Fruit Growers' Association, Paonia; Fruita Fruit

and Produce Association, Fruita; Grand Junction Fruit Growers' Association, Clifton, Palisade, Grand Junction; Palisade Fruit Growers' Association, Palisade; Peach Growers' Association, Palisade; Colorado Fruit and Commercial Company, Grand Junction; Montrose Fruit and Produce Association, Montrose; Hotchkiss Fruit Growers' Association, Hotchkiss; Paonia Fruit Exchange, Paonia; Colorado Fruit Growers' Association, Delta; Crawford Fruit Growers' Association, Crawford; Manzanola Fruit Growers' Association, Manzanola.

Montana

Bitter Root Fruit Growers' Association, Hamilton.

Utah

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

British Columbia

British Columbia Fruit Growers' Association, R. M. Winslow, secretary, Victoria; Victoria Fruit Growers' Exchange, J. W. Dilworth, secretary, Victoria; Hammond Fruit Growers' Union, D. S. Baker, secretary, Hammond; Hatzic Fruit Growers' Association, A. E. Catchpole, secretary, Hatzic; Western Fruit Growers' Association, A. M. Verchere, secretary, Mission; Mission Fruit Growers' Association, R. C. Abbott, secretary, Mission; Salmon Arm Farmers' Exchange, L. B. Pangman, managing director, Salmon Arm; Armstrong Fruit Growers' Association, W. F. Brett, secretary, Armstrong; Okanogan Fruit Union, Limited, L. J. Garroway, secretary, Vernon; Kelowna Farmers' Exchange, Limited, B. McDonald, secretary, Kelowna; Summerland Fruit Growers' Association, D. H. Watson, secretary, Summerland; Kootenay Fruit Growers' Union, Limited, J. K. Beeston, secretary, Nelson; Grand Forks Fruit Growers' Association, James Rooke, manager, Grand Forks; Boswell-Kootenay Lake Union, R. T. Hicks, secretary, Boswell; Queens Bay Fruit Growers' Association, G. F. Atree, secretary, Queens Bay; Kaslo Horticultural Association, A. F. Burgee, secretary, Kaslo; Creston Fruit and Produce Exchange, J. Blinco, secretary, Creston.

"The Edgemont Lid Press" FOR SEASON OF 1911 with New Improvements

Write H. PLATT & SONS, Como, Montana

The Nearest Approach to Sunlight

—and the easiest on the eyes—Acetylene. Far superior to electricity, and costs less than lamp light.

The Jenne Pit Acetylene Generator

will furnish the average house with perfect light for six months without attention during that time. Our 100-pound generator can be recharged by one man in less than 30 minutes.

YOU CAN COOK WITH ACETYLENE the same as with city gas, and by our new system you can light acetylene anywhere in your house, barn, chicken house, etc., by simply pressing a button.



The Jenne sells for one-half the cost of others of equal capacity. In durability, simplicity, economy, safety, convenience and positive action, we stand head and shoulders above all others.

BURIED IN THE GROUND LIKE A CISTERN. It is automatic in action in all kinds of weather—cannot freeze—absolutely safe—cannot get out of order.

Remember, our generator means a permanent improvement increasing the cash value of your house just as a furnace or a new roof would. It is not an expense, but an investment, and will last for one hundred years or more.

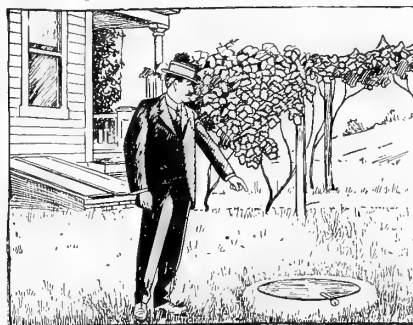
If you wish, you can make yours cost you nothing by being the first purchaser in your neighborhood, and making a sufficient number of sales to reimburse you for the purchase price. One Jenne Pit Acetylene Generator always sells others.

Full information cheerfully furnished relative to entire cost of lighting your house and adjoining buildings. Write for our free booklets, "Sunlight on Tap" and "Health Light for Homes." They are free.

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Land Plaster, Lime
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ORCHARD AND GARDEN TOOLS
A SPECIALTY

GILBERT - VAUGHAN
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Hose, Nozzles, First-class Plumbing Supplies

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Pat'd June 2, 1903.

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THE only pruner made that cuts from both sides of the limb and does not bruise the bark. Made in all styles and sizes. We pay Express charges on all orders. Write for circular and prices.

VIRGINIA APPLE ORCHARDS



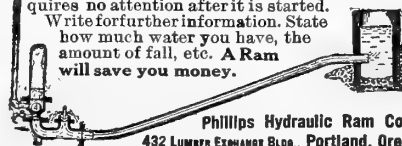
\$350, on long time and easy payments, buys a ten-acre apple orchard tract in the beautiful Shenandoah Valley of Virginia. Other lands \$15 per acre and up. Write for beautiful booklets and excursion rates.

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PUMPS WATER

for your Home, your Stock, or for Irrigation, without care or adjustment. No springs; no weights. Does not even have to be oiled. The Phillips Hydraulic Ram—Simple in construction—nothing to get out of order. Pumps a large amount of water to a low height or a small amount to a greater height. Requires no attention after it is started. Write for further information. State how much water you have, the amount of fall, etc. A Ram will save you money.



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CREATION



The tone is the Jewel.
The case is the Setting.
The combination is the Steinway—the Perfect Piano.

HE who is blessed with the power to create is blessed with God's greatest gift to man, and if he uses that power to increase the happiness of his fellow men he becomes a benefactor to the human race.

The world owes homage to the men who have devoted their burning energies to the consummation of one purpose, to the final and most perfect development of an ideal.

The Steinway Piano

Is an example of the grand result of years of persistent, purposeful striving after the very highest musical ideal. Sons have taken up the task where fathers left off, so that alternate generations of genius, working through the finest piano factory in the world, have evolved the Steinway—a piano that has long since been acknowledged the musical masterpiece of the ages.

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Why not get the best?

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Sherman  **May & Co.**

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PORTLAND, OREGON
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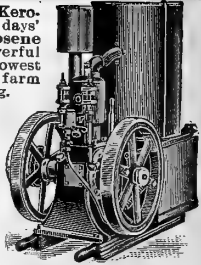
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Royal Ann, Bing and Lambert cherry trees; Spitzenberg and Newtown apple trees; Bartlett, Anjou and Comice pears, and other varieties of fruit trees.

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Use KEROSENE Engine FREE!

Amazing "DETROIT" Kerosene Engine shipped on 15 days' FREE Trial, proves kerosene cheapest, safest, most powerful fuel. If satisfied, pay lowest price ever given on reliable farm engine; if not, pay nothing.



Gasoline Going Up!

Automobile owners are burning up so much gasoline that the world's supply is running short. Gasoline is 9c to 15c higher than coal oil. Still going up. Two pints of coal oil do work of three pints gasoline. No waste, no evaporation, no explosion from coal oil.

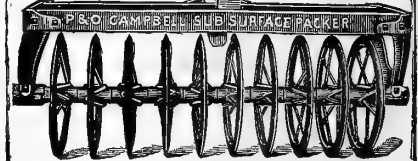
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The "DETROIT" is the only engine that handles coal oil successfully; uses alcohol, gasoline and benzine, too. Starts without cranking. Basic patent—only three moving parts—no cans—no sprockets—no gears—no valves—the utmost in simplicity, power and strength. Mounted on skids. All sizes, 2 to 20 h. p., in stock ready to ship. Complete engine tested just before crating. Comes all ready to run. Pumps, saws, threshes, churns, separates milk, grinds feed, shells corn, runs home electric-lighting plant. Prices (stripped), \$29.50 up. Sent any place on 15 days' Free Trial. Don't buy an engine till you investigate amazing, money-saving, power-saving "DETROIT." Thousands in use. Costs only postal to find out. If you are first in your neighborhood to write, we will allow you Special Extra-Low Introductory price. Write! Detroit Engine Works, 507 Bellevue Ave., Detroit, Mich.



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We are the sole manufacturers of this famous Sub-Surface Packer, the only one made. This is the one that you have heard everyone talking about.



Send for our Special Pamphlet on Sub-Surface Packing, the best known system for "dry farming," a method of absolutely insuring bumper crops with a minimum rainfall—the salvation of semi-arid regions.

Made in Three Sizes, with 10, 16 and 24 wheels, is heavy and strong, and the frame is made to carry all the extra weight required. Write for Catalog No. V

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CANTON, ILL.

We Own and Have for Sale 1000 Acres of Willamette Valley Non-Irrigated Fruit Land

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917 Andrus Building
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Gentlemen: Please send me your Willamette Valley Orchard Homes booklet. I have about \$..... to invest. Would like about..... acres.

Name
Address

COUPON

This is being sold in tracts of five, ten and twenty acres and upwards. We care for the orchards under the supervision of scientific horticulturists until the end of the fifth year development period.

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Branch Offices: 304 U. S. National Bank Building, Salem; Creswell, and Macleay, Oregon

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**A GOOD COMBINATION } 1ST GOOD FRUIT
AND A WINNER } 2ND GOOD PACKING
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THE LABEL HELPS.

Schmidt Lithograph Co.

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SAMPLES AND PRICES ON APPLICATION**

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Hood River's largest and best store

**DRY GOODS
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We are offering some extra specials in our Clothing Department. Ask to see them

Try a pair of American Lady \$3 and \$3.50 Shoes, or American Gentleman \$3.50 and \$4 Shoes

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ASK

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Has no peer in the Northwest.

And so we have established

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along similar lines in behalf of the great irrigated fruit districts of the Rocky Mountain region, a companion paper to this, your favorite fruit magazine.

We have made it up-to-date, clean, high class editorially, mechanically and pictorially.

The subscription rate is \$1.00 per year. It is worth it.

**THE INTERMOUNTAIN
FRUIT JOURNAL**

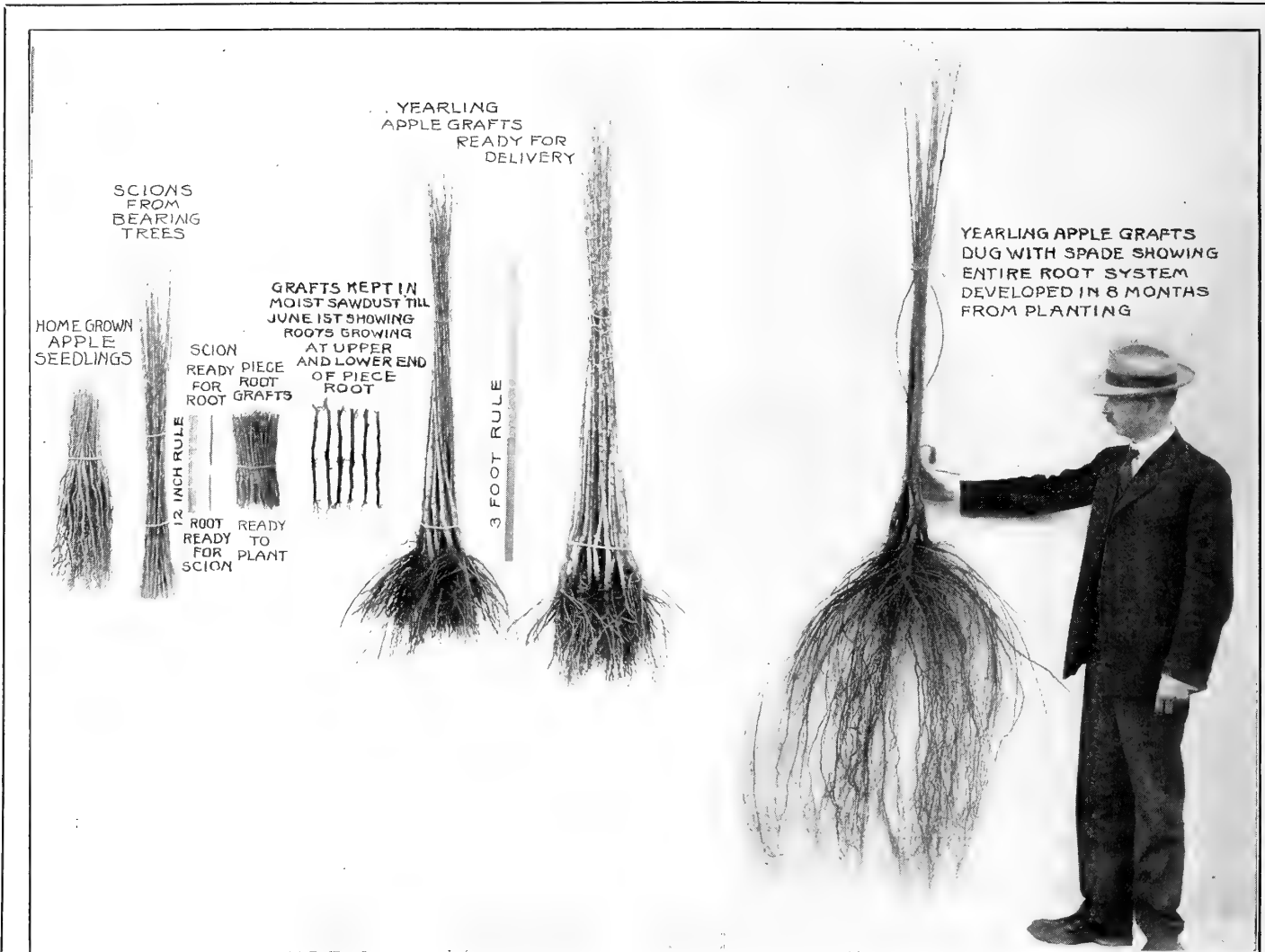
Grand Junction, Colorado

*Ask the People Using Our Boxes About
Quality and Service*

WE MAKE EVERYTHING IN FRUIT PACKAGES

Multnomah Lumber & Box Co.

Jobbers of Pearson Cement-Coated Box Nails Portland, Oregon



Building An Apple Tree

We illustrate above some of the steps in the building of the splendid apple trees for which the Washington Nursery Company is famous, showing the tree from its inception as a seedling, through the grafting process and on to the thoroughly matured, splendidly rooted, finished product which we deliver.

Trees like these don't just "happen."

True, we have excellent soil, months of sunshine, and water at our disposal for irrigating as needed, but none of these would make up for lack of intelligent system from the time the French crab apple seed is planted, from which the root is produced, to the day when the customer receives his trees from our nursery.

We grow our own seedlings on clean new ground, using the seed of the hardy French crab, which is agreed to be the best known foundation for apple and crab, thus obtaining stock absolutely free from aphid or disease, such as is sometimes found on Eastern grown stock.

We obtain our scions direct from the orchardist, who cuts them from his own bearing trees and who guarantees to us that the varieties are true to name. We buy no scions from "jobbers" or professional scion cutters.

The grafting is all done in our own building, under our own personal supervision, and is as systematically carried on as the work in a clock factory.

The planting, care and cultivation, the maturing, digging, labeling and packing, are all carried on under the same careful system, which guarantees to every customer that he shall obtain what he pays for.

Behold the result.

The bundle of trees shown at the right were carefully dug with spades to obtain all the long, fibrous roots. This required the digging of a hole four feet deep and the careful crumbling away of the earth, but we wanted you to see why we lay claim to such sturdy, healthy stock, and this, we think, is convincing.

Those roots start at the top and the bottom of the piece root, as shown on the six small grafts in the center of the picture, and when we finally dig the tree for delivery, as shown in the two bundles with the yardstick between, the splendid system of roots which we have developed goes with the tree. Of course we do not attempt to deliver the long mass of roots shown at the right, for the planter could not use them if we did.

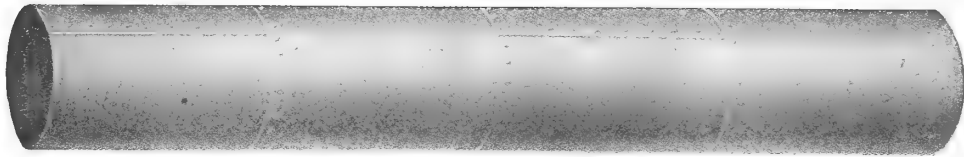
Our trees are built on honor and we are proud of our record. We want more customers for these good trees, and the large assortment of other good fruits we sell. Our salesmen cover practically every field. If you are overlooked, drop us a line.

Washington Nursery Co.

TOPPENISH, WASHINGTON

SALESMEN EVERYWHERE—MORE WANTED

ANYTHING IN SHEET STEEL



STEEL PIPES SAVE WATER

STEEL PIPES SAVE LABOR

YOU DO NOT HAVE TO WAIT FOR STEEL PIPES TO
"SOAK UP" AND THEY LAST INDEFINITELY

WE MANUFACTURE

Galvanized Steel Pipe

Storage Tanks

Galvanized Steel Culverts

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Asphaltum Coated Pipe

Steel Flumes

Columbia Hydraulic Rams

COLUMBIA ENGINEERING WORKS, Portland, Oregon



A sample of our yearling trees,
the "Nunbetter" kind

Do You Expect to Buy Any Trees this Year ?

If so, then let us send you our literature explaining and illustrating our superior trees and how they are grown. You might just as well have **PROFITABLE** trees on your land as **UNPROFITABLE** ones. The difference in cost is only slight and the first crop will more than pay the difference.

We have letters from customers stating they have picked over half a box of apples per tree on trees planted only two years; and this is not an occasional tree, but runs uniform through hundreds of trees. When you have good fruit land, plant good trees.

The fact that we supplied more planters with their trees last year than in any one of the previous forty-four years the **OREGON NURSERY COMPANY** has been furnishing "Nunbetter" trees, is some favorable evidence, at least, as to the universal satisfaction **ORENCO** trees give planters, and this year will be no exception. Having the largest plant—and what is conceded the best equipped plant in the West—you can get all you need from one source. Just remember that the **OREGON NURSERY COMPANY, OF ORENCO, OREGON**, handles the best of everything in the nursery line, and that you will receive full value and courteous treatment when buying of us.

Openings for Just a Few Upright
Industrious Salesmen

Oregon Nursery Company

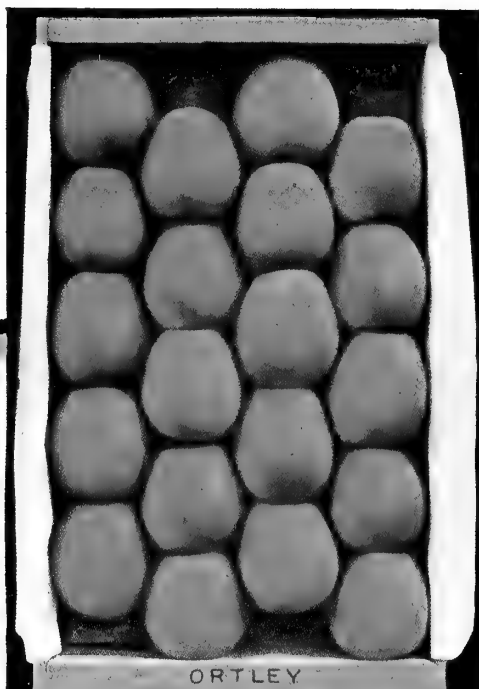
ORENCO, OREGON

STEINHARDT & KELLY

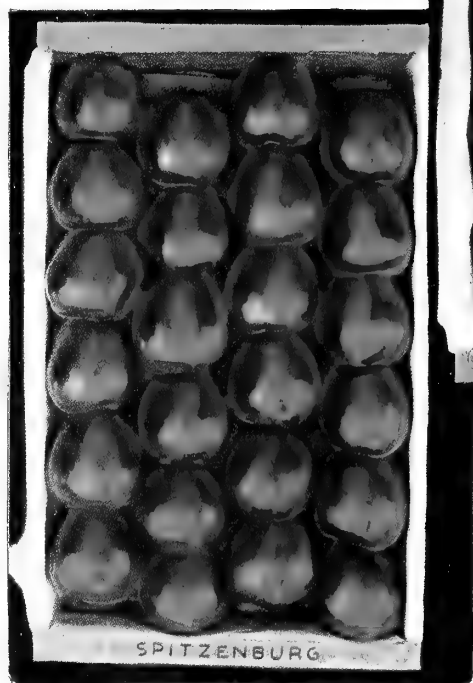
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The most extensive operators in High Class Fruits in the world

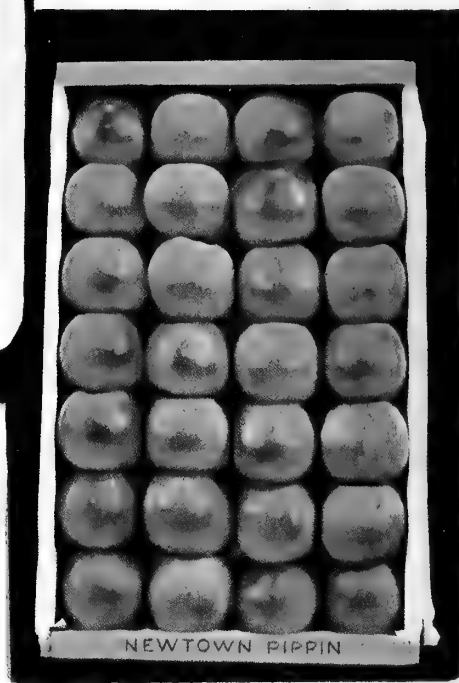
“Within the Shadow
of
Mighty Mount Hood”



“Where the Rain
and
Sunshine Meet”



There Grow the
Finest and Most
Delicious Apples
in all the
Wide, Wide World



Purveyors to the most discriminating and exacting clientele, with direct connections in all the leading markets of the United States and Europe put this firm in the position of being able to distribute the output of the most extensive districts with celerity and dispatch

Correspondence will receive the personal attention
of a member of the firm

BETTER FRUIT

VOLUME VI

AUGUST, 1911

NUMBER 2

ASSOCIATION AND PACKING EDITION



Courtesy of the Great Northern Railroad

PRIZE WINNING EXHIBIT FROM THE GREAT STATE OF MONTANA
AT AN EXHIBIT IN THE EAST

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in the famous

Bitter Root Valley

on Montana's Pacific Slope
Where the Wormless Apples Grow

Smudging Is Unnecessary

There has not been a killing frost on the bench lands in the growing season in the history of the Valley. There are no dust storms.

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Net profits annually range from \$2,000 to \$5,000

on a matured apple orchard of only ten acres.

Undeveloped land in this remarkable fruit district can still be bought for less money than is asked in other valleys less perfectly adapted by nature for successful fruit growing. Values now range from \$250 to \$350 per acre.

Developed tracts of ten acres, with contract to cultivate and care for same to five-year maturity, cost only \$5,000 if purchased now. Easy terms of payment for both developed and undeveloped land.

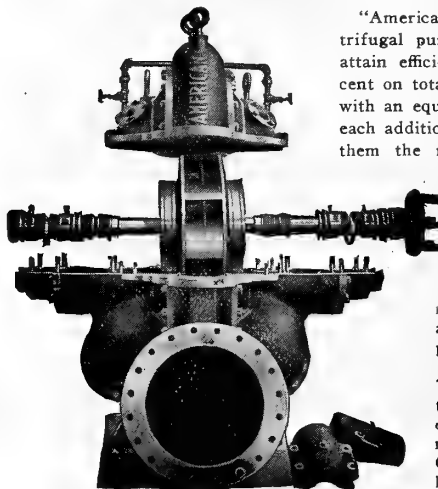
Detailed information upon request.

Bitter Root Valley Irrigation Co.

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Given by the Alaska-Yukon-Pacific Exposition at Seattle
in 1909 to pumps were awarded to

"AMERICAN" PUMPING MACHINERY



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"American" centrifugals are made in both horizontal and vertical styles, in any size, in any number of stages, and are equipped with any power.

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305 COLUMBIA BUILDING, SPOKANE

THE GRAVITY IRRIGATION SYSTEM OF THE SPOKANE VALLEY

Has developed the greatest apple and berry district of the West. Nearness to market causes larger net returns than in any other locality. Seventy-two trains daily through the valley. Every modern convenience. "Life's journey is swift; let us live by the way." The Spokane Valley has the unique distinction of being the only established apple district near a big city. Think what that means and investigate. Five thousand contented settlers.



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IRRIGATION
SYSTEM
IN THE
WEST



HOMES AND SCHOOL IN THE
SPOKANE VALLEY

SPOKANE VALLEY IRRIGATED LAND CO.

401 SPRAGUE AVENUE, SPOKANE, WASHINGTON

NORTHWESTERN FRUIT EXCHANGE

ORGANIZED JULY 29, 1910

CONTROLLED BY FRUIT GROWERS OF OREGON, WASHINGTON AND IDAHO

The banner results that the Exchange secured for its members last year, by reason of the widest and most efficient distribution of Northwestern fruits ever undertaken, is now a matter of history well known to every fruit grower in these three states. Its representation in 1911 includes to date twenty-five different associations and unions, with a visible output of upwards of two thousand cars. Increased facilities for the present season insure the grower even a better quality of service, as the Exchange has established and will

MAINTAIN

1. Over one hundred branch offices and sales representatives, in every principal market of the United States and Europe, in order to:
 - (a) Develop new and increased demands for Northwestern fruits through scientific salesmanship, effective advertising, and a thorough knowledge of market necessities, supply and possibilities.
 - (b) Possess at all times an accurate idea of trade conditions, and the consumers' demand in every market, large or small, within the range of adequate transportation service.
2. A thoroughly equipped sales department to:
 - (a) Promote wide and judicious distribution of cars.
 - (b) Place before its members a condensed and reliable report of daily market conditions throughout the entire country.
3. An efficient traffic department, perfectly equipped, and in position to:
 - (a) Look after the service on every individual car;
 - (b) Select the quickest and cheapest routing;
 - (c) Handle overcharges and other claims in the most intelligent and effective manner.
(The Exchange collected and remitted to the growers more than \$5,000.00 in connection with shipments handled during the 1910 season.)

NORTHWESTERN FRUIT EXCHANGE

General Offices, Spalding Building, Portland, Oregon

President, REGINALD H. PARSONS (President Hillcrest Orchard Co., Medford, Oregon; Director Rogue River Fruit and Produce Association)

Secretary, C. A. MALBOEUF

Vice President, W. N. IRISH (President Yakima County Horticultural Union)

Treasurer and General Manager, W. F. GWIN (Secretary Kenmar Orchard Company)

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WHOLESALE FRUITS
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Commission Merchants
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Top Prices and Prompt Returns
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Montana
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WE HAVE MODERN COLD STORAGE FACILITIES
ESSENTIAL FOR HANDLING YOUR PRODUCTS
*A strong house that gives reliable market
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YAKIMA VALLEY FRUITS
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EYES TESTED  LENSES GROUND
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Magnifiers to examine scale
Hood River Oregon and Glenwood Iowa

Mark Levy & Co.
COMMISSION
MERCHANTS
WHOLESALE FRUITS
121-123 FRONT AND
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PORTLAND, OREGON

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Established 1869
235-238 West Street NEW YORK
Strictly commission house. Specialists in apples,
pears and prunes. Exporters of Newtown Pippins
to their own representatives in England
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T. O'MALLEY CO.
COMMISSION MERCHANTS
Wholesale Fruits and Produce
We make a specialty
in Fancy Apples, Pears and
Strawberries
130 Front Street, Portland, Oregon

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Established 1878

APPLES FOR EXPORT

California, Oregon, Washington, Idaho and Florida fruits. Apples handled in all European markets. Checks mailed from our New York office same day apples are sold on the other side. We are not agents; we sell apples. We make a specialty of handling APPLES, PEARS AND PRUNES on the New York and foreign markets. Correspondence solicited.

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OUR SPECIALTIES ARE APPLES AND PEARS

Irrigation - Drainage - Conservation - Development

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Office Supplies
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SEATTLE

Increased 194 per cent in population, according to Uncle Sam's last census. This is more than any other large city in the PACIFIC NORTHWEST.

WASHINGTON

Leads all states of the Union in growth, having increased 120.4 per cent, according to the same authority.

If you want accurate information about Seattle and Washington, subscribe for

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140 VARIETIES ANY QUANTITY

Plenty of stock in our 40,000 pounds

Growing Plants as season requires

All makes high grade

Pruning Tools

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Hose and Spray Nozzles

International Stock and

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Incubators and Brooders

Everything for Building

Everything for Furnishing

Stewart Hardware & Furniture Co.
22,000 feet floor space. Hood River, Oregon

Spitzenbergs & Newtowns

From the
Hood River Valley,
Oregon

Took the first prize on carload entry at the Third National Apple Show, Spokane, Washington, and Chicago, Illinois, 1910.

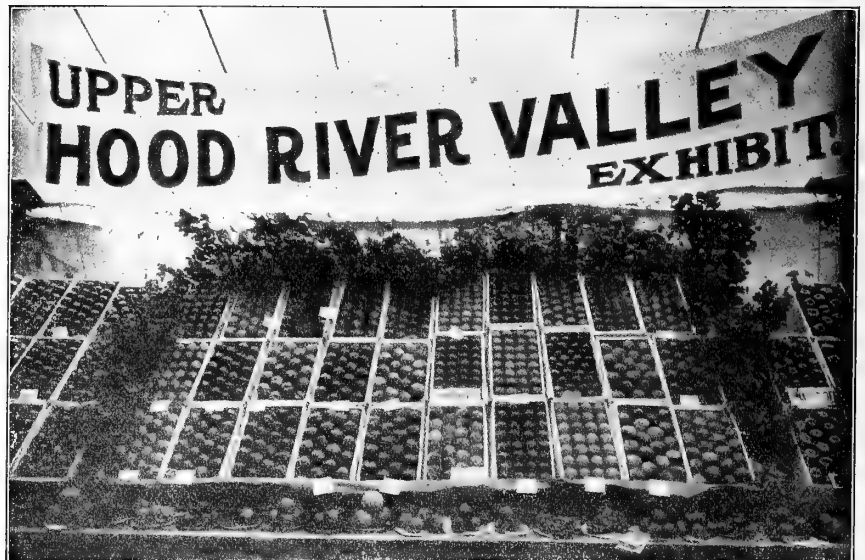
The Spitzenberg car scored, out of a possible 1,000 points, 997. The Newtown car, out of a possible 990 points, scored 988.

The Spitzenberg carload also won the championship carload prize at this show.

Can You Beat It?

We have got land improved and unimproved that is growing such fruit and that can grow it.

We are agents for the Mount Hood Railroad Company's logged off lands in Upper Hood River Valley. Many started in a small way; today they are independent. You can begin today. It pays to see us. Send today for large list of Hood River orchard land, improved and unimproved, and handsome illustrated booklet.



The above picture shows a prize-winning exhibit of Upper Hood River Valley apples at the Hood River Apple Show

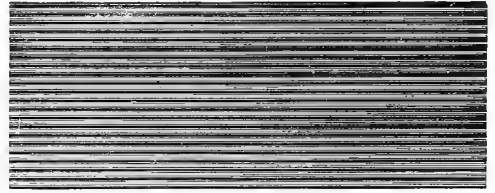
W. J. Baker & Company

Hood River
Oregon

The oldest real estate firm in Hood River. Best apple land our specialty

Corrugated Paper

Its use in your Pear or Apple box will prevent the fruit from getting bruised when being packed or in transit.



Corrugated Paper Acts as a Cushion to Your Fruit

G. P. READ, 199 Duane Street, New York

Write for samples and prices. Send for one of my booklets on Fruit Packing Supplies. IT IS FREE.

Branch Office and Factory, Albion, N. Y.

Stanley-Smith Lumber Co.

WHOLESALE AND RETAIL

LUMBER

Lath, Shingles, Wood, Etc.

HOOD RIVER, OREGON

Ryan & Newton Company

Wholesale Fruits & Produce

Spokane, Washington

We have modern cold storage facilities essential for the handling of your products

Reliable Market Reports

PROMPT CASH RETURNS

YAKIMA COUNTY HORTICULTURAL UNION

North Yakima, Washington

C. R. Paddock, Manager

Apples, Pears, Peaches, Cherries
Plums, Prunes, Apricots, Grapes
and Cantaloupes

Mixed carloads start about
July 20. Straight carloads in
season. Our fruit is the very
best grade; pack guaranteed

We use Revised Economy Code

References { District National Bank
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Codes { Economy
Bakers
Revised Citrus

ERNEST M. MERRICK

Wholesale Fruit Commission Merchant

APPLES A SPECIALTY

937-939 B Street, N. W.

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We have been established here for over twenty-two years in one of the best localities in the city. Our facilities are at least equal to any house in the city in our line of business.

WE SPECIALIZE IN
APPLES

Ridley, Houlding & Co.

COVENT GARDEN, LONDON

WE WANT TO REPRESENT THE GROWERS OF
BETTER FRUIT. We know that our
BETTER METHODS of selling will bring
BETTER RESULTS

A Trial Solicited

All Shipments Receive Personal Attention

TREES APPLE, CHERRY TREES PEAR, PEACH

MILTON NURSERY COMPANY

A. MILLER & SONS, Inc.

You cannot afford to take a chance in buying trees to plant for future profit. It requires knowledge, experience and equipment to grow reliable nursery stock.

OUR 33 YEARS' EXPERIENCE in growing first-class trees, true to name, for commercial orchards, insures our customers against any risk as to quality and genuineness of stock.

Orders are now being booked for fall delivery 1911. Catalog and price list free for the asking.

Address all communications to

MILTON NURSERY COMPANY, Milton, Oregon

ORCHARD YARN

For methods and advantages in using Orchard Yarn read the first article in December issue of "Better Fruit" by a world expert.

Tarred Orchard Yarn is used by the foremost growers in all sections.

Natural, practical, economical method of supporting heavily laden trees instead of props. Makes cultivation easier and does not chafe the limbs.

Testimony: More Yarn sold last year than all previous years combined. Sold by all dealers.

Manufactured and sold by

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PORTLAND, OREGON

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OPPORTUNITY

"THE CREAM OF THEM ALL"

In the Spokane Valley, Washington

THE KIND OF IRRIGATED FRUIT LAND THAT MEANS BIG PROFITS FOR YOU



A PRODUCING ORCHARD AT OPPORTUNITY, WASHINGTON

OPPORTUNITY has not only proven itself one of the finest orchard projects in the Northwest, but is the ideal place for the home-builder. Its proximity to the city of Spokane, three miles distant, splendid market facilities, steam and electric lines, churches, schools, electric lights, telephone service, water under pressure for domestic use, and the irrigation water carried to highest point on each tract, gives the purchaser all the conveniences of the city and the comforts of the country.

GET THE FACTS—WRITE FOR BOOKLET

Modern Irrigation and
Land Company

326 First Avenue

SPOKANE, WASHINGTON



Nine Kimball Cultivators in operation on property of Dufur Orchard Company, Dufur, Oregon, owned by the Churchill-Matthews Company, 510 Spalding Building, Portland, Oregon. This company is using at this time thirty-five Kimball Cultivators on their Dufur, Sheridan, Drain and Cottage Grove properties. This speaks volumes for home-produced machinery. Why go East for yours?

The Kimball Cultivator

Great Weeds and Fern Exterminator

Hood River, Oregon, Feb. 26, 1910.
W. A. Johnston, The Dalles, Oregon.

Dear Sir: I use three "Kimball Cultivators" in my orchard. There is nothing better as a weeder, dust mulcher, or to stir the soil. Yours truly,

E. H. Shepard, Editor "Better Fruit."

Ninety per cent Hood River Orchardists use this machine.

Send for illustrated descriptive booklet.



RETAIL PRICE SCHEDULE

No. 4—4½ feet, 6 blades, weight complete 70 lbs. . . . \$13.50
 No. 5—5½ feet, 7 blades, weight complete 85 lbs. . . . 15.00
 No. 6—6 feet, 8 blades, weight complete 100 lbs. . . . 17.50
 No. 7—7 feet, 9 blades, weight complete 115 lbs. . . . 18.50
 No. 8—8½ feet, 11 blades, weight complete 125 lbs. . . 20.00
 No. 9—10 feet, 13 blades, weight complete 140 lbs. . . 25.00
 No. 10—12 feet, 10 blades, open center, weight complete 160 lbs. 22.50

No. 11—12 feet, 15 blades, weight complete 185 lbs. . \$30.00
 No. 13—One 8½ and one 9 feet, 23 blades, gangs, fully rigged, weight 300 lbs. 47.50

Extra Frames \$1.00 per foot; weight 10 lbs. per foot.
 Extra Blades \$1.50 each; weight 5 lbs. each.

TERMS: Cash with order, except to dealers with established credit. All quotations f.o.b. The Dalles, Oregon.

W. A. JOHNSTON, Manufacturer

Long Distance Phone, Red 991

Office and Factory, 422 East Third Street, The Dalles, Oregon

White Salmon Orchard Lands

801—10 acres orchard land, only 2½ miles from White Salmon; red shot soil; fine view of Mount Hood and Columbia River. Price only \$100 per acre if sold this month. Terms, half cash, balance 3 years, 7 per cent.
 803—20 acres 2 miles out; spring water, red shot soil, fir timber suitable for cordwood; fine view of mountains and Columbia River. Price \$2,500; half cash, balance 3 years, 7 per cent.
 809—14 acres in 4 and 6-year-old Spitzenberg, Yellow Newtown, Ortley and Jonathan apples (all commercial); also a few cherries, pears, etc., for family use; 250 peach trees just coming into bearing; 4-room house, large fireplace; on county road 4 miles out; railway station only 3½ miles; fine view of Mount Hood from porch of house. Present price only \$9,500. Terms, \$2,500 cash, balance 1, 3 and 5 years, 7 per cent.
 810—160 acres raw land 18 miles out; spring water for irrigation; 4 acres in 4-year-old apple trees; house, barn, etc.; three good springs on place; fine orchard land. Quick sale \$40 an acre.
 If interested in raw or improved orchard lands in any size tract, write us for our complete list.

H. W. DAY REALTY CO., White Salmon, Washington

JONATHANS NEWTOWNS	APPLES	PLUMS	PEARS	PEACHES	PRUNES	SPITZENBERGS WINESAPS	
	<h2>WHITE SALMON VALLEY</h2>						THE LAND OF OPPORTUNITY
	Located across the Columbia River from Hood River, Oregon, the White Salmon Valley offers the greatest opportunities of any land on earth to fruit growers.						
	WHERE APPLES, CHERRIES, PEACHES, PEARS, PRUNES AND STRAWBERRIES GROW TO PERFECTION						
A few dollars invested in fruit land today will return to you in a very few years sixty-fold. The SOIL, CLIMATE, WATER and SCENERY are unsurpassed by that of any country.							
We have bargains in orchard lands in and near White Salmon, also large and small bodies of timber land, cheap.							
WRITE US FOR DESCRIPTIVE MATTER AND PRICES							
ESTES REALTY & INVESTMENT CO.					White Salmon, Washington		
	BERRIES	CHERRIES	STRAWBERRIES	NUTS			

The Old Reliable

Twenty-three years in business. Twelve thousand dollars more business last year than any previous year.
 A reputation to sustain.

The Albany Nurseries

(INCORPORATED)
 Bigger and better than ever
 A few more salesmen wanted

THINGS WE ARE AGENTS FOR

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FRUIT

Western Soft Pine.
 Light, strong and durable.

"Better Fruit" subscribers demand the "Better Box."

BOXES

CAN MAKE TWO CARLOADS DAILY

Washington Mill Co.

Wholesale Manufacturers
 Spokane, Washington

Mosier Fruit Growers' Association

APPLES	"Fancy Fruit in a Fancy Pack"
PRUNES	
PLUMS	Quality Apples a Specialty
CHERRIES	
PEACHES	
PEARS	

MOSIER, OREGON

FRUIT LAND

In tracts of 5 to 10 acres each. Some cleared, some partly cleared; some all timbered and some planted to commercial orchards, at surprisingly low prices and on easiest terms. They are in the heart of a rapidly developing fruit section adjoining good railway town in the valley. Here is a chance to buy good land cheap. We will plant it for you if you wish. Write for particulars.

OREGON APPLE ORCHARDS CO.
 432 Chamber of Commerce Building, Portland, Oregon
 Eastern office, Bloomington, Illinois

Let George Do It!

is a slogan that spells defeat for any fruit grower so far as marketing goes.

"George" may be a good fellow and all that, but—you know business is business.

On a basis of results—cold dollars and cents—we invite you to compare the service we have to offer with any other.

Mind you, we didn't break into the Western fruit deal yesterday, but members of our firm and men on our staff have literally camped on the north side of snow banks in reaching certain sparsely settled valleys some years ago that are today garden spots, and what is more, people there stick to us as sales agents year after year.

We're open for accounts and quotations.

Gibson Fruit Company

CHICAGO

P. S.—We make a specialty of Western Box Apples.

FRUIT GRADER

Grade Your Apples with Mechanical Accuracy
Absolutely Without Bruising

This is impossible with hand labor, but anyone can do it with the

Schellenger Fruit Grading Machine

This is truly an age of wonders and the solving of the fruit grading problems marks a new epoch in the fruit industry.

This machine does the work of nine (9) experienced hand sorters, but with far greater accuracy and absolutely without bruising. It weighs but 150 pounds and is arranged to be run by hand or power as desired. So perfect are the details worked out that but one person is required to operate the machine and do all the color and blemish sorting, with time to spare.

This machine was demonstrated before the Utah State Horticultural Convention, held at Brigham City February 16 and 17, 1911, and received the unqualified endorsement of every grower there. The Utah State Horticultural Inspector, also Secretary of the Utah State Horticultural Society, wrote us, saying:

"I know of no single invention which could be of more practical service to the fruit grower. Your machine handles the fruit with considerable less bruising than would hand grading and does it at one-fourth the cost, to say nothing of the less space and greater convenience which the machine would give in the packing house. I do not think there is a grower in the West with over two acres of orchard who can afford to be without one."

Schellenger Fruit Grading Machine Company, (Incorporated)

AGENTS WANTED

635-637 South 4th West Street, Salt Lake City, Utah

ROGUE RIVER FRUIT AND PRODUCE ASSOCIATION, INC.

R. C. WASHBURN, President; C. E. WHISTLER, Vice-President; C. C. SCOTT, Secretary-Treasurer
K. S. MILLER, Manager

Main Office, MEDFORD, OREGON

MODERN ECONOMY CODE

TWELVE SHIPPING STATIONS

Apples { NEWTOWN, "the Autocrat of the Breakfast Table"
JONATHAN, BEN DAVIS, SPITZENBERG

Pears { BARTLETT, HOWELL, ANJOU
WINTER NELIS, BOSCH, COMICE

Rogue River Fruit { The World's Finest, Richest Flavor
Longest Keepers. Pack Guaranteed

Two Brands { "Red Triangle"
"Blue Triangle"



Dollars and Dollars and Dollars

Yes, that is what our Shrubbery and Fruit Trees yield to our customers. Our Ornamental Trees and Shrubbery enable our customers to inhabit the most beautiful spots on earth.

If interested, call our salesman or write us.

ALWAYS ROOM FOR ONE
MORE SALESMAN

Capital City Nursery Company

413-416 U. S. National Bank Building, SALEM, OREGON

The Cyclone Apple Packer

Saves Time, Saves Labor
Saves Expense
Price \$15.00, F. O. B. Wenatchee

Is without exception the best machine on the market in the packer line, and is a great boon to all fruit growers. This machine is patented and is built here, under the supervision of wide-awake growers.

It does not injure fruits or other products that require careful packing. A boy can do more work on this machine than a man can on any other.

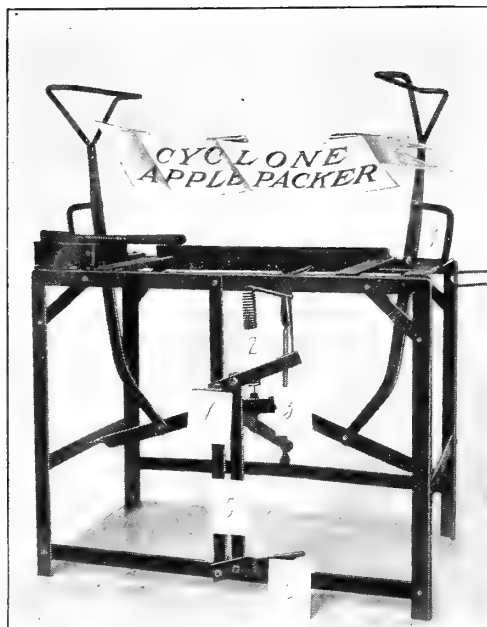
THE NEW COMPRESSION LEVER A FEATURE

This packer is designed to obviate the well known faults of other style machines. With the old style machine it is necessary for the operator to place the compression arms in position before tightening the covers. The Cyclone does away with this fault, by the operator merely pressing his foot on the compression lever, which immediately brings the arms to the proper position, besides adjusting the covers even with the ends of box. By the use of the patented friction clutch the arms can be set at any desired position, and instantly released by pressing the release lever, which brings the arms back to place.

STEEL CONSTRUCTION

The all-steel construction of this machine insures lightness and durability. The compression arms are positive in operation, by means of the guides which hold them in the slides, as is shown by Figure 1. Attention is called to wide space on the arms, which gives plenty of room for nailing and cleats. The heavy release spring, as shown by Figure 2, is sufficiently strong when released to bring all parts back to place. Figure 3 shows the connecting link, which is bolted to the connecting bars, and to these bars are bolted the compression arms, and by this attachment any unevenness in the pack is overcome and guarantees bringing the covers securely down on the box. Figure 4 shows the foot lever, which is conveniently bolted to the machine. The friction clutch (Figure 5) is so arranged that any pressure on the foot lever immediately expands the spring, and thus tightens on the lever, holding it at any desired position. Figure 6 shows the release lever, which is bolted close to the foot lever, making both easily operated with one foot. The machines are sold under a positive guarantee to give satisfaction Try one.

The Cyclone has made good where other presses have failed. It is perfection in every detail.



The Modern Fruit Packer

WELLS & MORRIS
WENATCHEE, WASHINGTON

\$1460 IN APPLE PRIZES

and Bigger Premiums in Every
Fruit Class at the

SPOKANE INTERSTATE FAIR

October 2nd to 8th, 1911

Special \$100 Prizes for Irrigated and
Non-Irrigated Displays. Additional
Awards to More Important Varieties.

ONLY APPLE SHOW IN SPOKANE THIS YEAR

Write for Premium List to
ROBERT H. COSGROVE, Manager
SPOKANE, WASHINGTON

Grafted Walnut Trees

We do not grow regular nursery stock, but make a specialty of first-class grafted Walnut Trees. While we are growing and grafting our own trees for our 250-acre tract, we decided to grow some trees for sale.

In doing so we believe we are offering the very best trees that can be bought at any price. Vrooman Franquettes grafted on Royal Hybrid and California Black roots.

Our supply has never been equal to the demand, so if you want to be sure and have your order filled, order early.

Ferd Groner

Rose Mound Farm

HILLSBORO, OREGON

We invite inquiries from
Prospective Buyers of

Catalogs

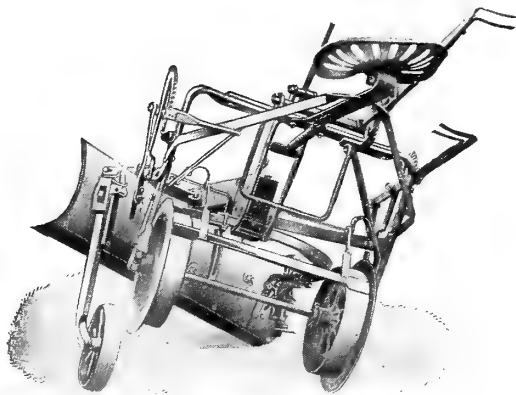
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Advertising
Matter of All
Kinds. Facil-
ities the best

F. W. BALTES
and COMPANY

PORTLAND **Printers** OREGON

20th Century Grader

The Light-Weight Wonder—600 Pounds



Will make your ditches—level your land—grade roads, throw up borders at a third usual expense. It's the Many Purpose Machine—the Irrigationist's best investment—the handy tool which you will find use for every day in the year—thousands in use.

Our new catalog full of pictures of the machine at work, shows how it will save you money. Send post card for it, name of nearest agent and distributing point.

BAKER MANUFACTURING CO.

542 Hunter Building, Chicago, Illinois



Spray Your Fruit for Codling Moth with
Grasselli Arsenate of Lead
IT IS THE BEST

We are now ready to demonstrate the correctness of our statement from a practical standpoint.

We give you the following names and addresses of the winners of the Grand Sweepstakes prize of \$1,000 for the best car of apples shown at the National Apple Show, Spokane, Washington:

1908—M. Horan, Wenatchee, Washington.

1909—Tronson & Guthrie, Eagle Point, Oregon.

1910—C. H. Sproat, Hood River, Oregon.

All sprayed with Grasselli Arsenate of Lead.

Bear in mind that this material was used at three different points, and during three different seasons. Does this not demonstrate to your satisfaction the superiority of Grasselli Arsenate of Lead, both as to locality and climate in which it may be used?

If so, it will not be necessary to ask yourself the question, "What Arsenate of Lead shall I use this season?" You will order Grasselli Brand.

Do not buy Arsenate of Lead on arsenic contents alone. Bear in mind when buying this spray that lead should be given equal consideration with arsenic, because it increases the adhesive properties and reduces to a minimum foliage injury.

DISTRIBUTERS IN THE NORTHWEST:

- Inland Seed Co., Spokane, Washington
 - Hardie Manufacturing Co., Portland, Oregon
 - Samuel Loney & Co., Walla Walla, Washington
 - Missoula Drug Co., Missoula, Montana
 - Western Hardware & Implement Co., Lewiston, Idaho
 - Salem Fruit Union, Salem, Oregon
 - Hood River Apple Growers' Union, Hood River, Oregon
 - C. J. Sinsel, Boise, Idaho
 - Yakima County Horticulturists' Union, North Yakima, Washington
 - Darrow Bros. Seed & Supply Co., Twin Falls, Idaho
 - Rogue River Fruit and Produce Ass'n, Medford, Oregon
- And in all consuming districts.

WRITE THE ABOVE, OR

H. N. LYON, Northwestern Representative

505 Concord Building, Portland, Oregon,
for name of nearest distributor

THE GRASSELLI CHEMICAL CO.

Established 1839

Main Office, Cleveland, Ohio

- St. Paul, Minnesota.....172 and 174 East Fifth Street
- Chicago, Illinois.....2235 Union Court
- New York City.....60 Wall Street
- St. Louis, Missouri.....112 Ferry Street
- New Orleans, Louisiana.....Godchaux Building
- Cincinnati, Ohio.....Pearl and Eggleston Streets
- Birmingham, Alabama.....825 Woodward Building
- Detroit, Michigan.....Atwater and Randolph Streets

W. E. BIGALOW, President

Capital and Surplus \$75,000.00
Established 1883

H. J. BIGALOW, Secretary and Treasurer

REFERENCES:

The First National Bank, Cleveland
All Commercial Agencies
The Produce Reporter Company
Any reliable house in our line in the United States

Commission Merchants



SOME OF OUR SHIPPERS—REFERENCES:

The California Growers' Exchange, Los Angeles, Cal.
The California Fruit Distributors.
The Earl Fruit Company.
The Pioneer Fruit Company.
The Producers' Fruit Company, Sacramento, Cal.
The Stewart Fruit Company, San Francisco, Cal.
The Atwood Grape Fruit Company, Manavista, Fla.
The Georgia Fruit Exchange, Atlanta, Ga.
The Florida Citrus Exchange, Tampa, Fla.
Crutchfield & Woolfolk, Pittsburg and Chicago.
Redlands Golden Orange Association, Redlands, Cal.

Jobbers and Wholesalers

CLEVELAND, OHIO

Apples, Plums, Prunes, Pears, Oranges, Lemons

We have the largest and best trade in the Cleveland territory; our facilities are unsurpassed
We have had years of experience in handling box apples and fancy fruits

We solicit your correspondence and shipments

Ogburn's Fruit Gathering Vessels

THIS VESSEL IS INDORSED BY HORTICULTURAL COLLEGES, FRUIT ASSOCIATIONS AND GROWERS.

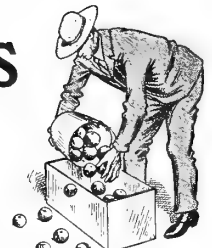
You cannot afford to be without them. Each one will pay for itself many times in saving your crop. 1911 Vessels equipped with non-shrinkable canvas bottoms, improved fastenings and shoulder strap complete. Saves money by preventing bruising fruit in handling from tree to box. Saves time by being quick to operate and leaving both hands free to gather with. Money saved is money made. Especially designed for apples, pears, peaches, oranges, lemons and tomatoes. Can be used to great advantage in gathering cherries, plums, prunes and grapes. In handling small fruits, place a piece of wrapping paper in the bottom. The canvas bottom slides underneath the paper and delivers the fruit on your packing table without the slightest injury. This Vessel is an oblong metal pail, black japanned, larger at the bottom than top, equipped with canvas bottom which slides from underneath the fruit, simply laying it on the bottom of the box, or where desired, without disturbing the fruit, the bell-shaped pail lifting off without injuring the fruit in any way. The Vessel holds one-half bushel or half box of apples, and in emptying the second time the canvas bottom eases the fruit in the Vessel on that in the box without bruising or scratching, which is practically impossible with the wood or metal bottom pail. If your hardware dealer or association haven't this Vessel in stock, order direct from factory. Trade price list furnished merchants and agents by Wheeling Corrugating Company, Wheeling, W. Va., upon application. Address all orders to factory. All goods shipped direct from factory.

THE LATEST INVENTION



The Old Way
25%
Bruised

The New Way
None
Bruised



OLD WAY—25% BRUISED



NEW WAY—NONE BRUISED

Manufactured and Distributed by
WHEELING CORRUGATING COMPANY
Wheeling, West Virginia

For J. H. OGBURN, Patentee, Wenatchee, Washington
Took first prize and gold medal at National Apple Show, Spokane, Washington, November 14 to 19, 1910.

Agents and Distributors:
Wells & Morris, distributors for Wenatchee, Washington, and vicinity; Larsen Hardware Co., distributors for North Yakima, Washington, and vicinity; Holly-Mason Hardware Co., Spokane, Washington; E. A. Franz, Hood River, Oregon; Medford Hardware Co., Medford, Oregon; Ogden Fruit Growers' Association, Ogden, Utah; Denny & Co., Payette, Idaho; Boise Fruit Growers' Association, Boise, Idaho; Grand Junction Fruit Growers' Association, Grand Junction, Colorado; North Fork Valley Fruit Association, Paonia, Colorado; Pajaro Valley Mercantile Co., Watsonville, California, and other dealers in every fruit section of the United States.

(SPECIAL ORDER BLANK)

CUT OUT ALONG DOTTED LINES

WHEELING CORRUGATING COMPANY
Wheeling, West Virginia 1911

Gentlemen: Please ship me the following order:

.....Ogburn Fruit Gathering Vessels at \$1.50 each, complete, FREIGHT PAID.
.....Ogburn Fruit Gathering Vessels at \$1.50 each, complete, BY MAIL OR EXPRESS PAID.
.....Extra non-shrinkable canvas bottoms with fastenings, 75 cents per set, by prepaid freight or express.

NO FREIGHT ORDER RECEIVED FOR LESS THAN ONE DOZEN VESSELS
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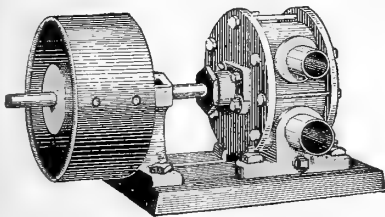
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BETTER FRUIT

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

ASSOCIATIONS AND METHOD OF ORGANIZING THEM

BY E. H. SHEPARD, EDITOR "BETTER FRUIT," HOOD RIVER, OREGON

THE production and marketing of fruit are as essentially different as manufacturing and selling, and in order to do either well requires special ability. Nearly every business naturally divides itself into certain departments, and success is obtained by each department being handled by an individual both competent and able to concentrate his efforts along that line. For instance, railroads are divided into freight, passenger and operating departments with an executive in charge of each. Any large mercantile business employs a buyer and a manager of the sales department. A factory has its superintendent and a man in charge of the sales, recognizing the importance, in fact the necessity, of separating the producing force from the selling force. I cannot see where the fruit industry is different, and I believe I can make the assertion without fear of successful contradiction that growing fruit is an industry and selling fruit a business; each should have a head and be operated separately. I feel positive that every grower who has a large orchard, or a small one with diversified products, will admit that the farm in either case requires practically all of his time.

For a manager to successfully market fruit, it is necessary to know daily by wire the condition of every market where he is doing business, or may do business. It is important to know just what varieties are wanted in every city, and in addition essential to be posted from what districts each particular market is supplied, and also when that district begins shipping, the extent of the supply and the end of its season. In addition to all this it is equally necessary to be familiar with the standing of each firm you are either dealing with or expect to deal with. This word "standing," in this particular sense, is rather a broad one, and means that you must know a firm's financial standing and their ability to pay. Their popularity with their trade is also significant, as well as their equipment to do business, and, above all, perhaps the most important requisite is intimate knowledge about a firm's policy on reporting off condition of fruit and rejecting cars.

It has been my personal experience that this volume of necessary information is so large, the time in acquiring it so great and the expense so heavy that I frankly say to you that the average orchardist, under ordinary conditions, can neither spare the time to do it properly nor afford the expense. The facts as stated so far seem to me sufficiently plain to convince any unprejudiced mind

of the necessity of associations. However, as an additional clincher on the argument, I want to call your attention to the methods necessarily employed by individuals, or in vogue in districts without associations, and then draw a comparison, that you may form your own conclusions. In such cases a grower must adopt one of two plans in disposing of his fruit—he must either consign (and if he does it must be at random) or he must sell to local or visiting buyers, without being properly posted, consequently there can be but little certainty of securing results that can be obtained through an association that is properly

deduced from facts founded on actual operation and experience. If my observations and deductions are correct, and I believe they are, I sincerely hope you will realize the necessity of associations, for I firmly believe the association plan is the sure method for the grower to secure better prices for this fruit. I feel the local buyers are entitled to a proper consideration. It is not my intention to have you conclude by inference in the presentation of the necessity for organization that private firms are a menace to the orchard industry. I am willing to admit that localities exist where perhaps an association would do well to equal the prices paid by individual concerns. In addition to this, it is only fair in recognition of the fact that competition is the life of trade to say that where a district contains both an association and a local operator such a condition will probably have a tendency to stimulate an eagerness in each to so conduct their business as to obtain and pay growers better prices. The existence of a competitive firm will be conducive in making "the manager" hustle, because unfavorable comparisons are certainly odious. Consequently I can see no reason why such a combination would not be both stimulative and protective. Each, where both are conducted legitimately and fairly, would afford protection against the other, and be more or less comforting in the way of assurance to the grower. But if you can support but one, be sure that one is the association.

The primary object of business is to make money, and usually to make as much money as possible on the capital invested. Any firm or corporation that is not mutual engages in business for this purpose, and we must admit the legitimacy of this purpose. The object of a growers' association, organized properly (the basic principles of organization will have consideration a little later on), is just the same as a firm in two particulars, to sell for the best possible price and conduct the business as economically as possible. In a word, make as much money as possible. The aim of the firm is to make money for itself, and as much as possible. The primary object of the association is to make as much as possible, not for itself, but for its members. This is the essential and important difference. When properly conducted and managed, the expense should be practically the same, and both should be able to realize nearly the same prices. The firm pays what it receives less the expense and profit for itself; the association pays all it receives less the expense only. If you want this

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posted and ably managed. There is an additional uncertainty as to what returns he will receive, and when, and a possibility of one of those "red ink account sales," which you have probably heard about. Another unfavorable condition frequently arises in the absence of an association that works to the disadvantage of the abler, business-like orchardists, when the smart buyer shrewdly makes his first deal with the uninformed or weak-kneed grower, and closes at a figure below the average market price, establishing a low figure which he uses as a precedent and lever to influence other growers to accept the same. I think every one realizes how difficult it is to secure a certain price when actual sales have been made at lower figures. You know how difficult it is to sell at a dollar when someone else has quoted or sold at ninety cents.

In concluding the first chapter on the necessity of associations, I beg leave to advise you that my argument is not based on theory, but, in my opinion,



WOMEN'S REST COTTAGE, OREGON STATE FAIR, SALEM, SEPTEMBER 11-16, 1911

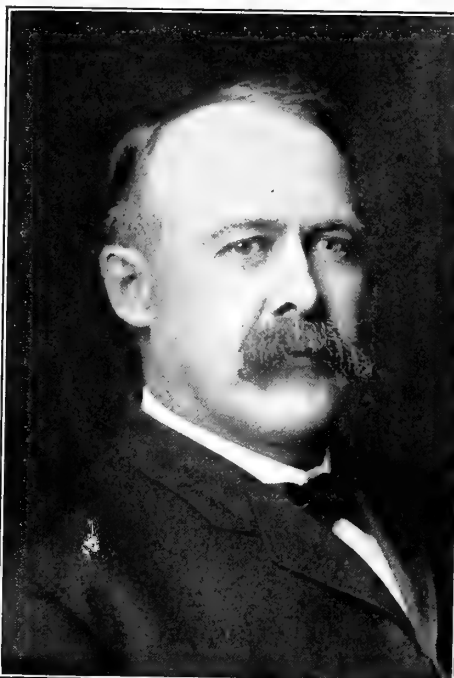
profit, if you need it or can use it in your business, organize an association and get it. If you don't want it or can't use it, be content with your present method and in your idle hours, resulting from a lack of prosperity and progress.

The association can buy wholesale in carloads boxes, spray material, paper and many other orchard supplies, which can be sold the growers at wholesale prices plus the actual cost of handling, and the actual saving to the grower by this plan is no small item.

Lastly, in speaking of benefits, I want to call your attention to the advantages arising through an association office. The Hood River Association's office has evolved, so to speak, into a commercial fruit growers' club, which has developed into a bureau of information on fruit topics and methods. In the association office the growers are always welcome. Every experimental station bulletin pertaining to fruit is received and every horticultural paper of value taken. The office force is composed of able and experienced men. In this office you can ascertain the formula for any spray, or learn the effectiveness of any brand of spray, or be advised of its efficiency. You can be posted on the market or learn about the best varieties to grow commercially. Every newcomer finds the latch string out, and old growers congregate in dozens almost daily for friendly and advisory discussion. Anyone in the office can tell you the tool or implement generally considered best for a certain purpose, where to get it and the price. In addition to all this, the office is a publicity bureau, a development league, so to speak, for every letter is promptly and fully answered, giving full informa-

tion on subjects of inquiry. Such are some of the benefits resulting from an association properly managed, which should again impress upon you the value arising from organization, and in addition convey some valuable suggestions of what an association should be.

For the benefit of those who may be contemplating organization, and as a suggestion for possible improvement of existing associations, I desire to call



JUDGE FREMONT WOOD
President Idaho State Horticultural Society
as well as the Boise Valley Fruit Growers'
Association, Boise, Idaho

attention to a few principles involved in proper organization. In the first place, it is a matter of business to make your associations just as strong as possible. The proper selection of your board of directors carries conviction of proper management. Your directors should be successful growers, men of good business ability, popular and recognized as giving every man a square deal. In addition to this, they should be selected so as to represent every locality of the district.

Every association should be organized on the co-operative plan. All the money received should be paid out to each grower in accordance with the price realized for the grade and variety of fruit as marketed in proportion to the number of packages. If this is done each grower will get the full profits in a just proportion to his variety, grade and quantity, that is, the full price realized less the actual expenses. This is not only just, but should be the basic principle in every fruit growers' association. Stock, if possible, should all be subscribed for by growers. Experience has demonstrated the actual necessity of one other principle that must under no circumstances be overlooked in the organization of a fruit growers' association. That is the necessary contract binding each grower's crop annually to the association, or incorporating so that your membership, according to your by-laws, will bind the crop. While the California court sustained the latter as valid, I prefer the contract. Without this it is only a question of time when the association will flounder. Without a contract your association will never know what predicament it may be in tomorrow.

Without a contract you cannot make a bona fide sale. In fact without it you really have nothing to offer for sale, and, therefore, are in no position to do business. Of course, you may run without contracts for several years, but when the time comes and your association has made sale of the entire crop of any variety of its members, and an advance in price occurs, you can make a ten to one bet that some growers, in their eagerness to get the extra price, will forget their duty to their organization and jump the game. This grower's contract is one of the most important basic principles in the organization of the association. It is the corner stone of foundations, the keystone of association structure. So whatever you do, don't omit it. All growers should be required to sign contracts in advance of each season, and not be permitted to do so after an agreed date.

Your manager, as a matter of business, should treat every grower fairly and squarely, without prejudice or favor. Ability, experience, diplomacy, firmness, and a knowledge of fruits and markets are essential business requirements. Your manager must make it his business to put into action such a system of grading, packing and inspection as will enable him to secure a uniform grade on every carload, so that he can guarantee every box in the car, and additionally guarantee that every box is as good on the bottom as it is in the middle, and as good in the middle as it is on top. Arrangements along this line must be perfect if success is expected. The manager must be expected to select his assistants if you expect to hold him responsible for their work and to give you results. Finally, when we have a good association in every district, we can organize one grand association, com-

posed of the managers from district associations, which can create a harmonious policy that will not only be for the good of all, but a power in the land.

I have for years in succession delivered addresses at the Northwestern Fruit Growers' meetings and at various state meetings pertaining to the importance of associations. "Better Fruit" took up the work of promoting associations, and has kept at it persistently from the initial number. That good work has been done, and that success is crowning the efforts of "Better Fruit" to put the growers in the way of realizing better prices through better work and associations is evidenced by the large number of letters we are receiving for general information along this line. A board of directors able to frame up a constitution and set of by-laws and contracts should meet all requirements. Do your work well, and, remember, if you make mistakes they can be rectified. You can amend your constitution, and don't assume everybody will be satisfied. There are kickers in every community. You can't get all the growers, but try to get the best, and as many of them as possible, and then go ahead. Don't forget it is not all clear sailing. Inexperience will cause errors in judgment in marketing and in various ways; therefore, be patient with your directors. Stick together, pull together, keep your association going, and each year you will improve and grow stronger, and just as fast as you do this in the same proportion you will get better prices and realize handsomer profits.

For the guidance of those of our readers who may be interested in the forming of associations we incorporate with this article the articles of incorporation, constitution and by-laws, and contract

forms of some of the leading fruit growers' associations:

Hood River Apple Growers' Union:

Article I.—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 part of these by-laws.

Article II.—The membership of this corporation shall be confined to actual growers of fruit of Hood River Valley and vicinity.

Article III.—The board of directors shall consist of nine members, four of whom shall hold office for more than one year. They shall be elected annually and shall serve until their successors are elected and qualified. They shall qualify as directors within ten 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. The annual meeting shall be held on the first Saturday in April in each year.

Article IV.—The directors shall have power to levy and collect assessments on the capital stock not to exceed fifty per centum of the stock subscribed at any one time, and not oftener than every sixty days; the same to become delinquent in thirty days from date of notice of such assessment in the local newspaper. The directors shall sell shares of stock to actual fruit growers only.

Article V.—The directors shall employ such agents or other employes as are necessary to do the business of the corporation, and shall fix their remuneration; provided, that the board of directors shall receive no salary for acting as directors. They shall have daily account sales rendered to the members of the union each day, as received by them or their agent, giving a statement by whom sold, gross sales, commission, freight or express, and amount due members of the union; also giving condition of fruit, if there be any complaint.

Article VI.—The directors may refuse to receive for shipment, under the brand of the union, any package of fruit not considered prime from any cause. They shall refuse to receive for shipment fruit from any person not holding stock.

Article VII.—This organization, through its board of directors, shall have the exclusive and unqualified power to market all apples grown by any of its members. A contract between each member and the board will be required.

Article VIII.—The duties of the secretary shall be to keep a record of the proceedings of the meetings of the stockholders and directors. He shall keep the corporate seal of the association and shall be custodian of all deeds, articles of agreement and other valuable instruments of writing belonging to the association. He shall keep all books of the issuance and transfer of stock, and shall countersign all certificates of stock and affix the seal of the board of directors and stockholders, and shall keep, or cause to be kept, all books of account necessary to the transaction of the gen-



WAREHOUSE, COLD STORAGE AND ICE PLANT OF THE DAVIDSON FRUIT COMPANY, HOOD RIVER, OREGON

eral business of the association. The manager of the union shall be placed on a flat salary.

Article IX.—The board of directors shall provide the necessary means for carrying out the purposes for which the association is formed by reasonable charges and commissions for the service rendered by the association to its members and customers.

Article X.—The duties of the treasurer shall be to receive all moneys due or paid to the association and deposit the same as the directors may instruct; to pay out said funds upon the written order or check of the president, first vice-president or general manager, when countersigned by the secretary.

Article XI.—All notes or other evidence of indebtedness of the association shall be signed by the president and countersigned by the secretary of the board of directors.

Article XII.—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 send each a notice on a postal card.

Article XIII.—No union label shall be placed on a box of fruit except by the manager of the warehouse just before shipping.

Article XIV.—Each packer will be held responsible for his own work by a system of fines. No fruit will be received unless put up by a packer employed by the union.

Article XV.—The union will have no packing house foreman, except those employed by the union.

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

Article XVII.—These by-laws may be amended by vote of the majority of the stock upon which all calls or assessments have been paid, at any regular or called meeting; provided, that notice to amend the by-laws shall have been given in the call for a special meeting.

Article XVIII.—Any member desiring to dissolve his connection with this corporation may do so by surrendering his stock to the secretary thereof or by transferring it to any member in good standing on the secretary's books.

Contract.—In consideration of the terms of this agreement, made and entered into this day of 191..... I, hereby bargain and sell to the Hood River Apple Growers' Union, my entire crop of merchantable apples of every grade and every variety for the year 191..... The said terms being as follows: All fruit shall be graded and packed under the supervision of the Hood River Apple Growers' Union, at the expense of the grower, and delivered by him at the warehouse of said union in the City of Hood River, Oregon, at such time as may be designated by said purchaser, who shall give notice to the grower for such delivery. In further consideration of this agreement the said Hood River Apple Growers' Union has this day paid said the sum of \$..... the receipt whereof is hereby acknowledged. And in further consideration of this contract, said Hood River Apple Growers' Union agrees to pay the



WAREHOUSE WENATCHEE FRUIT GROWERS' ASSOCIATION, WENATCHEE, WASHINGTON

balance of the market price obtained by it (less a box for handling) to the grower within days after the delivery of fruit as aforesaid.

In witness whereof, we have hereunto set our hands in duplicate this day of....., 191.....
(Signed in duplicate and witnessed.)

Articles of incorporation of Wenatchee Valley Fruit Growers' Association:

Know all men by these presents, that we, the undersigned, citizens of the United States of America, and residents of the State of Washington, being desirous of forming a company for the purposes hereinafter specified, do hereby make and subscribe the following written articles of incorporation in triplicate, as follows:

Article I.—The name of this corporation shall be The Wenatchee Valley Fruit Growers' Association.

Article II.—The objects for which this corporation is formed, are and shall be: First—To own, buy, sell, handle, deal in, grow, cultivate, improve and raise all kinds of fruit, vegetables, garden and field products of every kind and description. Second—To own, buy and acquire by gift, purchase or otherwise, real estate; to sell, mortgage and hypothecate, or to rent and lease the same for profit. Third—To erect buildings thereon, warehouse and any and all other buildings desired by said corporation, either for use in carrying out the purposes of the corporation, or to sell, lease, let, rent or otherwise handle for profit. Fourth—To plant and cultivate, either for their own profit and use, or for others, orchards and vineyards. Fifth—To manufacture, buy, sell and deal in fruit boxes, crates, baskets, and any and all articles used in the packing, shipping or handling of the fruit, vegetables and other farm products. Sixth—To buy, sell, handle and deal in spraying machinery and material used in the spraying of fruit trees, vegetables and other farm products. Seventh—To buy, sell and handle all kinds of farm, orchard and garden machinery, tools, materials, seeds and appliances of every kind. Eighth—To ship and transport on commission or for profit, at a per cent, all kinds of fruit, vegetables and farm products. Ninth—To establish and arrange for, and locate purchasing agencies, offices and distributing points anywhere in the United States that they may desire. Tenth—To do any and all things necessary or incident to the carrying out of the business of said corporation, as herein expressed in all of its branches, and for its best interests, as may appear to its board of trustees, either now or in the future, in the same manner and to the same extent as any person, firm, association or corporation is authorized by law to do.

Article III.—The amount of capital stock of this corporation shall be fifteen thousand (\$15,000) dollars, divided into fifteen hundred (1500) shares of the par value of ten (\$10) dollars each.

Article IV.—The number of trustees of this corporation shall be seven (7), but at any regular meeting of the stockholders of the corporation the number of trustees may, by the by-laws of the corporation, be increased or diminished to any number not inconsistent with the laws of the State of Washington, and the names of the trustees who shall manage the concerns of the corporation until the day of 191....., and until their successors are elected and qualified are:

Article V.—The time of the existence of this corporation shall be fifty (50) years.

Article VI.—The principal place of business of this corporation shall be at Wenatchee, Chelan County, Washington, but said corporation may keep and maintain offices in any other place which it may desire to transact business.

By-laws of the Wenatchee Valley Fruit Growers' Association:

The following are and shall be the by-laws of the Wenatchee Valley Fruit Growers' Association, and the corporation shall be governed thereby in all of its transactions which are applicable thereto not inconsistent with the articles of incorporation of the company:

Article I.—The corporate power of this corporation shall be vested in a board of seven (7) trustees, two of whom shall reside at Wenatchee, one at Cashmere, one at Monitor, one at Entiat, one at Orondo and one at Malaga, and who at the time of their election and during the whole period of their incumbency shall each be a stockholder of this corporation.

Article II.—The officers of this corporation shall be a president, vice-president, secretary and treasurer, which officers shall be elected by and hold their respective offices at the pleasure of the board of trustees.

Article III.—All vacancies in the board of trustees shall be filled by the other trustees in office, and the person or persons so selected to fill such vacancies shall hold their office or offices until the next regular annual meeting of the stockholders of the company.

Article IV.—First—The trustees shall have the power to call special meetings of the stockholders when deemed necessary, and they shall call a meeting at any time upon the written request of the stockholders holding one-third of all the capital stock. Second—To appoint and remove, at pleasure, all officers, agents and employes of this corporation, prescribe their duties, fix their compensation and require of them security for faithful performance of their duty, if thought necessary. Third—To conduct, control and manage the affairs and business of the corporation, and to make rules and regulations not inconsistent with the laws of the State of Washington or the articles of incorporation of the company, for the guidance of the



C. H. SPROAT

Manager Apple Growers' Union, Hood River, Oregon
Also Apple King of the National Apple Show
Spokane, Washington, 1910



SENATOR W. H. PAULHAMUS
Manager Puyallup and Sumner Fruit Growers' Association

officers, agents and employes, and the management of its affairs. Fourth—To incur indebtedness, the terms and amounts of which shall be entered in the minutes of the board of trustees, and notes or obligations given therefor and countersigned by the secretary, and shall be binding upon the corporation. Fourth—To designate, by resolutions passed by a majority of the whole board, a certain number of its members to constitute an executive committee, which executive committee shall have such power, duties and authority as may be expressly designated in the resolution appointing such committee.

Article V.—First—It shall be the duty of the trustees to cause to be kept a complete record of all their meetings and acts, and of the proceedings of the board, and to present a full statement at the regular annual meeting of the stockholders, showing in detail the assets and liabilities of the corporation, and in general the condition of its affairs. A similar statement shall be presented at any other meeting of the stockholders, when thereto required, more than three days before said meeting, in writing, signed by persons holding more than one-half of the stock of the corporation actually issued. Second—To declare dividends out of the surplus profits, if any there be, when such profits shall, in the opinion of the trustees, warrant dividends being paid to the stockholders; provided, that such dividends shall not exceed eight per cent per annum. Third—To supervise all officers, agents and employes of the corporation and see that their duties are properly performed. Fourth—To cause to be issued to the stockholders, in the proportion of their several interests, certificates of stock, not to exceed in the aggregate fifteen thousand (\$15,000) dollars. Fifth—To meet immediately after the adjournment of the annual meeting of the stockholders and elect a president, vice-president, secretary and treasurer, and said president and vice-president shall be from their own number. The above mentioned officers shall hold their respective offices at the pleasure of the board of trustees, and shall receive such compensation only as has been fixed by the board of trustees, or as may be fixed and determined from time to time by said board.

Article VI.—First—It shall be the duty of the president to preside over all meetings of the stockholders and trustees. Second—He shall sign all certificates of stock, and all contracts and other instruments of writing, and every order upon the treasurer for the paying out of any of the corporation funds whatever. Third—He shall call the trustees together whenever he deems it necessary, and shall have, subject to the advice of the trustees, the general supervision and management of the affairs of the corporation, and shall discharge such other duties as generally devolve upon the president. Vice-President—It shall be the duty of the vice-president to perform all the duties of the president during his absence or inability to act, and in case the president and vice-president shall from any cause be unable to act, the board of trustees shall appoint from their number some person to act as president pro tempore, whose duties shall be to perform the functions of the president during such temporary disability. Secretary—It shall be the duty of the secretary to keep an accurate account of the proceedings of the board of trustees and stockholders; to keep the corporation seal and books of the corporation, fill and



C. W. WILMEROOTH
Western representative for Eastern and European
fruit dealers
102 Third Street, Portland, Oregon

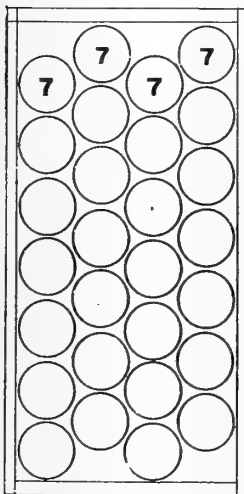
countersign all certificates of stock issued, and make the corresponding entry in the margin or stub of the stock book on such issuance, and he shall affix the corporate seal to all papers requiring the same. He shall draw all orders on the treasurer for paying out of the corporate funds, and discharge such other and further duties as pertain to his office. Treasurer—It shall be the duty of the treasurer to receive and account for all funds of the corporation and to pay them out only on the order of the secretary, signed by the president, and he shall give a good and sufficient bond to cover the amount of all money he may hold, and at each annual meeting of the stockholders he shall submit for their information a complete statement of his accounts for the past year, with proper vouchers therefor, and he will discharge such other and further duties as pertain to his office.

Article VII.—First—The annual meeting of the stockholders shall be held at Wenatchee, in Chelan County, Washington, on the last Saturday of March of each year, at ten o'clock in the forenoon of that day, at which time the trustees are to be elected, and any and all business pertaining to the

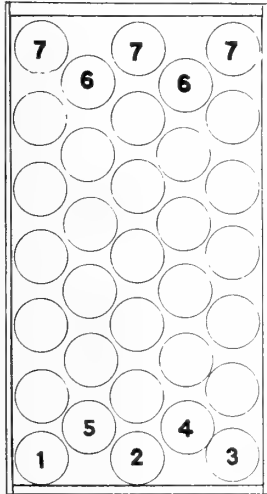
corporation may be transacted. Second—Special meetings of the stockholders may be called by the president at any time and for any purpose, when in his judgment the interests of the corporation may demand it, upon giving notice thereof as herein provided for, and the president shall call a meeting of the stockholders whenever required to do so, by a petition of persons holding more than one-half of all the paid up capital stock of the corporation, in manner and form as herein provided. Third—It shall be necessary that a majority of the said paid up stock be represented in order to constitute a quorum for the transaction of business in any stockholders' meeting. Trustees' Meeting—The board of trustees shall immediately upon their election, after the adjournment of the annual meeting of the stockholders, hold a meeting at the same place for the purpose of electing other officers of the corporation, and shall hold such other and further meetings as to them may seem necessary, upon giving notice as provided for in these by-laws, and at all trustees' meetings it shall only be necessary to have a majority vote of the trustees to decide all questions coming before them.

Article VIII.—First—Notice of the annual meeting of the stockholders of the corporation shall be given by publication for two successive issues in some weekly newspaper printed in the City of Wenatchee, at least ten days before the day of such meeting. Second—Notice of special meetings of the stockholders shall be given by mailing a copy thereof to the last known address of each stockholder at least ten days before the time designated for such meeting. Third—All notices herein provided for shall state the time and place of such meetings, and the object and purpose of the meeting, and no business shall be transacted at any special meeting that is not fully set out in the notice; provided, however, that any and all business may be done at the annual meeting, except the changing of the articles of incorporation or these by-laws, which can only be done upon giving notice as provided for in special meetings. Fourth—Meetings of the board of trustees may be called at any time by the president and secretary, as follows: Notice thereof shall be signed by the president and secretary, and personally served upon each of the members of the board, at least twenty-four hours before the time of such meeting, if the whereabouts of the members of the board are known to the president and secretary, and if not, then by mailing a copy thereof to the last known address of each trustee, at least three days prior to said meeting, which notice shall state the time and place of meeting of said board of trustees, and shall be signed by the president and secretary, or by some person acting for and in their stead during their absence or inability to act, and any business transacted by any or all the trustees, outside of a regular meeting called as provided for in these by-laws, shall be invalid and illegal, unless the same shall be ratified at the next regular meeting of the board of trustees by a majority vote thereof.

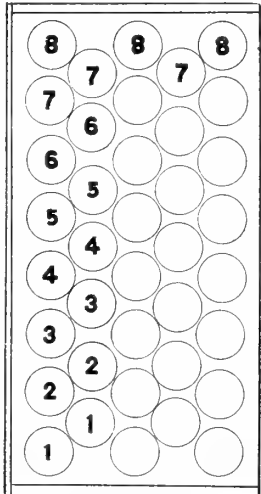
Article IX.—First—At all meetings of the stockholders each stockholder, either by person or by proxy, shall be entitled to one vote for each share of stock he owns; provided, however, that no stockholder shall be allowed more than five (5) votes, disregarding the number of shares he may own above five, or if a person be voting by proxy, such proxy must be in writing and filed with the



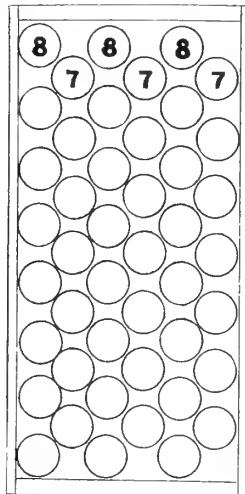
56—EXTRA FANCY
2-2 (7-7) PACK



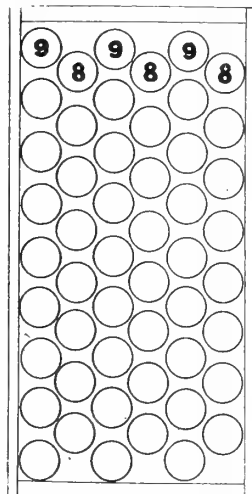
65—EXTRA FANCY
3-2 (7-6) PACK



75—FANCY
3-2 (8-7) PACK



90—CHOICE
3-3 (8-7) PACK



102—3-3 (9-8) PACK

INSTRUCTIONS FOR PEACH PACKING, BY THE ASHLAND FRUIT AND PRODUCE ASSOCIATION, ASHLAND, OREGON

Different varieties must be picked at different stages of ripeness; the weather conditions will modify the time to some extent of even one variety. The green peach is neither a good shipper nor a good keeper. The peach should be "just ripe." Pick with the hands, not with the fingers. Not a mark should be found on even the ripest peach. There should be no pouring from basket to box; should be handled like eggs. The packing table should be in a well lighted and well ventilated part of the room. Each packer has before her room for two boxes, usually running two grades at a time; the end farthest away raised about six inches. For wrapping paper use 8x8 duplex, plain white. Packed boxes should be placed on benches behind the packer until nailed and placed on piles. The boxes should be 11 inches wide, 19 3/4 inches long, and either 4 1/2 or 5 inches deep. "Never pack a peach when warm." All fruit should be hauled on spring wagons, carefully covered to protect from dust. The following points are of value: Thin fruit on the trees so as to produce the best grade of peaches. Take greatest care in picking. Get the peach at the right stage of ripeness and pack carefully. Make the pack uniform, so that one box will be as good as another. All peaches must be sound, free from blemish or fungus, and well matured. Pack must be tight, and up to but not above end of box. Grower's name and grade of fruit must be placed on each box.



FRENCH MARKET, NEW ORLEANS, LOUISIANA—SCENE IN THE FRUIT AND PRODUCE SECTION OF THE GREATEST CITY OF THE SOUTH

secretary at least one hour before time for the convening of such meeting, and shall be given for one meeting only. All ballots cast at the election of trustees shall have written thereon the names of the persons selected by the voter, the number of votes cast, or intended to be cast, for each person, and the name of the owner of the shares of stock voted thereby, and the name of the proxy, if voting by proxy. Second—A committee shall be appointed by the stockholders present to receive the ballots, who in connection with the secretary shall count the ballots and report the results to the president, who shall make the necessary announcement, and upon such announcement being made, shall declare the persons receiving the greatest number of votes elected trustees of this corporation, and such declaration shall be entered upon the minutes of the meeting. Voting by Proxy—The stockholder who desires to exercise his right to vote his stock by proxy must furnish his attorney or agent with written authority to act for him, so as to assure the corporation that the attorney or agent is acting by authority of the principal. Such authority or proxy shall be presented to and filed with the secretary of the corporation, and shall remain upon file with the secretary.

Article X.—The books and papers of this corporation shall be in the custody of the secretary, and shall be open for inspection at all times during the business hours of all days except legal holidays.

Article XI.—These by-laws may be altered or amended at any regular meeting of the stockholders called for that purpose, upon due notice first having been given by a majority vote of the stockholders present at such meeting.

Article XII.—These by-laws shall be in force and effect after they have been approved by the board of trustees, and shall be the governing and controlling authority for the proceedings of the board until they shall be modified, amended or changed at a regular meeting of the stockholders of the corporation, called for that purpose, upon due notice being given as required herein.

Contract—For and in consideration of the sum of \$..... to me in hand paid, and the further consideration of the benefits and the services to be performed, I,, do hereby sell and agree to deliver to the Wenatchee Valley Fruit Growers' Association all my crops of fruits, vegetables and other products, the approximate list of which appears below: that all of such fruits and other products shall be gathered, packed and delivered at shipping point, at the time designated and under the supervision of said association (except that apples, which shall be delivered at the option of the grower). That the said Wenatchee Valley Fruit Growers' Association agrees to provide transportation and dispose of and market such products to the best advantage possible, and shall pay the said all moneys received from the sale of such products, less the expense of handling, selling, etc.

Such expense shall be determined by the trustees of said association; and it is also agreed that the trustees shall have the right to hold out not to exceed one per cent of the net proceeds of such sales to cover repairs, improvements, interest, etc.; and the said association agrees to issue stock to cover said amount to the said as interest may appear.

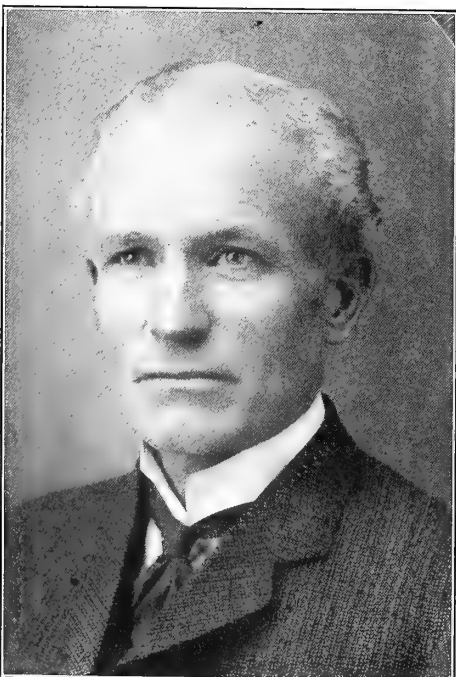
(Signed in duplicate.)

Articles of incorporation of Yakima County Horticultural Union:

Know all men by these presents, that we, the undersigned, have this day voluntarily associated ourselves together for the purpose of forming a corporation under the laws of the State of Washington. And we hereby certify:

I. That the name of said corporation shall be the "Yakima County Horticultural Union."

II. That the purposes for which it is formed are: To promote the interest of producers of fruits and other food products of Central Washington, by collecting and disseminating information and statistics bearing upon the preparation and marketing of said products; to establish uniformity in methods of grading and packing, and to develop markets. To own real estate and personal property in its own name; to acquire by deed, gift, will, grant or otherwise, lands, tenements and hereditaments, and to sell, assign, transfer, mortgage and encumber the same; to build warehouses and other buildings, and operate the same; to borrow money; to loan and make advances of the same upon products in possession or under the control of the corporation, and to promote the formation of local co-operative associations to affiliate with this corporation, and to assist in establishing their credit. To purchase fruits, produce and other food products; to carry on a retail and wholesale shipping business in fruits and other food products; to buy and sell the same; to purchase for the different local associations all supplies used in preparing, raising and marketing said fruit and food products; to lease, purchase or obtain such real or personal property as may be necessary in the transaction of the business of the corporation, and to sell or otherwise exchange or dispose of



W. N. IRISH
President Yakima County Horticultural Union
North Yakima, Washington

the same as the corporation may deem proper, or to its interests. To receive, store and market, for itself and for its different connections and customers, all fruits and other products intrusted to the corporation for the purpose, on such terms as the board of trustees shall prescribe.

III. That the place where the principal business of said corporation is to be transacted, and its principal office is to be at North Yakima, Yakima County, Washington.

IV. That the capital stock of said corporation shall be five thousand dollars (\$5,000), divided into five hundred (500) shares of the par value of ten dollars (\$10) dollars each. That all of said stock has been subscribed for and paid up.

V. That the term for which said corporation is to exist is fifty years (50) years from and after the date of its formation.

VI. That the number of trustees of said corporation shall be three, and that the names and residences of the trustees who are selected for the first six months to serve until the election and qualification of such officers are as follows, to-wit: A. F. Snelling, L. B. Kinyon and Orlando Beck, North Yakima, Washington.

Amended articles of Incorporation:

Know all men by these presents, that we, M. N. Richards, president, and William N. Irish, secretary of the Yakima County Horticultural Union, a corporation, do hereby certify as follows: That at the regular meeting of the stockholders of said corporation, which was held in the City of North Yakima, Washington, on January 13, 1906, pursuant to the by-laws of the corporation, and notice duly given thereunder, at which said meeting there was more than two-thirds of the capital stock of said corporation duly represented and participating in the person of its holder or by proxy duly given and filed with the secretary in accordance with the by-laws, and by unanimous vote of all of said stock so represented, to-wit: By vote of three hundred seventy-six (376) shares of the capital stock of the corporation so represented and participating; and also at a special meeting of the board of trustees of said corporation, duly called and held for that purpose in accordance with the by-laws of the corporation, on January 13, 1906, at which meeting was present each and all of the trustees of said corporation, and by unanimous vote of all of the trustees of said corporation, Article VI of the articles of incorporation of said corporation, heretofore filed in the office of the secretary of the State of Washington, on April 1, 1903, and in the office of the auditor of Yakima County, Washington, on March 30, 1903, was amended so that said Article VI should read as follows, to-wit: "Article VI.—The number of trustees of this corporation shall be seven (7), and the full board of trustees shall be elected by the stockholders at their annual stockholders' meeting in each year, including the year 1906." And we do further certify the foregoing to be true and correct wording and substance as the said Article VI of the articles of incorporation of the corporation was amended at said stockholders' meeting and trustees' meeting aforesaid.

In witness whereof, we have executed this certificate in triplicate on behalf of said corporation, and in its name and under its seal, by authority of a resolution of the stockholders and of the board of trustees of said corporation, heretofore duly enacted and passed on this 18th day of January, 1906.

YAKIMA COUNTY HORTICULTURAL UNION, by M. N. Richards, President.

(Corporation Seal.)

Attest: William N. Irish, Secretary.

Amended by-laws of the Yakima County Horticultural Union:

Article I.—Section 1. This organization shall be known as the "Yakima County Horticultural Union." Sec. 2. The headquarters and principal place of business shall be located at North Yakima, Washington.

Article II.—Section 1. The corporate powers of the corporation shall be exercised by a board of seven trustees, each of whom shall be a stockholder. Sec. 2. The full board of trustees shall be elected by the stockholders at the annual meeting of each year. Sec. 3. The trustees shall, forthwith upon their election, qualify by taking oath as required by law, and elect officers, and they shall hold office for one year, and until their successors are elected and qualified. Sec. 4. Vacancies on the board of trustees shall be filled by appointment by the remaining trustees, and the person so appointed shall qualify forthwith and hold office until the next annual meeting of the stockholders. Sec. 5. In case an annual stockholders' meeting is not held, or if held, in case a board of trustees shall not be elected for the ensuing year, such trustees may be elected at a special stockholders' meeting called for that purpose at any time upon notice as hereinafter provided for a special stockholders' meeting, and the trustees so elected shall qualify forthwith and hold office until the next annual meeting of the stockholders. Sec. 6. The board of trustees shall have power: a. To call special meetings of the stockholders. b. To appoint and remove at pleasure all subordinate officers, agents and employes of the corporation, prescribe their duties, fix their compensation and require from them security for faithful service. c. To conduct, control and manage the business and affairs of the corporation, and to make rules and regulations not inconsistent with the by-laws or the laws of the



FRUIT AND VEGETABLE MARKET AT LOS ANGELES, CALIFORNIA
Surrounding this is the wholesale fruit and produce district

State of Washington, for the guidance of the officers, agents and employees of the corporation, and for the management of its business. d. To authorize the expenditure of moneys and funds of the corporation for the purpose of carrying on its business and the protection of its property and rights. e. To incur indebtedness on behalf of the corporation for the purpose of carrying on its business or for the protection of its property and rights. The terms and amount of such indebtedness and the purpose for which it is created shall be entered on the minutes of the board; and any note or obligation given for the same, signed officially by the president and secretary under authority of the board, shall be binding on the corporation. f. To designate depositories for the funds of the corporation; to require security from any officer of the corporation for the faithful performance of his duties. g. To do any and all other things in these by-laws directed, or which may be necessary for the prosecution of the business of the corporation or the protection of its property and rights, not inconsistent with these by-laws or the laws of the State of Washington. Sec. 7. It shall be the duty of the board of trustees: a. To cause to be kept a complete record of all its acts and proceedings, and of the meetings and proceedings of the stockholders. b. To supervise the officers, agents and employees of the corporation, and see that their duties are properly performed. c. To declare and pay dividends to the stockholders of the surplus profits of the corporation, when such profits, in the opinion of the trustees, warrant the same; provided, the trustees shall not be required to distribute in the way of dividends any surplus profits of the corporate business which the stockholders by resolution may authorize to be retained and used in carrying on the business of the corporation, or which such stockholders may authorize to be permanently invested in property for the use of the corporation. d. Perform all other duties enjoined by these by-laws. Sec. 8. The trustees of the corporation shall receive in full compensation for their services in attendance upon regular trustees' meetings, in conducting, managing and supervising the business of the corporation, the sum of \$1.50 per day for each and every day necessarily devoted to such attendance.

Article III.—Section 1. The officers of this corporation shall be a president, a vice-president, a secretary and a treasurer. Sec. 2. When a board of trustees shall have been elected at any stockholders' meeting, the members thereof shall qualify at once, and the board shall forthwith proceed to hold a meeting and shall organize by the election of one of its members as president, one as vice-president, one as secretary and one as treasurer. Sec. 3. All officers shall hold office and serve for the term for which they were elected to act as trustees, except that the board of trustees may reorganize as often as a change in membership may render the same necessary. Sec. 4. The president shall be the chief executive officer of the corporation. He shall: a. Preside at all meetings of the trustees and stockholders. b. Sign, as president, all certificates of stock. c. Execute on behalf of the corporation all deeds, contracts or other instruments requiring such signature. d. Sign all orders on the treasurer for the payment of moneys. e. Call special meetings of the board of trustees when he shall deem it proper; and, f. Generally do and perform all acts and things usually devolving upon an executive and presiding officer. Sec. 5. The vice-president shall, in case of absence or disability of the president, perform all duties herein prescribed for such president. Sec. 6. The secretary shall be the recording officer of the corporation. He shall: a. Keep a complete record of the proceedings of the board of trustees and of all meetings of the stockholders. b. Keep the corporate seal of the corporation and

affix it to all instruments executed on behalf of the corporation which require such seal. c. Attest the signature of the corporation on all deeds, contracts or other instruments to which it may be a party. d. Keep a book containing the names of all persons, alphabetically arranged, who are or shall be stockholders of the corporation, and showing the number of shares held by them, respectively, and the time when they became the owners of the shares. e. Serve all notices required by law or these by-laws, or as directed by the board of trustees or president. f. Make full report of all matters and business pertaining to his office to the stockholders at their annual meeting. g. Make special reports of matters pertaining to his office, when requested thereto by the board of trustees. h. Have charge of and safely keep a copy of the articles of incorporation and of the by-laws of the corporation, and all books, records, deeds, contracts or other instruments, papers and files of the corporation. i. He shall keep a true and correct record of all moneys received by him for the corporation, and pay the same to the treasurer, taking his receipt therefor; and j. Perform and discharge such other duties as pertain to such office and as are or may be prescribed by the trustees, these by-laws or the laws of the State of Washington. Sec. 7. In case of the absence, disability or refusal to act of the secretary at any meeting of the stockholders or board of trustees, any stockholder may, by appointment of those present, or of the chairman of the meeting, keep a true record of all proceedings occurring thereat, sign the same as secretary pro tem, and deliver such record to the secretary at his earliest convenience. Sec. 8. It shall be the duty of the treasurer: a. To receive and safely keep all funds of the corporation. He shall deposit such funds in a bank or banks to be designated by the

board of trustees as depositories of the funds of the corporation, and such moneys or funds shall only be paid out by check or order signed in the name of the corporation by such treasurer. b. He shall make an annual statement of all funds received and paid out, and shall file the same with the secretary, which annual statement shall be so made and submitted at the annual meeting of stockholders, and shall cover and include the business of the preceding year. c. He shall also make special reports concerning the moneys and funds of the corporation, when directed thereto by resolution of the board of trustees. d. He shall sign and deliver checks upon the depositories of the corporation for the payment of moneys due by it only upon orders signed by the president and countersigned by the secretary. Sec. 9. In addition to the officers hereinbefore named and provided for, the board of trustees shall have power and authority to select and employ a competent manager of the business of the corporation, who shall have personal charge of buying, selling, marketing, storing and handling of the goods, wares, merchandise, products and articles handled, bought, sold, shipped or stored, and which said manager shall at all times be subject to the control of the board of trustees, and shall act under their supervision, and shall be hired and discharged by such board of trustees at their pleasure. Said manager shall at all times keep true and correct books of account with all persons doing business with or through the corporation, and of all the business of the corporation, and he shall make and render to the board, at its regular meeting in each month, a true report of all the business of the preceding month, and shall make special reports as to the business of the corporation under his control and management, when requested thereto by the board of trustees. The accounts and books of said manager shall be audited at such times as the board of trustees may direct, and by such person as they shall see fit to employ or appoint. Said manager shall be paid such compensation for his services as shall be determined and allowed by the board of trustees, and he shall give to the corporation such bond for the faithful discharge of his duties as the said board may direct.

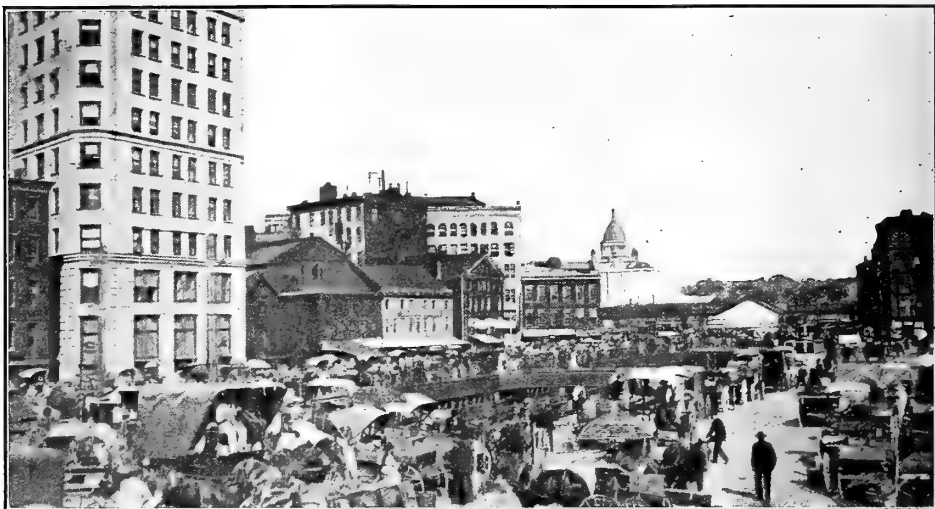
Article IV.—Section 1. The annual meeting of the stockholders of this corporation shall be held on the second Saturday of January of each year, at the hour of 10 o'clock a. m., at the office of the corporation in the City of North Yakima, Washington. Sec. 2. Such annual meeting of the stockholders shall be for the purpose of: a. Electing a full board of trustees for the ensuing term of one year. b. Hearing the reports of the various officers of the corporation; and c. Acting upon any other question which may affect the business or welfare of the corporation, or which may require the action of its stockholders. Sec. 3. Notice of the annual meeting of the stockholders shall be given by the secretary by written or printed notice mailed to each stockholder, postage prepaid, at his last known address, as shown by the books of the corporation, which notice shall state the time, place and purpose of the meeting, and shall be mailed as above provided at least ten days before the date of such meeting. Sec. 4. Special stockholders' meetings for the purpose of considering any matter or transacting any business requiring their action, or which may be necessary or proper to carry out the objects of the corporation to the fullest extent, may be called by resolution of the board of trustees, duly passed and spread upon the minutes of said board at any regular or special meeting of the board, and notice shall be given to each stockholder of the



A BUSY DAY ON THE WATER FRONT, SAN FRANCISCO, CALIFORNIA
Ship being loaded with all kinds of products and fruits for the Orient

corporation, which notice shall be written or printed, mailed to such stockholders, postage prepaid, at least ten days before the time set for such special meeting, and stating the time when, and the place where, such meeting shall be held, and the objects thereof. Sec. 5. No stockholders' meeting shall be competent to transact business unless forty per cent of the capital stock of the corporation shall be represented thereat, either in the person of its holder or by proxy duly appointed, except that such meeting may adjourn from day to day or to a day certain. Sec. 6. At all corporate meetings each stockholder present, in person or by duly appointed proxy, shall be entitled to as many votes as he owns shares of stock in the corporation. Sec. 7. A stockholder desiring to exercise his right to vote at any meeting by proxy shall furnish to his agent such written evidence of the latter's right to act for him as will reasonably assure the corporation that the agent is acting by authority of his principal. Such proxy shall be in writing and signed by the stockholder giving the same, or his duly authorized attorney in fact, and shall be filed with the secretary of the corporation, or with the secretary pro tem of the meeting. Sec. 8. All elections of trustees shall be by ballot. The ballots cast shall have written or printed thereon the names of the person or persons selected by the voter and the number of votes cast for such person or persons. Sec. 9. The annual meeting of the board of trustees shall be held at the office of the corporation, in North Yakima, Washington, on the first Saturday in January of each year, at the hour of 10 o'clock a. m. Sec. 10. Regular meetings of the board of trustees shall be held on the first Saturday of each month, at the office of the company in North Yakima, Washington, at the hour of 7:30 o'clock p. m., at which meeting may be transacted any business properly coming before the board of trustees. Sec. 11. No notices of the annual or regular meeting of the board of trustees shall be necessary. Sec. 12. Special meetings of the board of trustees may be called by the president, when he shall deem it necessary, by notice to each trustee in writing personally served upon such trustee, or by similar written notice mailed to each trustee at his place of residence, as shown by the books of the corporation, at least three days before the date of such meeting; provided the president shall be compelled to call such meeting upon written request of three trustees. Sec. 13. Special meetings of the board of trustees may be held at any time and for any purpose by consent of all the trustees, expressed in writing and filed with the secretary. Sec. 14. Any stockholders' meeting, either annual or special, and any trustees' meeting, either annual, regular or special, may adjourn from day to day or to a day certain, either because of unfinished business or in anticipation of matters and business which may arise to require the action of such stockholders or trustees, as the case may be. The fact of every adjournment and the time and place to which it is taken, shall be noted on the minutes of the meeting, and no notice of any adjourned meeting shall be necessary. The objects and powers of any meeting shall not be enlarged by adjournment so as to permit an adjourned meeting to act upon any question or matter which could not have come before the original meeting.

Article V.—Section 1. Shares of stock in this corporation shall be transferable by endorsement on the certificate thereof by the holder of the stock, or by attorney legally constituted, or by the legal representative of such holder, but no transfer shall be valid, except as between the parties thereto, until the surrender of the certificate to the corporation, and the entry of the transfer on its books, so as to show the names



MARKET SQUARE, PROVIDENCE, RHODE ISLAND

Showing the farmers bringing in fruit and produce in the early morning

of the parties, by and to whom transferred, the numbers and designation of the shares and the date of the transfer.

Article VI.—Section 1. All moneys and funds of the corporation received by the manager shall be deposited, held, used and disbursed by him under authority and direction of the board of trustees in carrying on the business of the corporation, and in settling and paying the ordinary accounts of the corporation, or in settling and liquidating its accounts with its members and others doing business with or through the corporation; provided, the board of trustees shall require such manager to turn over and pay to the treasurer of the corporation, at stated and regular intervals, all surplus funds then in his hands over and above an amount necessary to meet the current expenses and accounts of the corporation. Sec. 2. All payments of moneys made by the corporation for any purpose, except as may be made by the manager under authority of the board of trustees in the conduct of the ordinary business of the corporation, as above provided, shall be by check or order drawn on the depositories in the name of the corporation by the treasurer. Sec. 3. The manager shall cause to be kept a complete record of the time devoted to the business of the corporation by all clerks, laborers or employes.

Article VII.—Section 1. All written contracts, deeds and other instruments affecting the corporation, its rights or property, before the same shall be binding upon the corporation, shall be signed on its behalf by the president and attested by the secretary with its corporate seal attached; and the president is hereby authorized to sign and deliver on behalf of the corporation all contracts, deeds and other instruments in writing affecting the corporation or its property which shall be authorized by the board of trustees; and the secretary is hereby authorized to attest all such instruments, and to attach the corporate seal thereto. Sec. 2. All minutes of the meetings and of the proceedings of the stockholders of the corporation, or its

board of trustees, shall be signed by the president or chairman presiding at the meeting, and attested by its secretary, or secretary pro tem, keeping the same. Sec. 3. The business year of the corporation shall commence with the Monday after the first Saturday in January of each year, and end with the Monday after the first Saturday in January of the succeeding year, and all annual reports of officers shall be for the past business year. Sec. 4. The corporate seal of this corporation is, and until otherwise ordered by the board of trustees shall be, an impression upon paper, bearing the words, "Yakima County Horticultural Union," and of the following style and form, to-wit: (Seal)

Article VIII.—These by-laws may be amended at any annual stockholders' meeting, or at any special stockholders' meeting called for that purpose, by a vote of a majority of all of the capital stock of the corporation.

Articles of incorporation of Rogue River Fruit and Produce Association of Medford:

Know all men by these presents, that we, the undersigned: C. H. Gillette, Ashland, Oregon; G. A. Hover, Phoenix; W. A. Sumner, Medford; G. A. Hamilton, Grants Pass, and H. E. Gale, Merlin, do hereby associate ourselves as a corporation under the general incorporation laws of the State of Oregon, and we do hereby adopt the following articles of incorporation:

Article I.—The name of this corporation shall be the Rogue River Fruit & Produce Association.

Article II.—The objects and purposes of the Rogue River Fruit & Produce Association shall be: 1. To pick, grade, pack and to buy and sell, direct or on commission, fresh and prepared fruits, and other farm products of all kinds. 2. To buy, sell and deal in fruit and other farm products, packing material, orchard supplies, spraying material and machinery. 3. To buy, rent, lease, acquire and improve such real estate as may be required in the business of this corporation. 4. To buy, rent, lease, build, acquire and operate packing houses, warehouses, offices and other buildings, railroad tracks and wagon roads, and to lease or sell the same. 5. To buy, rent, lease, acquire, build and operate pre-cooling plants, ice factories, cold storage plants, dryers, canneries and by-products factories, and to lease or sell the same. 6. To manufacture and sell ice and distilled water, spray materials, boxes and all kinds of fruit and produce supplies. 7. To fix such charges, tolls and commissions on sales and operative work in the business of the association as may be required to meet the expenses and other financial needs of the association. 8. To borrow money on bonds, notes or otherwise, and to mortgage or pledge any or all of this corporation's property, real or personal, to secure the same. 9. To make and execute contracts in furtherance of the business of this corporation. 10. To do and perform generally any and everything necessary, proper or convenient to carry into effect the objects and purposes above stated.

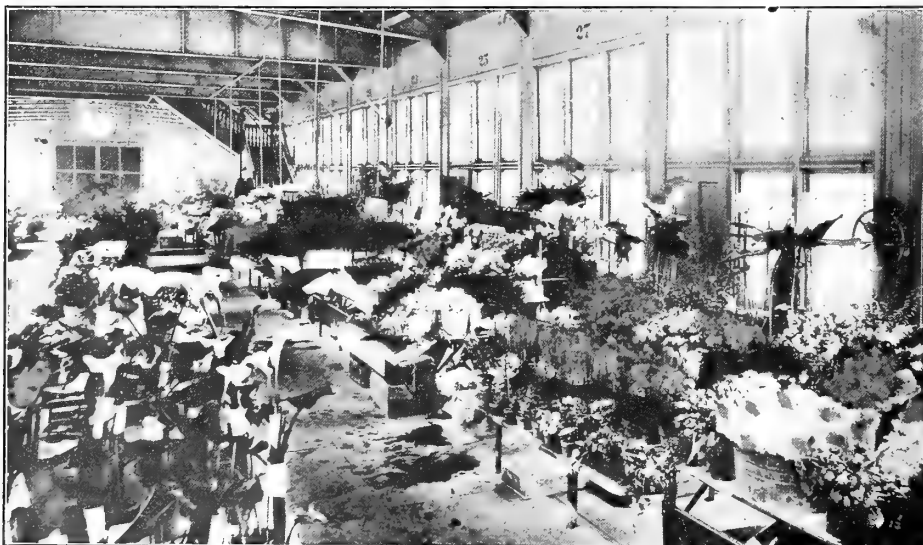
Article III.—The duration of this corporation shall be perpetual.

Article IV.—The principal place of business of this corporation shall be at the City of Medford, Oregon.

Article V.—Section 1. The capital stock of this corporation shall be \$50,000. Sec. 2. The capital stock shall be divided into 5,000 shares of the par value of ten dollars each.

Constitution and by-laws:

Article I.—Section 1. The board of directors shall consist of fifteen stockholders, who shall be elected at the first meeting of stockholders, and at each annual meeting thereafter, and who shall hold office for one year, and until their suc-



SIXTH STREET FLOWER MARKET, CINCINNATI, OHIO

Next to this building, running probably two blocks and about fifty feet wide, is the public market building where the fruit and produce is being sold daily at retail

cessors are elected and qualified. Sec. 2. The officers of the corporation shall consist of a president, vice-president, secretary, treasurer and an auditing committee of three members. These officers shall be elected by the board of directors from among their number, and shall hold office at the pleasure of and for such time as may be fixed by the board. Sec. 3. Vacancies in any office, however occurring, shall be filled by a majority vote of the board of directors, and any stockholder elected to fill a vacancy in the board of directors shall hold office for the unexpired term. Sec. 4. A bank or banks may be designated as treasurer or custodian of the funds of this corporation. Sec. 5. The treasurer shall give bonds in such amounts as the board may require, unless a bank shall be chosen as treasurer, in which event no bonds shall be required. Sec. 6. No director of this corporation shall be allowed to hold any other office or position in the employ of the Rogue River Fruit & Produce Association other than president, vice-president, auditing committee member, secretary or treasurer; nor shall the manager hold any other office or position with this corporation other than that of manager. Sec. 7. No officer or director of this corporation shall hold any office or position in the employ of any other fruit growers' association, or other similar organization engaged in the same line of business as this corporation; provided, that this section shall not apply to the officers of any such organization now existing in the Rogue River Valley. Sec. 8. No person shall be eligible to hold office as an officer or director of this corporation who shall be directly or indirectly engaged in or a representative of any fruit or produce commission business, and any officer or director engaging in such business or accepting such position shall thereby become disqualified as such officer or director, and the board of directors shall thereupon declare his office vacant.

Article II.—Section 1. The directors of this corporation shall be paid a compensation of \$2.50 for every day or part of a day that each is in attendance at a meeting of the board of directors, and they shall each be paid a further remuneration of six cents per mile for the distance one way by the usual and most direct route of travel from their respective places of residence to the place of meeting of the board of directors. Sec. 2. No officer or director of this corporation shall share in any profits or commissions earned by this corporation other than regular dividends which may be declared for the benefit of all stockholders.

Article III.—Section 1. The board of directors shall have full and exclusive control of all business transactions of the Rogue River Fruit & Produce Association not otherwise specified in these by-laws, and they shall also have full power to fix the duties of all other officers and employees of this corporation. Sec. 2. The auditing committee shall have all books and accounts of the Rogue River Fruit & Produce Association audited once each three months, employing expert accountants to do the work, if they see fit, or are so ordered by the board of directors.

Article IV.—Section 1. Any director who is absent from two successive regular meetings of the board of directors shall be considered to have resigned and to have forfeited his office, unless at the next regular meeting of the board of directors he shall present an excuse for such absence satisfactory to the board. The secretary shall state in the minutes of the meeting the action of the board, and the secretary shall also keep a roll of attendance at each regular and special meeting, noting the directors present and those absent. He shall, when he notes the absence



J. C. SINSEL, OF BOISE, IDAHO

Prominent fruit grower and shipper, also one of the judges at Spokane National Apple Show

of a director from two successive regular meetings of the board, report the same to the board of directors, and the board, at their next regular meeting, shall take action, the secretary notifying such delinquent director of the proposed action.

Article V.—Section 1. The annual meeting of the stockholders of this corporation shall be held on the second Tuesday in February of each year, and special meetings of the stockholders may be called by the president, vice-president, or by a majority of the directors, or by the stockholders holding at least one-third of the subscribed capital stock of this corporation. Sec. 2. Notice of the annual meetings and of all special meetings shall be given by the president or secretary of the corporation at least thirty days prior to the date of such meeting, which notice shall state the time and place of such meeting, and shall be published in three newspapers in Rogue River Valley—one in Ashland, one in Medford and one in Grants Pass—once each week for four successive weeks prior to such meeting. Sec. 3. At all meetings of stockholders a majority of the subscribed capital stock shall constitute a quorum for the transaction of business at such meeting, and every decision of the majority of the stock represented at such meeting, either by stockholders in person or by written proxy, shall be valid as an act of such meeting, with the exception of the amendments of these by-laws. Sec. 4. At the annual meeting of the stockholders the following order of business shall be followed: 1. Reading of the annual report of the manager and action on same.

2. Action upon proposed amendments of the by-laws. 3. Election of directors. 4. Any other lawful business. And all proceedings at all stockholders' meetings shall be governed by Cushing's Manual, unless otherwise provided by these by-laws. Sec. 5. Regular meetings of the board of directors shall be held on the second Tuesday in each month, and special meetings may be called at any time by the president or vice-president upon two days' notice, either verbal or written, being given to each director by the secretary. Five directors shall constitute a quorum for the transaction of all business at all meetings of the board.

Article VI.—Section 1. Three grades of apples are established as the standards for this association, namely, "extra fancy," "fancy" and "choice." Apples in boxes marked "extra fancy" shall be sound, smooth, practically free from bruises, worms, worm stings or disease, and have proper shape for the variety, fully matured. Red varieties shall be ninety-five per cent, or higher, red. The "fancy" grade shall consist of apples sound, smooth, practically free from bruises, worms, worm stings or disease, and have reasonable proper shape for the variety, fully matured. All red varieties in this grade shall be at least fifty per cent red, except Spitzenberg, Winesap, Jonathan and Arkansas Black, which shall be at least seventy per cent red. The "choice" grade shall consist of apples sound, free from any breaks in the skin or black bruises, also free from worms or any disease which injures the quality of the apple. Sec. 2. The first board of directors, in conjunction with the managers, are hereby authorized and empowered to establish permanent grades on fruit and produce other than apples, as above provided, such grades, when so established, to be permanent unless changed by a majority vote of the stockholders at any regular meeting or at a special meeting called for that purpose. Sec. 3. The manager of the association shall be ex-officio inspector of fruit, with power to enforce conformity to the established grades, and he shall have power to appoint deputies to assist in such work. Any appeal from his decision shall be taken to the board of directors in such manner as the board shall prescribe.

Article VII.—The members of this association shall be permitted to market their products by sale or consignment, either direct or through the association; provided, that if any portion of the products of a member be marketed through the association, the association shall be entitled to collect from said member a commission upon the proceeds of all the product of such member of the same kind and class as that marketed through the association, however the remaining portion of such product may be marketed. In applying this by-law each season's products shall be considered separately.

Article VIII.—These by-laws may be amended at any annual meeting of the stockholders, or at any special meeting of the stockholders called for that purpose, by affirmative vote of the majority of the subscribed capital stock, but no amendment shall be made at any special meeting unless the article and section to be amended, or the proposed amendment, be set forth in the notice of such meeting.

CROP ESTIMATE

For season of 181.....	Date.....	191.....
Number apple trees bearing	.....	.....
Number apple trees not bearing	.....	.....
Number pear trees bearing	.....	.....
Number pear trees not bearing	.....	.....
Number peach trees bearing	.....	.....
Number peach trees not bearing	.....	.....
Number trees bearing other fruits	.....	.....

Apples (in packed boxes)	
Spitzenberg	Winesap
Newtown	Ben Davis
Jonathan	Total
Pears (in packed boxes)	
Bartlett	Clairegeau
Anjou	Howell
Comice	Bosc
Winter Nelis	Total
Peaches (in packed boxes)	
Hales Early	Muir
Late Crawf'd	Early Crawf'd
Alexander	Elberta
Other fruits	

I hereby agree to purchase from the Rogue River Fruit & Produce Association all the supplies to be used in the packing and shipping of my entire crop of merchantable apples and pears during the season of 191....., and such other boxes as listed below:

Apples	.....
Pears	.....
Peaches	.....
Miscellaneous	.....

Contract—Between the Rogue River Fruit & Produce Association and a fruit grower of the Rogue River Valley, witnesseth: That said grower appoints the above association his sole agent to ship and market his crop of apples, pears, peaches, for the season of 191..... The grower agrees to grade and pack his fruit according to the methods and rules prescribed by the association, and to deliver same at such time to the warehouses or cars of the association for shipment, and to submit it to inspection by the agents of the association; or, the said grower agrees to deliver his fruit to the nearest packing house of the association for the purpose of having



WHOLESALE FRUIT AND PRODUCE DISTRICT, PORTLAND, OREGON

it graded, packed and shipped by the association, the same to be done at a uniform rate for all. The grower further agrees that all his fruit shall be pro-rated with the proceeds from all other fruit of like variety and grade shipped by the association for the year 191...., and that the association shall be entitled to retain or collect ten cents for each full box of apples and pears, seven cents for each half box, five cents for each box of peaches, and on all other packages eight and one-third per cent of the proceeds. The association hereby agrees to receive and dispose of all marketable fruit to the best of its judgment and ability, and to pro-rate the proceeds of all sales under this and all like contracts for the same year, according to the variety and grade. The association will provide boxes, paper and all other necessary package material on the basis of an estimate furnished by the grower, and at a uniform price for all. (Dated and signed in duplicate.)

Constitution and by-laws of the Grand Junction Fruit Growers' Association:

I. The name of the said association shall be the Grand Junction Fruit Growers' Association.

II. The objects for which the said association is created are to buy and sell fruit, vegetables, hogs, meat stock and all the products of Mesa County, both fresh and manufactured; to erect, operate and maintain canning and packing factories and commission houses; to manufacture any and all products of Mesa County; to lease, mortgage and sell said business, and to borrow money for carrying on the same, and to pledge their property and franchise for such purpose. To acquire by purchase, or otherwise, and own real estate, buildings, machinery and all the necessary power and power plants for carrying on said premises, and to lease, mortgage and sell the same.

III. The term of existence of said association shall be twenty years.

IV. The capital stock of the said association shall be twenty-five thousand dollars, divided into five thousand shares of five dollars each.

V. The number of directors of said association shall be seven, and the names of those who shall manage the affairs of the association for the first year of its existence are C. W. Steele, A. A. Miller, J. W. Rose, R. W. Shropshire, J. H. Smith, P. A. Rice and A. B. Hoyt.

VI. The principal office of said association shall be kept at Grand Junction, in the said county, and the principal business of said association shall be carried on in said County of Mesa.

VII. The stock of said association shall non-assessable.

VIII. The directors shall have power to make such prudential by-laws as they may deem proper for the management of the affairs of the association not inconsistent with the laws of the state, for the purpose of carrying on all kinds of business within the objects and purposes of the association.

Article I.—Section 1. The board of directors provided for in the articles of incorporation of this association shall be elected annually at the regular annual meeting of the stockholders, as hereinafter provided, and shall hold their office until their successors are elected and qualified. Sec. 2. Said directors shall be stockholders in said association and shall be fruit growers in Grand Valley, and shall be residents of Mesa County, Colorado. Sec. 3. Any vacancy occurring in the board of directors shall be filled by the remaining members of the board.

Article II.—Section 1. The board of directors shall, as soon as may be after their election, elect a president and vice-president from among their number, who shall hold their offices for one year, and at said meeting the said board shall appoint a secretary, treasurer and manager, who shall be subject to removal at any time. Sec. 2. The secretary, treasurer and manager shall each, when required by the board, give bond in such sum and with such security as the directors may require, conditioned on the faithful performance of their duties, and to turn over to their successors in office all books, papers, vouchers, money, funds and property of whatsoever kind or nature belonging to the association, upon the expiration of their respective terms of office, or upon their being removed therefrom, or with such other conditions as may be proper. Sec. 3. The president shall preside at all meetings of the directors or stockholders. He shall sign, as president, all certificates of stock, and all other contracts and other instruments in writing, which may have been ordered by the board of directors. Sec. 4. The vice-president shall, in the absence of or disability of the president, perform his duties. Sec. 5. The manager shall have full charge of the commercial and shipping department of the association. He shall receive all money arising from the sale of fruit and other commodities handled by the association, and pay the same to the parties entitled thereto, and render a true account thereof; and he shall also be the treasurer of this association and safely keep all money belonging to the association, and disburse the same under the direction of the board of directors, except as herein above set forth. Sec. 6. The secretary shall keep a record of the proceedings of the board of directors, and also of the meetings of the stockholders. He shall also keep a book of blank certificates of stock, fill up and countersign all certificates issued and make the corresponding entries upon the marginal stub of each certificate issued. He shall keep a stock ledger in due form,

showing the number of shares issued to and transferred by any stockholder and date of issuance and transfer. He shall have charge of the corporate seal and affix the same to all instruments requiring a seal. He shall keep, in the manner prescribed by the board of directors, all accounts of the association with its stockholders, in books provided for such purpose. He shall discharge such other duties as pertain to his office, and as may be prescribed by the board of directors. Sec. 7. These by-laws may be amended by the board of directors at any special meeting thereof called for that purpose, a notice of such proposed amendment being given in the call for such special meeting.

Article III.—Section 1. The regular meetings of the board of directors shall be held at the office of the company, on the first (1st) day of each month, except when the first day comes on Sunday or legal holiday, then on the following day. Special meetings of the board of directors may be called by the president when he may deem it expedient or necessary, or by the secretary, upon the request of any three members of said board. Sec. 2. A majority of the board of directors shall constitute a quorum for the transaction of business, but a less number may adjourn from day to day upon giving notice to absent members of the said board of such adjournment. Sec. 3. The board of directors shall have power: First—To call special meetings of the stockholders whenever they deem it necessary, by publishing a notice of such meeting once a week for two weeks next preceding such meeting in some newspaper published in Grand Junction, Colorado. Second—To appoint and remove at pleasure all employees and agents of the association, prescribe their duties, where the same have not been prescribed by the by-laws of the association, fix their compensation, and when they deem it necessary to require security for the faithful performance of their respective duties. Third—To make such rules and regulations not inconsistent with the laws of the State of Colorado and articles of incorporation, or the by-laws of the association, for the guidance of the officers and the management of the affairs of the association. Fourth—To incur such indebtedness as they may deem necessary for carrying out the objects and purposes of the association, and to authorize the president and secretary to make the note of the association, with which to raise money to pay such indebtedness. Sec. 4. It shall be the duty of the board of directors: First—To be caused to be kept a complete record of all their meetings and acts, and also the proceedings of the stockholders, present full statements at the regular annual meetings of the stockholders, showing in detail the assets and liabilities of the association and the condition of its affairs in general. Second—To supervise all acts of the officers and employees, require the secretary, treasurer and manager to keep full and accurate books of account of their respective business.

Article IV.—Section 1. At the regular meeting in the month of January of each year the directors shall declare such dividends upon the capital stock to all the stockholders then appearing of record as may be warranted by the net earnings of the association for the preceding year.

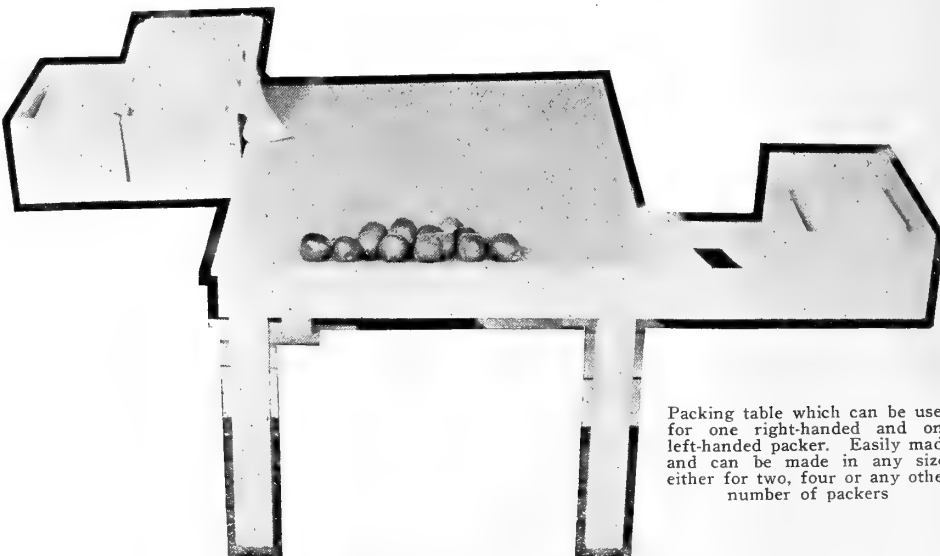
Article V.—Section 1. The board of directors may, whenever they shall deem it necessary, place on sale so much of the capital stock of the association as may be necessary to raise funds for the purpose of carrying out the objects and purposes of the organization of the association, such stock to be sold only upon the following conditions: First—That not more than three hundred (300) shares thereof be sold to any one person, firm or association of persons. Second—That such stock be sold only to fruit growers in Grand Valley. Third—That such stock be sold at not less than par value of five dollars (\$5) per share.

Article VI.—Section 1. The annual meeting of the stockholders for the election of directors shall be held on the third (3rd) Saturday in January of each year, but if for any reason it should not be held on such day it may then be held on any day subsequent thereto, as hereinafter provided. Sec. 2. The board of directors shall be elected by the stockholders at the regular annual meeting. Public notice of the time and place of holding such annual meeting and election shall be published not less than ten (10) days previous thereto in some newspaper of general circulation printed in Grand Junction, and the said election shall be made by such of the stockholders as shall attend for that purpose, either in person or by proxy, provided a majority of the outstanding stock is represented. If a majority of the outstanding stock shall not be represented such meeting may be adjourned by the stockholders present for a period not exceeding sixty (60) days. All elections shall be by ballot, and each stockholder shall be entitled to as many votes as he or she owns shares of stock in said association; provided, however, that no person who is not himself a stockholder shall be allowed to represent by proxy any stockholder in the said association. The person receiving the greatest number of votes shall be the directors for the ensuing year, and until their successors are elected and qualified.

Article VII.—Section 1. Certificates of stock may be transferred at any time by the holders thereof, or by attorney in fact or legal representative. Such transfer shall be made by endorsement on the certificate of stock and surrender of same; provided, such transfer shall not be valid until the same shall have been noted in the proper form on the books of the association. The surrendered certificates shall be cancelled before a new certificate in lieu thereof shall be issued, and no transfer of any share of stock shall be valid or allowed upon the books of the association upon which any deferred payments are due and unpaid, nor which has not been sold and transferred in accordance with the provisions of the by-laws of the association. Sec. 2. Any stockholder desiring to dispose of his stock in said association shall deposit the same with the secretary of the association, and the same shall be sold by the said secretary at not less than par for account of such stockholder, within sixty (60) days from date of such deposit, under the restriction of Section 1. Article 5, of these by-laws; provided, that if the secretary shall not have sold such stock at the expiration of sixty days, then such stock may be returned to such stockholder, and be disposed of by him, without restriction or limitation by the association.

Article VIII.—Section 1. All members of this association are required to market all their fruit through the association and bear their proportionate share of the expenses of handling the same. Sec. 2. Any member may have the privilege of selling his own fruit at the orchard, but no sales of fruit shall be made to a dealer in fruit, or to any person who buys to ship outside the county. In case of the sale of the entire crop of any particular fruit or fruits, by reporting the same to the association, one-half (½) only of the regular commission will be charged. Sec. 3. Any member having any grievance or cause of complaint as to treatment of his fruit by the association can appeal to the board of directors, whose decision shall be final. Sec. 4. All members must pack their fruit for shipping in a neat and workman-like manner, and pack the same in standard sized packages, as adopted and in general use by the association, having placed thereon their name or number.

Article IX.—Section 1. A purchaser of stock in this, the Grand Junction Fruit Growers' Association, shall hereafter receive of the profits of the association in proportion to the money he has invested.



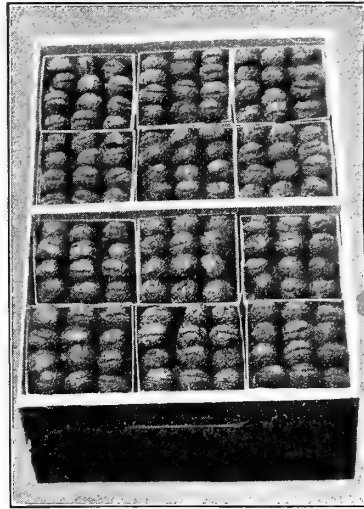
Packing table which can be used for one right-handed and one left-handed packer. Easily made and can be made in any size, either for two, four or any other number of packers

HANDLING THE PACIFIC NORTHWEST FRUIT CROP

BY C. I. LEWIS, CHIEF DIVISION OF HORTICULTURE OREGON EXPERIMENTAL STATION, CORVALLIS, OREGON

AS fruit growers of the Pacific Northwest we have had some experiences the past two years, which, while not always gratifying, can or should be made at least profitable. If we are to make progress we must continually study and try to improve our methods. We must take to heart the lessons that experience is teaching us. As a result of the past two season's crops of fruit it seems to me that there are certain lessons that we can learn, or at least certain signs that we can observe, that should cause us to pause and think seriously. First, I believe we are making mistakes regarding the question of variety. While the Pacific Northwest as a whole grows perhaps enough varieties, there is a tendency in many localities to grow too few varieties, and as far as the State of Oregon is concerned there is no doubt but what we have gone crazy on two varieties, the Spitzenberg and the Yellow Newtown. This specialization on varieties probably has been due to two things, first, the fancy prices that these varieties have commanded, and, second, the markets to which they have been sent. There will be an enormous demand for apples; perhaps only a limited demand for a certain variety. We must study the variety as regards adaptation, variety requirements and variety preference, more soberly than we have in the past. We must extend our markets, and with this extension we naturally must be prepared to furnish a larger range of varieties. Instead of the whole State of Oregon planting about two varieties we ought to be growing ten or fifteen varieties. The second point I would wish to call attention to is concerning the methods of picking and handling our fruit crop. We pride ourselves, and rightly so, that we are unexcelled in our methods of

handling our apples, but we must not sit comfortably in our chairs and rest on past laurels. Continual vigilance will be the price of our future success. I am personally satisfied that we need to give this vital subject much more careful study. Too many of us try to pick our entire apple crop at once, and often we are chasing a rainbow of color, which, when we catch it, gives us a core rot,



CRATE OF FANCY STRAWBERRIES
Clark Seedlings, twenty-four pound
boxes to the crate

a mealy fruit or a tasteless specimen. To begin with, we will need to study the proper times of picking much more closely, and we must look into better methods of packing and handling the crop. This will mean, first, better packing houses. We should give more attention to ventilation, temperature of storage and to the manner of handling the crop. Sanitation and general cleanliness must enter into our methods of handling. Decaying fruit, apple cores and other refuse should have no place in a modern packing house. The next problem I would call to your mind is that of handling our lower grades. Personally I believe that in many cases we are losing money on our lower grades of fruit. Just what the remedy will be I do not know. I will not say that we will return to the barrel as a pack for the third grade of apples, but I candidly believe that had we used barrels the past season that some of us might have made more money. I very much doubt if we can afford to put from thirty to fifty cents into a box for handling third grade apples, or any variety of fruit for that matter, and we have got to do one of several things. We must either change the form of package or style of handling the fruit, or we must get a special rate from the railroads for handling such fruit, so as to lay it down in the sections of the Middle West with profit, or we must work the product into various by-products, such as vinegar, cider, jellies and evaporated fruits. Perhaps we will resort to all three. I do not propose to say just what we will do. I

simply wish to call the grower's attention to the problem at hand. By all getting together perhaps we can solve it to the satisfaction of all concerned.

Another privilege that the Pacific Coast fruit growers need is that of storage in transit. The grain men and the cattle men already have such privileges, and the fruit growers should have the same. At the present time it is impossible to store fruit in the Middle West and afterwards forward to certain points without paying local freight rates for the second shipment. If we could get a through rate with the privilege of storing it would undoubtedly be a great help to the fruit industry. It also seems to me that we need to have better control of our store houses, not only those that we may build on the Pacific Coast, but certain store houses in the East. It may be better to store some of the fruit in the East and some on the Pacific Coast. We probably will have to work out that problem, but if we are to develop distributing points and have agencies for the better distribution of the fruit we will need store houses. The associations in the Northwest would reduce the cost in handling by removing the profit of storage that now goes to the middle man. We should evolve some system whereby we could obtain more careful estimates as to the crop. Not only should the fruit growers of the Pacific Coast know such figures, but it would be an advantage to the fruit trade as a whole if the output were accurately known for the entire country. If we knew the entire output we probably could forestall the glut which will occur in certain markets. The past season has shown that we rushed altogether too much fruit to certain points early in the

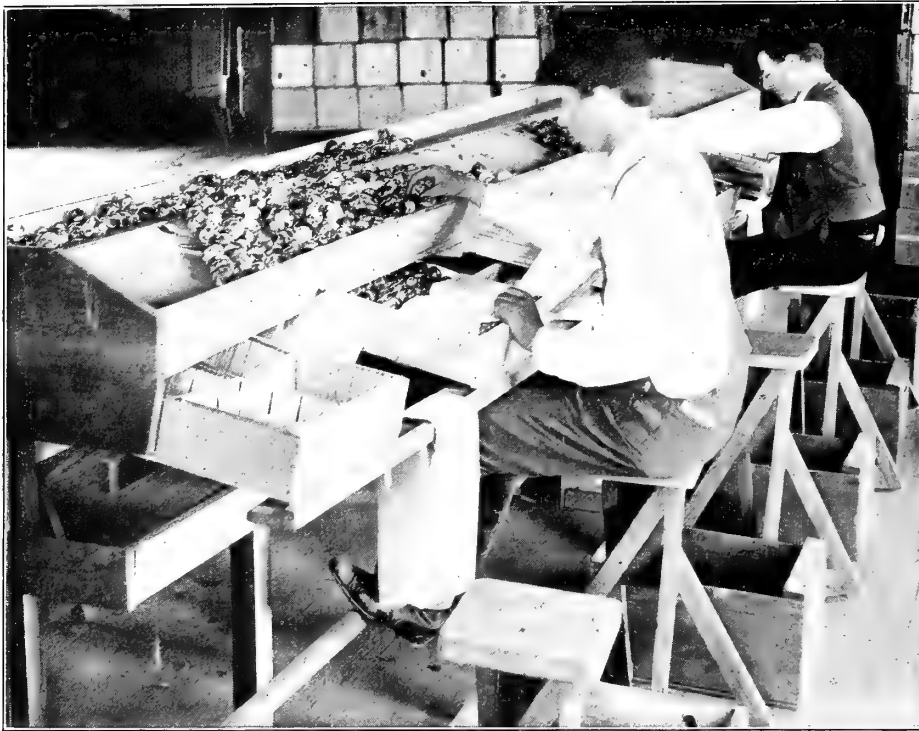


STRAIGHT-TIER PACK, WRAPPED
In this pack the apples lie straight on each other and will show marks



FOUR AND ONE-HALF TIER (165) PACK
WRAPPED

Northwest standard box, size 10½x11½x18 inches
inside measurement, containing 2,176 cubic inches
without bulge



SPLENDID TYPE OF PACKING TABLE FOR PRUNES

season and then had nothing left a little later, and allowed some markets to go without an adequate supply. By a careful tabulating of the amount of fruit on hand a system could be worked out whereby the grower gets a fair price, and at the same time the fruit is put within the reach of the consumer. We would escape the enormously cheap fruit for a few weeks, followed by prohibitive prices for the rest of the season. Such a condition must hurt the fruit trade in the long run. We should avoid rushing all the fruit to one or two points. The tendency has been to crowd the markets like New York and Chicago and allow many other markets to go without any fruit. By opening up new markets and regulating the supply to others we can avoid a great many of the unpleasant experiences of the past season. We certainly should give more attention to the foreign trade. Possibly a system of foreign representatives or salesmen to do the work solely in the interest of our fruit growers would be the best system. We need to give the foreign market more study and more consideration. It is worth while developing. We cannot develop a foreign market by sending them over a thousand carloads of fruit one year and none the next. They must have a steady supply that they can depend on if we wish to obtain permanent customers.

Too many of us have set our hearts on high priced fruit. Apples at three dollars a box, for example. There is only a limited demand for apples at this price. We must come to realize that if we are to build up a fruit industry we must be able to produce fruit at a price that is within reach of the average consumer. Often we try to hold the fruit too long when a mere matter of a few cents a box is the cause. By holding this fruit we incur expenses and loss

which often are not made up by future prices. Attractive prices should be made for the buyer of fruits, both as to wholesale and retail, the same way that we like to obtain attractive prices whenever we buy our dry goods or groceries. While it may at times seem a sacrifice on the part of the grower in many cases he would find that he really profited rather than sacrificed. His net profit would be larger in many cases than what he finally obtained by holding his fruit beyond a reasonable time. In connection with the selling of our fruit we must do more advertising. There is no business in the country but what realizes that advertising pays. It pays just as handsomely in fruit growing. The orange growers have left the apple producers

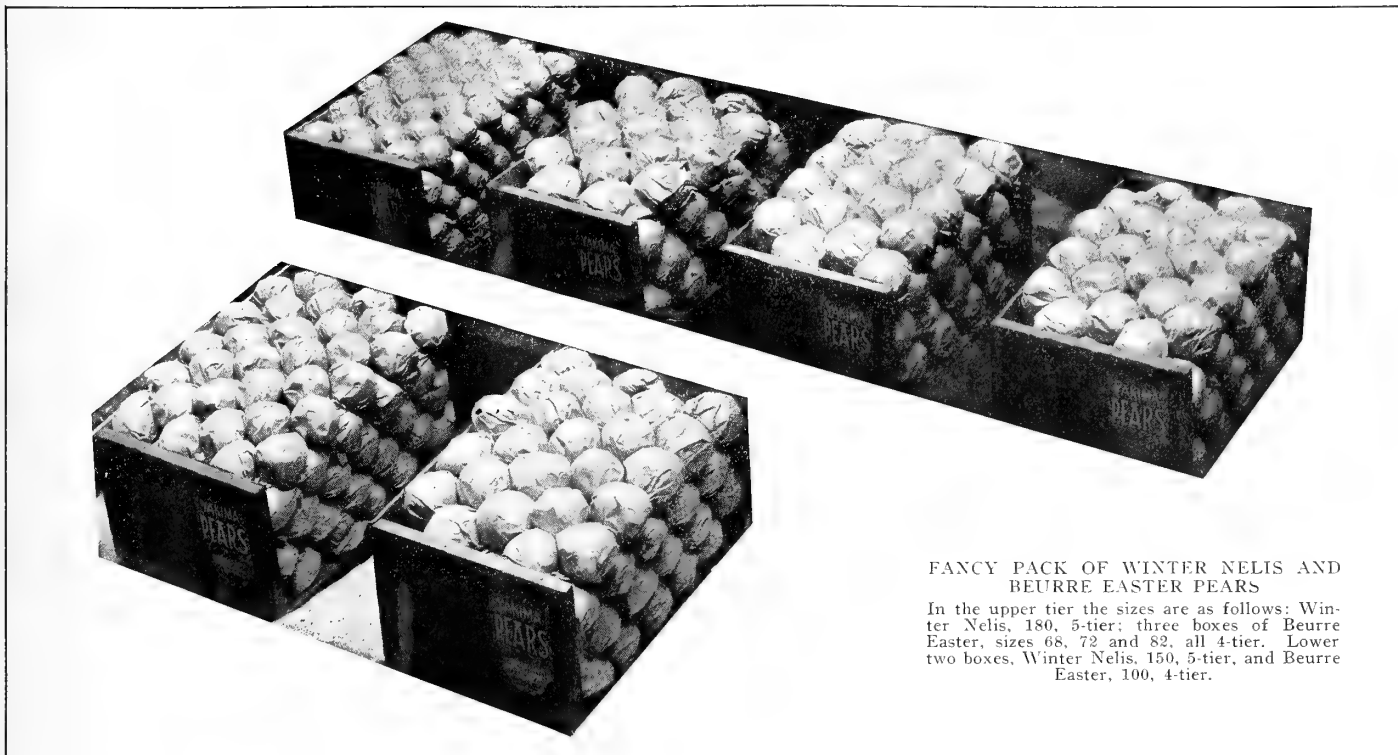
far in the background as far as advertising is concerned, and they are certainly getting results from this advertising. Apples, pears, prunes and other fruits must be advertised if they are to become well known and are consumed in large quantities. Good advertising and the proper control of the prices will do more to increase the consumption of fruit and keep it thoroughly on its feet than anything else that we can do. Lastly, to secure to the highest degree some of the reforms that I have intimated, I believe that we should have more thorough organization. We will have to learn to overlook certain local prejudices. There is not a fruit valley on the Pacific Coast but what can grow splendid fruit of certain varieties. There is room for all of us, and the sooner we work in harmony and realize that the reputation of the entire Northwest is our own personal interest, the sooner we will get the best results.

The quicker we come to realize that the fruit is a thing full of life, an organism, which goes through its development in much the same way as an animal goes through its development, the sooner we will improve our methods of handling. The apple, for example, goes through a regular state of evolution from bud, flower, green fruit, ripe fruit to a natural breaking down or decay. A very small percentage of the fruit is handled in such a way that it would naturally reach the last stage. This evolution which the fruit goes through is influenced to a certain degree by soil, elevations, methods of culture, methods of irrigation, time of picking, methods used in packing, shipping and storage. If we have the right locality for our fruit it will, within certain bounds, carry through to its proper season. If we are growing Spitzenberg, for example, and find that they mature late in October we have difficulty in keeping it until Christmas; we have to do one or two things; first, find out whether our methods are proper, and, secondly, determine whether we must eliminate the variety and grow



PACKING PEARS IN ONE OF THE WAREHOUSES OF THE ROGUE RIVER VALLEY FRUIT AND PRODUCE ASSOCIATION, MEDFORD, OREGON

Note the splendid light along the side of the building where the packing tables are located



FANCY PACK OF WINTER NELIS AND
BEURRE EASTER PEARS

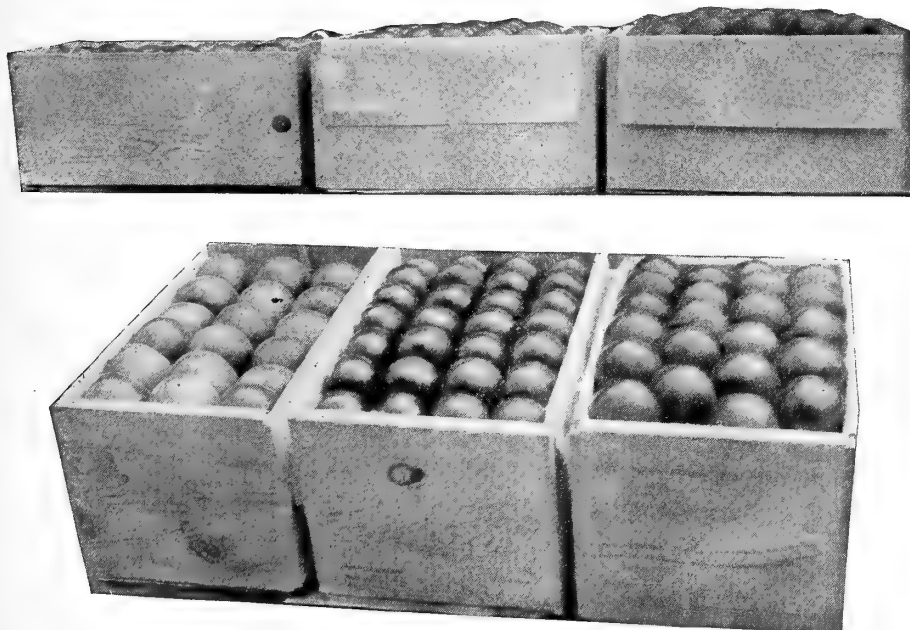
In the upper tier the sizes are as follows: Winter Nelis, 180, 5-tier; three boxes of Beurre Easter, sizes 68, 72 and 82, all 4-tier. Lower two boxes, Winter Nelis, 150, 5-tier, and Beurre Easter, 100, 4-tier.

something that is adapted to the special conditions under which we find ourselves. All things being equal, anything which is done to hurry the development of the fruit will probably mean a shorter life. If your winter apples mature early in the fall they will probably not be as long a keeper as the same variety which is raised in a section where it matures considerably later. All these points I mention, such as soil, methods of irrigation, methods of handling and variety adaptation, have a close relation to our living organism, and must be given careful study if we are to reach the top round of the ladder in our fruit growing.

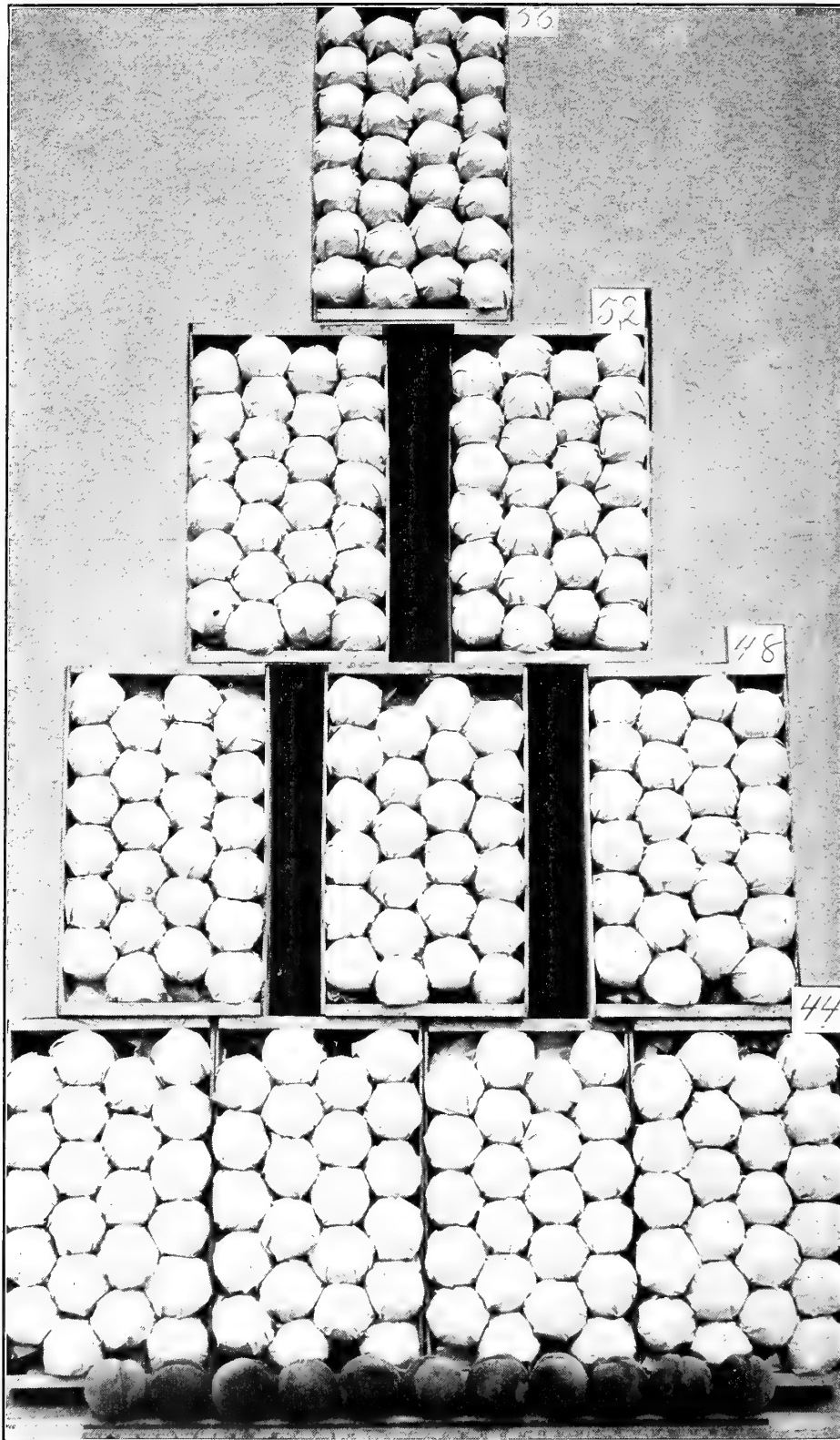
The ideal time for picking is a matter which must be settled to a very large degree by the individual. He must solve

it according to his own locality. We often say that we pick red apples when they have the color and pick yellow apples when the seeds are black, but this is not a safe criterion upon which to go. There are certain observations that I have been able to make from time to time. For example, often such varieties as the Wealthy, Wagner, Winesap and Grimes Golden drop badly when they are ripe. That the Spy and Ben Davis as a rule can hang longer, and should hang longer, than most of the other varieties. That the Jonathan has a tendency to develop a core rot if allowed to hang on the tree too long. Certain apples tend to become too mellow, mushy or dry after picking, such as the Baldwin, King of Tomkins

County and Jonathan. This can be remedied by earlier picking, although we may have to sacrifice some color at times in order to achieve it. There are a few apples which often drop badly before they are thoroughly ripe, or at the best stage for picking. The Mackintosh Red, the Snow and the Gravenstein often seem to be troubled this way. Then, again, a large number of varieties, and more especially the Jonathan, crack at the calyx, which is an indication of tardy picking. Dropping is sometimes influenced by frosts, but nearly all our commercial varieties will drop badly if we experience unusually heavy fall frosts. The colors are influenced to a certain degree by picking, although the reds are rarely influenced after picking; the yellows are to a certain degree in that the greens and light yellows will deepen, and their combinations at times with the reds leads us to believe that all colors change very materially. The size of apples can be influenced to quite a large degree by picking. As we come to learn more and more the desired sizes, the amount of thinning and the time of picking will probably have some influence on the size that we obtain. Flavor is not a good criterion to go by in picking apples, as very few winter apples, and even some fall varieties, do not obtain their highest flavor until they have mellowed to a certain degree in storage. All summer apples for long shipment should be picked green, while for local consumption they can be allowed to color, and are highly valued for sauces and early prices. They should never be allowed to hang on the trees until they become soft. If left a little too long they will either drop very badly or core rot will set in. The Gravenstein is one of the varieties which seems to be greatly influenced by the time of picking. The amount of color, size, quality, and espe-



THE PICTURE ABOVE SHOWS THREE BOXES, ONE PACKED TOO LOW, ONE JUST RIGHT AND ONE TOO HIGH. PICTURE BELOW SHOWS SAME THREE BOXES



FINE COMMERCIAL PACK OF PEACHES

Grown and packed by I. F. Smith, Ashland, Oregon, Inspector Ashland Fruit and Produce Association

cially the keeping characteristics of that variety are influenced to remarkable degree by the mere point of time of harvesting. Apples should be picked by a gentle twist of the wrist, and care should be taken not to pull out the stem or break the spur. Steps should be taken to handle the fruit in such a way that the skin is never punctured, for if it is it gives a chance for rots and decays to start in and the life of the fruit will be greatly shortened.

The time for picking pears is of great importance, especially with all summer and fall varieties. They should be picked green, just as soon as they have obtained the desired size. Whenever a pear will snap easily from the stem or spur by a slight twist of the wrist it will mature in good shape. The season for picking pears can be greatly lengthened, and the weight of fruit greatly increased by beginning early and picking the fruit just as fast as they reach the desired size.

In this way the Bartletts can be picked for a period of six weeks. One grower of the state tells me that he knows he has increased the weight of fruit of a tree about three hundred pounds by such a practice. Whenever pears are troubled with core rot, or dry or granular flesh, the indications are that the fruit has remained on the trees too long. The pears are packed green in boxes, and in fact ripen in boxes better than they do on shelves or out in the open. The keeping qualities of the pear seem to be influenced at times by weather conditions. Fortunately here on the Pacific Coast we are generally blessed with splendid weather at the time of picking, but unusually warm spells, or severe rains and winds and rough weather seem to shorten the life of the pear.

There is probably no fruit which requires more skill in picking than the peach. Especially is this true in relation to the proper time for picking. The personal experiences of the grower must come into play largely with this fruit. The time of picking will be influenced by soils, elevations, variety and climatic conditions. It is always desirable to have as much color as possible, although for extreme distances in shipping we often sacrifice the color. Of course, for long distance shipping the fruit must be picked green, while for local trade or short shippings the fruit can be allowed to nearly ripen before picking. While the color may at times be used as an index for proper picking it cannot be adopted as a general rule. Some men say pick the peaches when green and just beginning to ripen and traces of yellow show; others depend almost entirely upon the touch or feeling of the fruit, and probably in the free stones this elasticity, which one determines by slight pressure, is a safe indication. Whenever the pressure test is used we generally press lightly with the thumb on the suture side. In this test one has to learn not to press so hard as to bruise the fruit, and the thumb and finger nails should be closely clipped to prevent cutting. If once the skin of the peach is broken it is doomed as far as good shipping and proper maturing is concerned. Considerable care must be used in handling the peaches not to allow them to become soiled in any way.

Plums and prunes, for the greater part, will develop a large amount of color after picking, but where one wishes to develop high quality it is desirable to leave them on the trees as long as possible. Prunes are often picked green and shipped to the Atlantic seaboard, and under fairly good circumstances can be shipped to Europe in pretty good condition. Prunes ripen especially well when picked under such conditions. Occasionally the pressure test is applied when they are picked green, but they should be handled very carefully in order not to remove any more bloom than possible. With cherries both color and taste are used as an index. The taste is one of the most reliable. In picking the cherries care should be taken to keep the stems intact, as any opening where disease germs can get in, or the juice can ooze out, means

that the cherries will carry poorly. In handling the cherries great precaution should be taken never to allow them to become heated. With grapes the color may or may not be an index. In some sections many of the early grapes color long before they are good to eat. Soon after picking grapes should be given little handling, for after the stem shrivels slightly they are handled more easily without shelling from the stems. Where they are picked too soon they often develop the tendency of dropping from the stem badly, which is a great disadvantage.

Nearly every grower has his favorite utensil. Here at the experiment station the utensil we like best is the galvanized iron pail, which is made just large enough so that when turned on its side it fits nicely into an apple box. Baskets will work well, but many of the patent contrivances that have been on the market have been somewhat unsatisfactory. Apples and pears are generally transferred from the picking utensils to the orchard boxes. These orchard boxes should be made slightly larger than the packing boxes, and should be cleft so as to allow for ventilation. The apples are generally graded on tables after being taken to the store house, while the pears, on the contrary, are generally graded and packed from the orchard boxes. There has been a tendency of late with peaches to reduce the number of handlings. Peaches are delicate and short lived, but fairly easy to grade. Baskets can be used very nicely for picking peaches, and the peaches can be graded and packed at the same time directly from these picking baskets. The same is also true of apricots, plums and prunes. In handling cherries utensils must not be too large, and one should not dump too many cherries into one box, especially where they tend to be slightly soft.

While there are a great many ladders on the market probably no single ladder can be said to be the best. The age of the trees, their height and spread, the variety and method in which they have been pruned will determine to a certain degree the ladders which are to be preferred. Probably no one ladder will answer for all purposes. Some high stepladders will be needed; a Japanese



TWO TEN-POUND BOXES OF CHERRIES, PACKED IN STRAIGHT TIER AND IN CARTONS

ladder can be used to splendid advantage, especially when worked in the form of a tripod, and some low stepladders will be found to work nicely.

All fruit should be removed from the orchard to the packing house with as little jarring as possible. Heavy bolster springs should be placed on the hauling wagon. The wagon should be of such a height as to eliminate as much lifting as possible, and with all soft fruits one should not have to lift the fruit so high as to jar it badly in loading. On some of the triple deck wagons there is danger in lifting the boxes high and allowing them to drop, thus unnecessarily jarring the fruit. All stone fruits, like peaches, plums, cherries and apricots, should be removed to the packing house soon after they are picked. In the case of large crops of apples where the weather is exceedingly warm, unless they can be transferred immediately to the house, in many cases they can remain in the orchard to good advantage over night. If placed in a cool temporary storage while in a heated condition sweating starts very quickly and makes future grading and wiping difficult.

Here on the Pacific Coast we pride ourselves on our packing houses. Some of our growers have expended thousands of dollars in building splendid packing houses. The majority of growers, however, have not given the subject sufficient study, and in the packing houses that will be built in the future there are a few points that we can afford to spend considerable time on, in working out our plans and details. In the first place, the house should be conveniently located. This does not always mean that the proximity to the house or barn is a good location for the packing house, for certainly in large orchards it is very doubtful if such a location is best, since the houses are generally placed fairly close to the road. After one has a load of fruit ready to be hauled two or three miles to the station a distance of fifty or one hundred yards may not make much difference, but when the fruit is being hauled to the packing house to be worked over an extra haul means a great loss of time. I would locate the packing house in such a way as to be most conveniently reached from all parts of the orchard. It should be just large enough to handle a full crop, and no larger. There is no use to have an immense packing house which will never be filled with fruit. It will simply mean a loss of money in handling the crop. We must plan to save as many steps as possible. Our packing house should be well lighted. In order to do the best work a large amount of light is essential. Fortunately many of our growers are resorting to electric light in the later hours of the day. Ventilation is the one point that we seem to have lost sight of entirely. Our fruit, after being picked, is sometimes left for days in close, stuffy rooms. Ventilation need not be extensive. By a system of intakes in the floor and at the base of the sides, and systems of ventilators through the roofs the temperature of the packing houses can be materially reduced and an abundance of clean, fresh air can be had at all times. The cold air should gener-



HIGH CLASS PACK OF PEARS, PACKED AT MEDFORD, OREGON

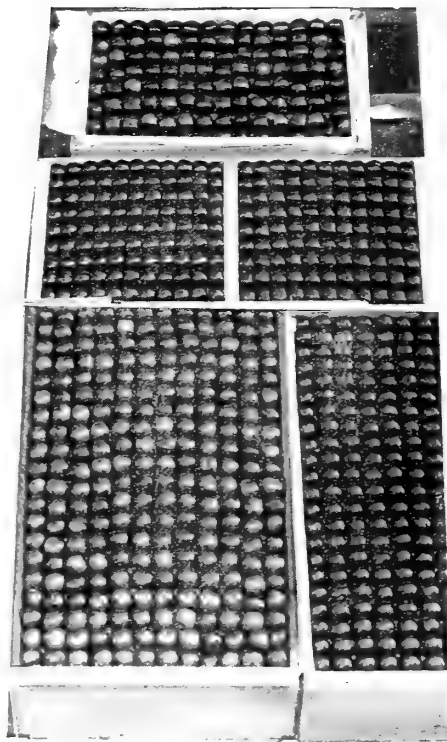
ally be let through chutes of considerable length. These can be brought under the building in order to give this length. The air should be finally let out through the roof. Where this air shaft is of good length the rush of air is quite pronounced and the temperature is materially reduced. Where the fruit is allowed to become heated its ripening processes become hastened. Other troubles may also set in, such as dry rot and storage scald. Our packing houses should be so constructed as to be easily cleaned. All houses should be swept thoroughly and at times sprayed with a disinfectant to destroy all germs that are escaping from decaying fruits. We need to spend considerable time in planning our houses so that we can handle our crop with the greatest economy. We should have room for wiping, grading and packing, and for the storage of our boxed fruit and storage of supplies. Undoubtedly many of the large packing houses in the future will have refrigeration facilities. In handling the apples and pears we will especially need to give attention to the packing house. Peaches, prunes, cherries and small fruits are often packed in open sheds, and it is customary to have a packing crew sufficient to handle the crop about as fast as the fruit can be picked. Unless this can be done it will be found very advantageous to build houses in which the fruit can be allowed to cool and can be packed in a cool condition.

Apples are generally wiped, as they are apt to be more or less dusty, and frequently contain traces of the last spray. This wiping does not mean a polishing by any means, as only sufficient wiping should be given to remove the dust and spots. Where polishing is attempted the fruit is often scratched sufficiently to cause rapid decay. If you wish to see how fast apples will decay simply take a few apples in an ordinary room and scratch them lightly with a needle. If you will dip this needle beforehand into some of the common decays or rots of apples the scratches will soon develop into pronounced decays. Pears may or may not be wiped, depending largely



FANCY TOKAY GRAPES

Grown at Grants Pass, Oregon. Four tin-top baskets to the crate



FANCY PACK OF CHERRIES IN EIGHT, TEN AND THIRTY-POUND BOXES

upon their condition. In wiping apples the work should be done before the fruit sweats, otherwise the moisture will unite with the dirt on the outside and the fruit will become so gummy that it is almost impossible to wipe it, and, moreover, it will have a dull, unattractive appearance as a result. Where the fruit can be kept fairly cool before wiping the sweating can often be materially delayed and diminished. By placing the heated apples into a very cool room the moisture will gather upon them very rapidly, which may interfere with proper wiping. Most of our growers are now grading the apples as they are wiped, and often two sets of grades are made, one as to size, the three and one-half and four-tier apples all being kept separate, and grades also made according to quality. In spite of whatever sizing is done the expert packer, of course, will have to do considerable grading. The expertness of packing after all depends more on the grading than anything else. Unless a man has an accurate eye and can grade quickly and thoroughly he can never hope to become an expert packer. The peaches, pears and prunes are practically never wiped. In some sections of the country grading machines have been tried. One large orchard in Oregon uses a mechanical form of grading. The oranges in Southern California are graded with machinery, although there seems to have been a tendency in late years to use less complicated machinery and to simplify the processes materially. It may be that some of our fruit can be graded mechanically. It is very hard, however, to get a mechanical system that does not injure the fruit in some way or other. If one is to do the best packing with apples some grading should be done before the fruit goes to the packing table. On the other hand, peaches, apri-

cots, prunes and pears are all packed nicely without previous grading, the grading being done as the fruit is packed.

The equipment for packing houses will vary somewhat with the preferences of the grower and style of fruit he is using. Prunes, peaches, apricots, grapes, pears and similar fruits are generally packed from benches placed along the sides of the rooms, where good light can be obtained from numerous windows. Occasionally small tables are made which set in the center of the rooms. These tables, or benches, are generally slightly inclined toward the packer so as to allow him to keep the fruit in place easily as it is being packed. Where better grading has to be done and more difficult packing, which is especially the case in apples, the best way is to have a table which is set out in the room. These tables should be large enough to hold several bushels of apples. I have never yet seen a man who was able to do very fine grading and packing from the orchard box. By far the best grading that is done in the Northwest, especially in Oregon, has always been done from these packing tables, as shown in the illustrations. These tables can be made of various heights, according to the convenience of the packers. They should be made sufficiently high so that a man does not bend his back unnecessarily to reach the fruit. The standards are generally about three feet high. The top is made of strong burlap about three feet by four feet, and is allowed to hang rather loosely. Therefore it becomes necessary to 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 rubber hose, canvas or something similar is nailed around the top of the table to protect the fruit. The legs should be well braced by nailing on cross pieces, and additional wire binders would also be an assistance in keeping the table firm and steady. A good box press should be used, one which is solid and works easily, so that with the pressure of the foot the arms are thrown



CRATE OF PRUNES

Packed in tin-top baskets, four to the crate showing first, second, third and finish layer



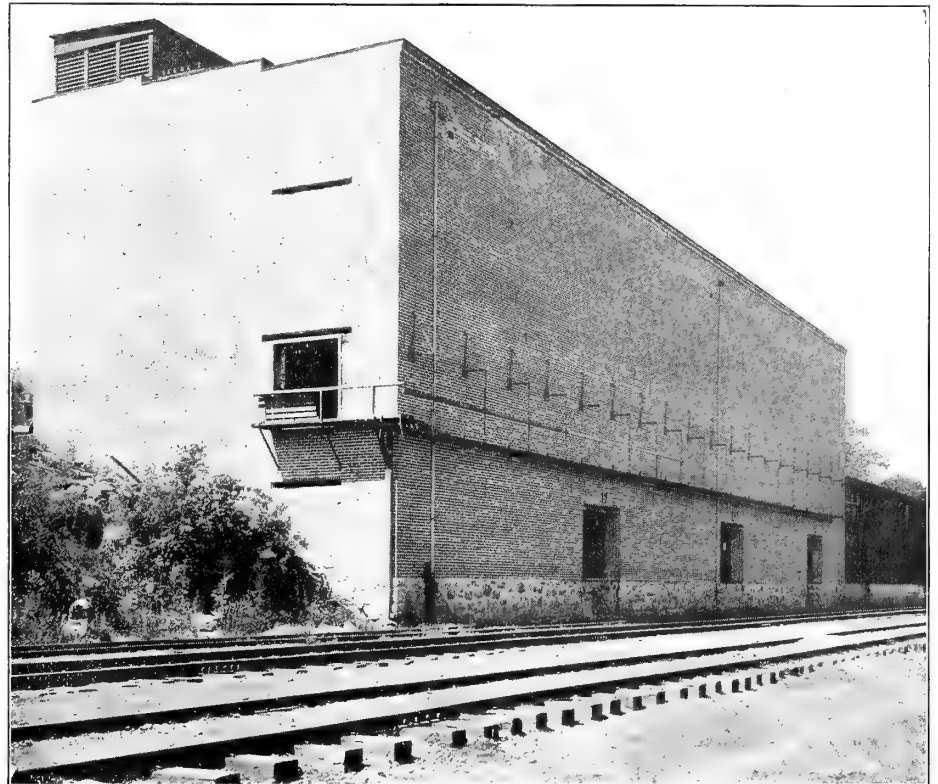
SOME FINE TYPES OF FRUIT GROWERS' TEMPORARY STORAGE AND PACKING HOUSES

forward, the covers adjusted and the cleats can be nailed easily. One will also want some kind of a machine for making the box. A common bench or table is generally used, on which a few cleats the width and length of the box are nailed. While these will answer the purpose very nicely where small amounts of fruit are being used, there is, however, no doubt but what the time is now at hand when all our large associations and large growers should have some kind of an automatic box machine.

Apple Packing—It is very common in our markets to see a splendid product ruined by packing, and we can safely say that no matter how good a product is if it be poorly packed the prices received will be disappointing. On the other hand, a second grade product, by attractive packing, may bring much better prices than would be possible to realize under ordinary conditions. The extra attractive package, in many cases, may mean only an outlay of a few cents a box. I have known cases where the outlay of a few cents amounted to a difference in dollars in the price of the package. There is no doubt but what all first class fruit should be put up in the best manner possible, and the second grade should receive much more attention than is commonly given. On the other hand, there is probably some of the second grades, and practically all of the third grades, which will not warrant much of an outlay. All fruit that is very small and imperfect in character would not warrant an extra outlay. A first class package means neatness, cleanliness, attractive advertising material, such as paper, lithographs, accurate packing and a box full of honesty. Our packages, as a rule, have been pretty well supplied with the latter, but we must remember that to maintain our past reputation we must continue to put just

as much honesty in a box in the future, and that we can lose in one season the reputation we have been working hard to gather for a series of years. Packing of fruit is a matter of practice. To be sure there are people who will never be able to do good packing. They may have defective eyesight. It is one of the chief drawbacks. To determine whether one will ever be a good packer the first thing to determine is whether he is a good grader. If he cannot grade well

he can never pack well. I believe we need to develop the packing school idea much more than we have in the past, and that we should determine whether people are qualified to put up certain packs. Especially can this be done where an association controls the fruit. If a man is unable to pack well he can be used in picking, nailing boxes or transferring fruit. In starting your pack the first thing is to be sure that your box is clean. One way to be always sure that boxes are clean is to never use them for anything but the packing of fruits. The packing boxes should not be used as orchard boxes. The box should be placed on some table or apparatus that will incline it slightly toward the packer. You are now ready for the lining paper. As a rule this paper is made slightly shorter than the box and about twenty-six inches wide. Two sheets are used, which will allow for a generous overlapping on both top and bottom, and also allow for a pleat to be made on the bottom corners. This pleat is very essential, as it allows for the bulge when the box is nailed, otherwise if the paper is not pleated and creased it will tear as soon as the box is nailed. To make this pleat catch the paper on the ends, thus making a fold, draw the paper quickly over the knee, thus creasing it. This crease is generally made about six inches from the end. These pleats will fit in the corners nicely. A good supply of layer paper should be on hand. This is generally blue and more or less of an absorbant nature. They act as pads and tend to lessen the danger from bruising and skin slipping; they soak up the extra moisture which may gather from sweating or bruising, and help to confine the decaying fruit so that it will not



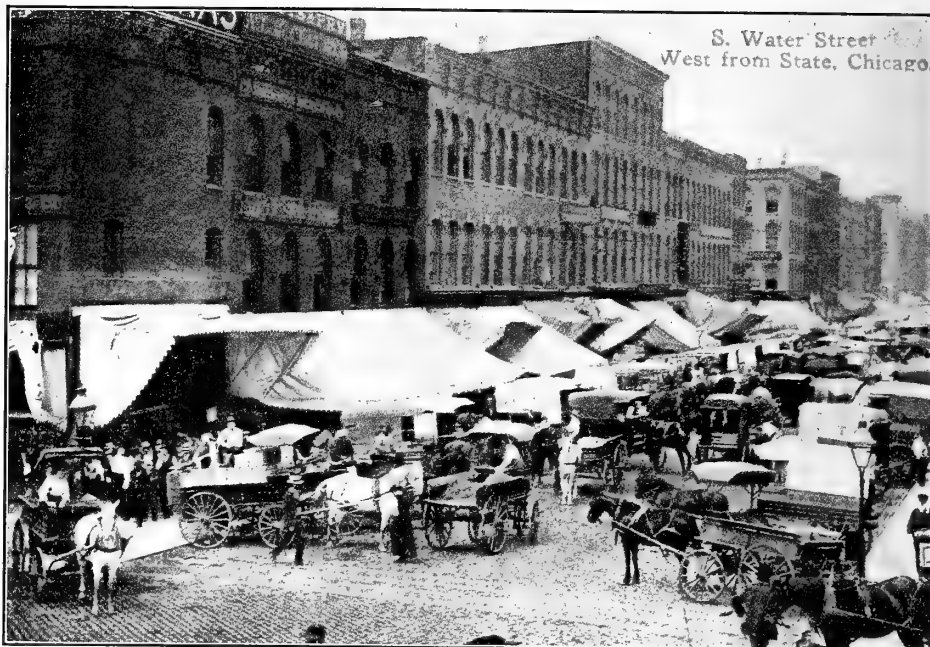
APPLE GROWERS' UNION ICE PLANT AND COLD STORAGE BUILDING AT HOOD RIVER OREGON

spread through the entire package, and, moreover, aids to convey to the buyer the thought that he has a superior article. Some markets are beginning to show a preference that boxes be packed without layer paper. This was noticeably true with some of the Chicago buyers the past season. I really believe this is an unfortunate preference, and that we can get practically as many apples in a box by using the paper and have the previously mentioned advantages. There should be a good supply of wrapping paper, especially for all the better grades of fruit. Eight by ten inches will answer for most sizes. On fancy grades it is well to have the name of the grower or association stamped or printed on the paper. It is not always necessary to wrap all the apples in the package with the stamped paper, but the two outside layers should be so wrapped. The paper can be nicely placed in little hoods that are made to clasp over the edge of the box. Some packers use a stall on the first finger or thumb to aid in picking up the paper. Very little time is lost in wrapping the fruit, as it is practically done with one movement. The bottom and top layer should be so wrapped and placed in the box that the smooth side is outward, so that when the box is opened a very attractive appearance is given to the fruit. By very little practice the trade marks can be made to show very neatly and eventually give the package certain "class." The wrapping paper tends to make a firmer package, guards against unnecessary bruising, tends to keep the apples better and gives a superior air to the package.

In regard to just how each pack is put up, the illustrations show that quite nicely and the accompanying table of commercial apple packs also helps one to solve this. The straight packs speak for themselves in a large degree, while with the diagonal packs, if you will remember, that the bottom layer is generally the same as the top and that the apples are generally started by putting in the first two or three apples in the left hand corner and then building up on these to the other end of the box. In starting your second layer you place the apples in that layer alternating with those on the one beneath. In this way the apples tend to take up the spaces, and when the box is nailed they adjust themselves without bruising. There are two kinds of packs, so to speak, the straight pack, in which the apples are placed in straight rows, and the diagonal pack, in which the apples alternate, and spaces are left at the ends of the box.

TABLE OF COMMERCIAL APPLE PACKS

Box	Tier	Pack	Apples in Row	Rows in Width	Layers in Depth	Apples in Box
Standard	3	Straight 3	5-5	3	3	45
Special	3	Straight 3	6-6	3	3	54
Special	3	Straight 3	7-7	3	3	63
Standard	3½	Diagonal 2-2	4-4	3½	4	64
Standard	3½	Diagonal 2-2	4-5	3½	4	72
Standard	3½	Diagonal 2-2	5-5	3½	4	80
Standard	3½	Diagonal 2-2	5-6	3½	4	88
Special	3½	Diagonal 2-2	6-6	3½	4	96
Special	3½	Diagonal 2-2	6-7	3½	4	104
Special	3½	Diagonal 2-2	7-7	3½	4	112
Special	3½	Diagonal 2-2	7-8	3½	4	120
Special	4	Straight 4	8-8	4	4	128
Special	4	Straight 4	9-9	4	4	144
Standard	4½	Diagonal 3-2	6-6	4½	5	150
Standard	4½	Diagonal 3-2	6-7	4½	5	163
Standard	4½	Diagonal 3-2	7-7	4½	5	175
Special	4½	Diagonal 3-2	7-8	4½	5	185
Special	4½	Diagonal 3-2	8-8	4½	5	200



SOUTH WATER STREET, CHICAGO, ILLINOIS

A part of the most famous fruit and produce street of any city in the United States. In this street the fruit wagons back in so closely together that there is not room enough left between for a silver dollar.

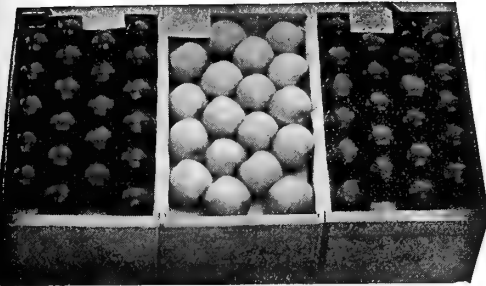
The diagonal pack is our preferred pack. It is more attractive and carries with less bruising. In packing one of the hardest things to handle is to get the proper bulge. There is a tendency at times to have this too great. This is especially true with the medium sized apples. In the large sized apples there is a tendency to have this too flat, and it is really very hard to be correct in many cases. Very small apples often give trouble in getting a good bulge. The building of the bulge becomes a matter of practice. The apples should come down flush with the ends of the box, gradually rising to the center with the bulge about three-quarters of an inch, but with most of our summer, fall apples and early winter apples it may be good practice to make the bulge greater. We are seemingly trying to adopt an arbitrary bulge, and experience will undoubtedly teach us that this bulge must be modified, according to the size and the keeping qualities of our fruit. Some varieties shrink much more than others. The bulge is simply an attempt to overcome the shrinkage. We must be careful to put in sufficient fruit in order that the buyer may get his money's worth, and get the bulge that will carry the fruit in nice condition to market. Those two points are the ones we should bear in mind continually.

When a standard box is used 96 and 112 are packed four tier, and 200 will pack five tier. 96, 104, 112 and 120 may be classed as four-tier apples, and 185 and 200 as five tier. 128 size, long Spitzenberg and Ben Davis, may be packed 125 to the box. Flat apples, like the Wagner, may be packed four tier by placing all on the side. Size of boxes, Oregon standard, 10½x11½x18 inches. California special, 10x11x20 inches inside measurement.

In our packing school, held in the Rogue River Valley last year, we were able to reduce the number of packs, and were more than able to pack all of the fruit in one box, namely, the Oregon standard box. The packing that we were able to do was good enough for commercial packs in practically all cases. The pack known as 125 was used



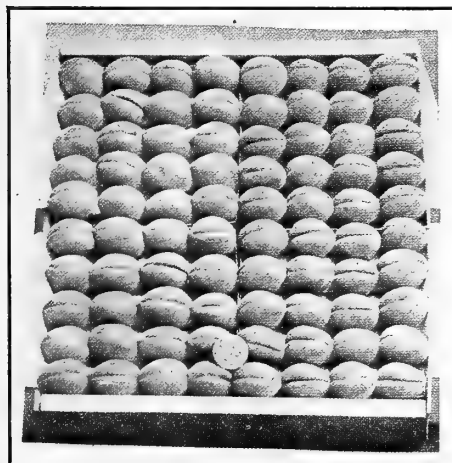
PACKING STRAWBERRIES



THREE BOXES OF FINE DIAGONAL PACK

instead of 128, and 135 was used instead of 144. It was difficult and impracticable to use layer paper on these two packs. Other than this there was little difficulty in putting the fruit all in one box. I believe we should so strive to pack our fruit as to use but one box. There are many ways in which packers can be handled. One thing that I believe tends to make good handling and packing of fruit is a method adopted by some of the largest fruit growing associations, namely, having the fruit packed by people other than those who grow it. The man who grows his fruit naturally is near sighted, and the worm holes appear in inverse ratio to the dollars he sees in sight. He is not really to blame for this because he simply has the natural attributes which often make defective eyesight. I believe that probably the best packing can be secured by hiring packers by the day and having most excellent supervision, not allowing one man to superintend too many packers. Where they pack by the box there is a great tendency, in the anxiety to make money, to be a little careless in their packing. Especially is this true where the supervision is not as strict as it might be. I would suggest in most cases that the foreman do no packing himself, but simply act as an overseer, constantly on the alert for imperfections.

Pear Packing—Most of the pears are poor keepers, and relatively short lived, and mature at a season of the year when it is imperative that they have fairly rapid handling. The shape of the pear is also such that the method of packing must be somewhat different from that given to apples. Pears are generally



HANDSOME PACK OF APRICOTS

Grown by J. J. Sharp & Son, Wenatchee, Washington. Packed four tin-top baskets to the crate

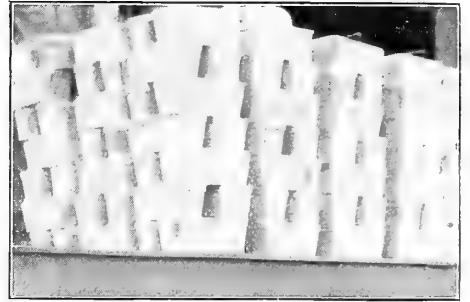
packed from boxes, and these boxes are generally placed on benches in front of windows, sufficient room being set aside so that each packer can have a box for the fruit, one for culls and two or three boxes for various sizes, since practically no grading is done before the packer receives the fruit. Pears are in two grades, known as fancy and choice. At times a third grade is used, and should be used, known as special. Each grade in turn is divided into the fourth, fifth and sixth tier, although the sixth tier is very rarely used. The fancy grade should have pears of proper stage of ripeness, should be free from bruises, worms or worm stings, disease marks or any other defects. With the choice grade one is generally allowed to put in pears which are slightly misshapen or limb rubbed, or have worm stings which



SHOWING THE PROPER BULGE ON BOX NAILED AND READY FOR SHIPMENT

have been heeled over. The fruit should be of the proper degree of ripeness and free from diseases of all kinds. The special would take the remaining grade. The size of the pear box is different than that of the apple, being generally about 18 or 18 1/8 inches long by 11 1/2 x 8 1/2 inches inside measurements. The sides, top and bottom are generally made of one-quarter inch material, and the ends thirteen sixteenths inch. These boxes will hold about fifty pounds, but will vary from forty-eight to fifty-five pounds, according to the pack and grade of fruit. Most of our Oregon pears are four and five tier. The standard pear packs, showing the number of rows, the style of pack, number of pears in the box, as used by the Rogue River Fruit & Produce Association at Medford, Oregon, is given in the following table:

Tier	Row	Style	No. in Box
Five	4-4	3-3	120
Five	5-4	3-3	135
Five	5-5	3-3	150
Five	6-5	3-3	165
Four	4-4	3-2	80
Four	5-4	3-2	90
Four	5-5	3-2	100
Four	6-5	3-2	110



WILLAMETTE VALLEY GRAPES PACKED IN BASKETS READY TO BE LOADED INTO THE CAR

Practically all our Oregon pears come within four and five tier, the sixth tier being rarely known. The sizes will vary, according to the variety. The largest size Comice bring better returns than the small sizes, whereas the middle size Bartlett seems to be the preferred pear of this variety. By the word "tier," in all our fruit, is meant a layer. Referring to the table, for example, taking the top figures, the fifth tier, it would mean that there were five layers, that the rows running from end to end in the box contain four pears each, and that the rows running from side to side contain three pears each. This we have termed as style. The number of pears in the box is 120. You will see by the table that the fifth tier pears are generally packed 3-3 style, although the rows may vary considerably in 4-4 or up to 6-5, while with the fourth tier pears they are virtually all packed 3-2, and run 4-4 to 6-5 in rows. There is more range in the size of pears put in the same box than there is with apples. The shape of the pear, method of ripening and the bulge that is placed on them will take up the extra space. In packing pears we allow for much greater bulge than we do for apples, since the shrinkage becomes much greater. Where the pears seem to be running a little light in weight it is generally a slight indication that your method of packing is wrong and that you are having too many large spaces in the box.

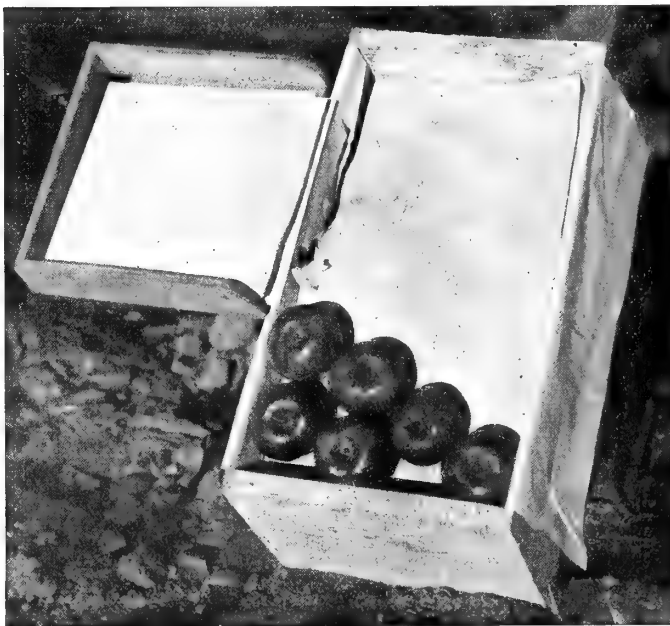
Peach Packing—Peaches are generally packed in boxes which measure 18 1/2 x 11 1/2, and in depth varying from two and one-half to five inches. This range in depth allows for the accommodation of



FINE YAKIMA VALLEY ASSOCIATION PACK

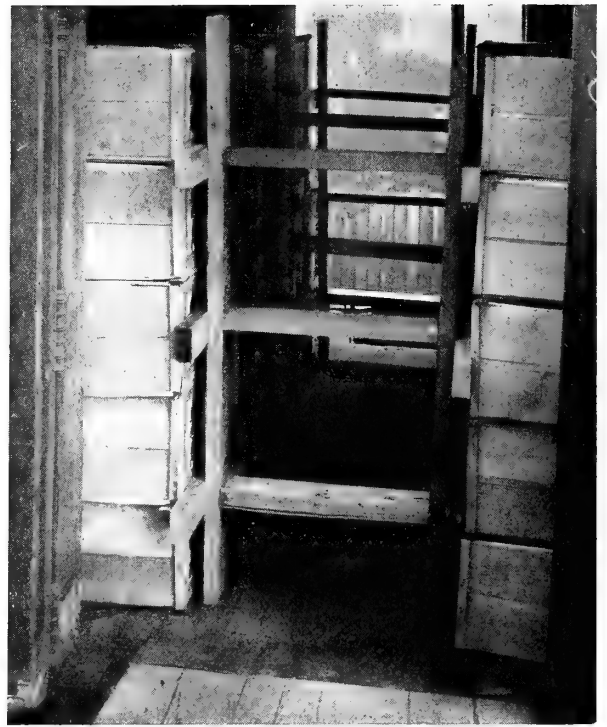


A good label on the end of the box helps to make the package look more attractive, and the standard brand, after it is once known, is the greatest advertisement a community can have.

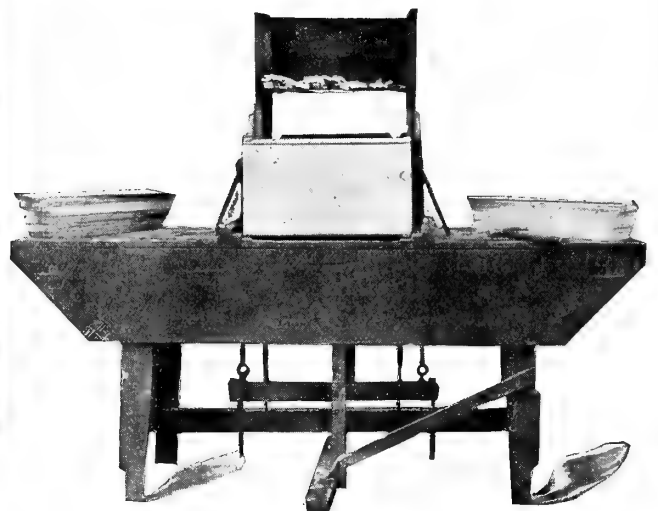


MANNER OF STARTING A DIAGONAL PACK, IF PACKED STEM END UP

Tray on side of box for holding wrapping paper. Shows the lining paper and the layer paper which should be put between each layer of apples, as well as on top and bottom.



CARLOAD OF APPLES, BRACED AND READY TO CROSS THE CONTINENT



FIRST-CLASS NAILING PRESS

the various sizes, as they are generally only packed two tiers in depth. The sides, top and bottom are generally made of one-quarter inch material, and the ends of five-eighths inch. Extreme care is required in packing peaches, as they are one of the most perishable of fruits. All picking utensils, such as baskets and pails, should be lined with burlap so that no injury will result to the fruit. While in some sections of the United States peaches are being graded by machinery most of our growers are still grading by hand. There are various terms used in packing peaches, such as extra fancy, fancy and choice. Unfortunately in many of the Eastern markets there seems to be considerable misunderstanding concerning the fancy and choice. In the Fruit Growers' Association at Ash-

land the term fancy is generally applied to those peaches containing 64 or less to the box. The "A" grade contains from 64 to 80 and the "B" grade from 80 to 92, all the fruit being free from fungus or worms. All these grades are carefully wrapped in paper. The remaining fruit is thrown into one grade for canning or pie purposes. All good grade peaches should be wrapped carefully, and must be placed very carefully in the box. One of the greatest cautions needed is to see that there is not too much space allowed between the fruit and the cover. One should never be able to move the fruit easily after it is once packed. Peaches that will rattle will not ship very far. The fruit should be kept in as cool a place as possible before shipping. I have seen loads of peaches

wait for hours on hot station platforms, and where these peaches were packed in a faulty manner the prices received must be very disappointing.

Apricots, prunes and European grapes are generally packed in baskets and crated. These baskets are generally eight inches square and four inches deep. The apricot requires even more care than the peach. In packing the prunes great care should be used not to remove the bloom, as this impairs the attractiveness. All these soft fruits of a perishable nature should be handled as rapidly as possible and under as cool conditions as practicable. For long shipments it may be that some form of pre-cooling or refrigeration will be devised before the fruit is loaded.

PICKING AND PACKING OF FRUIT IN GRAND VALLEY

BY A. B. CHANDLER, GRAND JUNCTION (COLORADO) FRUIT GROWERS' ASSOCIATION

FOR several years I have been in the fruit business, and during the last few years I have been fruit inspector for the Grand Junction Fruit Growers' Association of Grand Junction, Colorado, and it is my endeavor to give the readers of this paper some idea how fruit is picked and packed in the Grand Valley.

The main crop of peaches is the Elberta, so in describing the peach pack I will keep the Elberta in mind. We have several other varieties of peaches that pack a little different than the long, flat Elberta. When picking peaches they should be firm, well matured with a good color, but not soft in the least. Peaches should be picked as soon as they will leave the tree without breaking the stem from the tree or tear the meat of the peach when the stem is pulled out. They should come off good and clean. The peach box used here is in three sizes, in depth four inches, four and one-half inches and five inches; eleven and one-half inches in width and eighteen inches in length, inside measurement. There are three grades of peaches as to size, extra or 80, fancy or 90, choice or 108, and only one grade as to quality. All peaches should be perfect.

Choice is the smallest peach wrapped, and is graded in three sizes. By packing a 3x3 pack makes six rows across the box, with nine peaches long will make fifty-four peaches to the layer, or one hundred and eight to the box. Size 2, with six rows across the box, three rows nine long and three rows eight long will make fifty-one to the layer, or one hundred and two to the box. Size 3, with six rows across the box, eight long will make forty-eight to the layer, or ninety-six to the box. Plate 1 shows size three in the choice pack.

Fancy grade is packed same as the choice, except the rows contain less peaches. This grade is in two sizes. Size 1, with six rows, three rows eight long and three rows seven long, makes forty-five to the layer, or ninety to the box. Size 2, with six rows, seven long, will make forty-two to the layer, or eighty-four to the box.

Extra—Most of the peaches are extra, and they run from forty to seventy-eight

peaches to the box, and they are packed same as the choice and fancy, except the very large ones, and they are packed a 3x2 pack, with five rows across the box instead of six. There are nine packs of this grade: 1, six rows, three seven long and three rows six long, thirty-nine to the layer, or seventy-eight; 2, six rows, three rows six long and three rows six

growers it does not get the attention it should. Pears should be picked just as soon as they turn from a dark green to light green. They should not be yellow in the least, or they will not ship to any great distance. If a pear is picked too ripe it will be dry and mealy when ripe, while if it is picked just as it starts to turn, and wrapped in paper and stored away it will be fine and juicy when ripe. The pear box is eleven and one-half inches in width, eight and one-half inches in depth and eighteen inches in length, inside measurement. Pears are packed fancy or No. 1, choice or No. 2. Three sizes as to tier—four tier, five tier and six tier.

Six tier is the smallest pear wrapped, and there are very few so small, from two to two and a quarter inches in diameter. They are packed a 3x3 pack, six rows across the box six pears long, thirty-six to the layer or tier. Six tiers will make two hundred and sixteen pears to the box.

Five Tier—Most of our pears are five tier, and they average from two and one-quarter to three inches in diameter, and are packed in four grades as to size. Size 1 contains pears about two and one-quarter inches in diameter, and are packed a 3x3 pack, six rows across the box six pears long, thirty-six to the layer, with five layers or tiers, will make one hundred and eighty pears to the box. Size 2 contains pears about two and one-half inches in diameter, and are packed a 3x3 pack, six rows across the box, three rows six long and three rows five long, thirty-three to the layer, with five layers, will make one hundred and sixty-five to the box. Size 3 contains pears about two and three-quarter inches in diameter, a 3x3 pack, six rows across the box, five pears long, thirty to the layer, with five layers, will make one hundred and fifty to the box. Size 4 contains pears about three inches in diameter, and is packed a 3x3 pack, six rows, three rows four long and three rows five long, twenty-seven to the layer, with five layers, will make one hundred and thirty-five to the box. Plate 6 shows the proper amount of bulge for a fancy five-tier pack. This box contains one hundred and fifty pears



PLATE 1—SHOWING SIZE THREE IN CHOICE PACK

long, thirty-six to the layer, or seventy-two; 3, six rows, three rows six long and three rows five long, thirty-three to the layer, or sixty-six; 4, six rows, three rows five long and three rows five long, thirty to the layer, or sixty; 5, five rows, three rows six long and three rows five long, thirty to the layer, or sixty; 6, five rows, two rows six long and three rows five long, twenty-seven first layer, two rows five long and three rows six long, twenty-eight second layer, or fifty-five; 7, five rows, two rows five long and three rows six long, twenty-five to the layer, or fifty; 8, five rows, two rows five long and three rows four long, twenty-two first layer, two rows four long and three rows five long, twenty-three second layer, or forty-five; 9, five rows, long, twenty to the layer, or forty. Plate 3 shows the side of the extra pack. Plate 4 shows two packs of extra Elbertas, one with seventy and the other with seventy-five to the box. This is an average pack for the extras. Plate 5 shows an extra pack with a few of the wrappers off to show the size of the peach. Same boxes as in Plate 4. All 3x3 packs vary six peaches to the box, and all 3x2 pack peach vary five peaches to the box. The Elberta is a long, flat peach, and is laid on its side lengthwise across the box, or the stem end of the peach to the side of the box, with the flat side of the peach down.

The time to pick pears is just as essential as peaches, but by the most of the



PLATE 3—SHOWING SIDE OF FANCY PACK



PLATE 4—SHOWING TWO PACKS OF EXTRA ELBERTA PEACHES

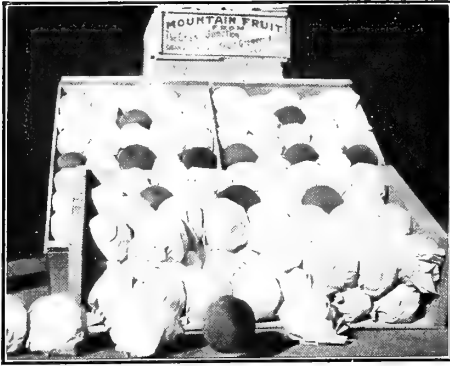


PLATE 5—SHOWING AN EXTRA PACK

(Bartletts) and it weighs about forty-five pounds gross. Most of the pears grown here are Bartletts, but all other varieties are packed in the same way. Plate 7 shows the top of the box. Note how much higher the pears extend above the top of the box before it is pressed and nailed up.

Four Tier—This pear measures three inches in diameter and up, and is packed a 3x2 pack, five rows across the box, six long, thirty to the layer, with four layers, will make one hundred and twenty to the box. Size 2, with a 3x2 pack, five rows across the box, three rows six long and two rows five long, will make twenty-eight to the first layer; three rows five long and two rows six long will make twenty-seven to the second layer, fifty-five in two layers, one hundred and ten in a four-tier box. Size 3, with a 3x2 pack, five rows across the box, five pears long, twenty-five to the layer, with four layers, will make one hundred to the box. This takes a very large pear, such varieties as the Duchess, Clairgeau and Idaho.

In picking our apples we are just as careful as we are with our peaches and pears to get them at just the right maturity so they will cold storage to the very best advantage. They must be well matured with a good normal color, but not tree ripe in the least. The apple box is eleven inches deep, eleven and one-half inches wide and eighteen and one-

sixteenth inches in length, inside measurement. Apples are not wrapped as peaches and pears, but are packed a 3x2 pack with the stem down, which makes the face of the box when opened. The second layer is placed in the open space of the first layer, and so on. This makes a diamond or diagonal pack.

There are two grades of apples, extra fancy or No. 1, extra choice or No. 2. Extra fancy should be absolutely free from worms, should not be less than two and one-half inches in diameter, shapely in form, normal in color. They should be layered through the box so as to make about one-half to three-quarters of an inch bulge on both top and bottom. Extra choice may contain worm stings, but not wormy apples. Also light colored and slightly bruised apples, and they should not be less than two and one-quarter inches in diameter.

The fruit of all kind is picked and packed, and when taken to the fruit associations's different warehouses is inspected. The grower then receives a receipt for the number of boxes in his load. The association then ships in iced cars, putting several growers' fruit together. Most of it is sold f.o.b. Grand Valley, and when the returns come in the grower gets what the fruit sold for less five per cent, which goes to the association for loading and selling. There are a great many growers who do not have enough of any one variety to ship a car themselves, but if they have enough of one variety, as a few have, they are at liberty to ship a car of their own. One association in the valley has over 1200 members, and no one can be a member unless he is a grower.

Plate 8 shows the packing shed owned by the association, located at Palisade. This Peach Growers' Association ships from seven to ten cars a day during the rush in Elbertas. Plate 9 shows one of the foot power graders in the packing shed of the Peach Growers' Association at Palisade. Plate 10 is a packing and nailing up scene. Plate 12 is a picture of the Grand Junction Fruit Growers' Association's branch at Palisade,



PLATE 6—SHOWING PROPER AMOUNT OF BULGE FOR FANCY FIVE-TIER PACK

showing the wagons lined up waiting their turn to get up to the platform to unload. Plate 13 is one of the Grand Junction fruit growers' inspectors inspecting peaches at the Palisade branch. Plate 14 shows the way the peach crop is handled after it is unloaded from the wagons to the platform. Plate 15 shows a car of extra Elberta peaches at the Palisade branch of the Grand Junction Fruit Growers' Association, just about loaded, for the New York market.

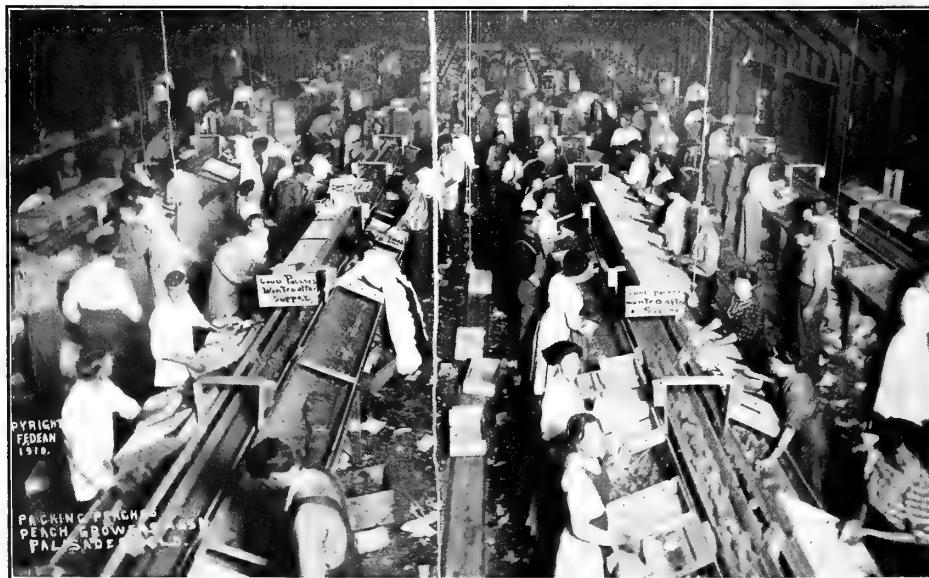


FAIR DATES OF THE NORTHWEST

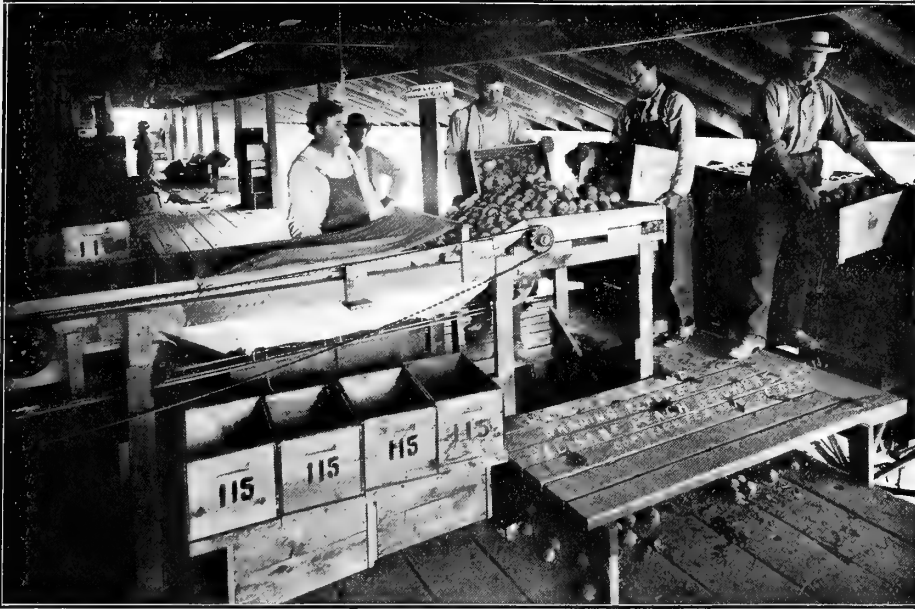
- California State Fair, Sacramento, August 26-September 2.
- Southern Oregon District Fair, Medford, August 29-31.
- Annual Fair Linn County Fair Association, Scio, Oregon, August 29-September 1.
- Centralia, Washington, August 28-September 2.
- Annual Fair Lane County (Oregon) Fair Association, Eugene, September 4-9.
- Vancouver, B. C., September 4-9.
- Portland, Oregon, September 4-9.
- Seattle, Washington, September 4-9.
- Oregon State Fair, Salem, September 11-16.
- Pendleton, Oregon, September 11-16.
- Walla Walla, Washington, September 18-23.
- Washington State Fair, North Yakima, September 25-30.
- Nelson, B. C., September 25-30.
- Dayton, Washington, September 25-30.
- Annual Douglas County Fair, Roseburg, Oregon, September 26-30.
- New Westminster, B. C., October 2-7.
- Interstate Fair, Spokane, Washington, October 2-7.
- Annual Fair Valley Fair Association, Puyallup, Washington, October 3-7.
- Lewiston, Idaho, October 9-14.
- Boise, Idaho, October 9-14.
- Annual meeting Oregon Wool Growers' Association, Baker, November 14-15.
- Fat Stock Show, Lewiston, Idaho, December 12-14.



THE MCKEESPORT TIN PLATE COMPANY, McKeesport, Pennsylvania, the largest independent manufacturers of coke tin plates, which are used by fruit and fish canners, announce the opening of their Western sales office at No. 315 Monadnock Building, San Francisco, and the appointment of the A. C. Rulofson Company, as their exclusive Pacific Coast agents. The standing of all parties connected with this deal is an assurance that any business entrusted to them will be handled in a satisfactory manner.



Copyright 1910, F. E. Dean, Grand Junction, Colorado
 PLATE 8—PEACH GROWERS' ASSOCIATION PACKING SHED AT PALISADE



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PLATE 9—FOOT-POWER GRADER IN PACKING SHED OF THE ASSOCIATION AT PALISADE

EUROPE VIEWED THROUGH AN EXPERT'S EYES

CONCERNING his impressions from a recent trip through Europe, Mr. Horace W. Day, of Sgobel & Day, 235-288 West Street, New York, writes interestingly for the readers of "Better Fruit" as follows:

During my trip to Europe, covering two months, I naturally looked into the apple situation in England and France, and was surprised at the situation existing and the ideas of many of the dealers. Naturally, having exported apples for account of our many friends on the Pacific Coast for so many years I was anxious to see how the business was handled, and so I went over the ground both in Liverpool and in London very thoroughly.

In Liverpool a few boxes of each mark or kind are taken to the auction room, where nineteen-twentieths of all the fruit which arrives in Liverpool is sold, and is exhibited to the buyers, the fruit being delivered from the wharf. In this auction room all of the brokers (we call them auctioneers here) sell, and they rotate daily, the attendance was quite large, buyers from most every section in Great Britain (excepting London) being present, and while the consumption of apples in the City of Liverpool is always heavy, it being a very favorite fruit with the English people, a full share of all the arrivals are scattered at once all over Great Britain, thus making a fine distribution. I saw very few fruit stores such as we have here devoted entirely to the selling of green fruit, but the apples go into prompt consumption all the same.

At London it was different. There are two selling sections there—Monument Yard and Covent Garden. In the former about five of the prominent brokers (auctioneers) rotate, selling in the one auction room, as is done in Liverpool, but owing to great lack of wharfage and the fact that London is an inland city many miles from the English channel, it makes it necessary to bring the apples

to store, but they are sold from samples, and the attendance at the sales was very large. While I was there the Tasmanian apples were arriving heavily, and were being sold both at Monument Yard and Covent Garden. At the latter place the auctioneers sell in the same room, but it is an immense one, and I heard several of these auction sales going on at the same time, which did not seem to me at all advisable, and I urged the receivers to get together and rotate their sales from one stand. In fact this was done by several of them, but others were still not agreeable. To my mind it made confusion, especially as they seemed to be very noisy. The samples were on show, but the attendance at each of the auctions which were going on seemed to me quite small. I saw a good many boxes of Newtowns from Hood River and the Rogue River Valley, as well as a few red apples from Washington, but must confess that few of them looked very attractive, and the general complaint was they were too large this season, and almost all were spotted. The Tasmanian apples were in very heavy supply, but owing to very small crops of home-grown fruits they were commanding big prices, say three dollars to four dollars a box, and, remembering no duty, it left fine profits for the growers in Tasmania. Some of these apples are very handsome, but the great bulk of them are of varieties unknown in this country and, to my mind, rather unattractive in appearance. The selection and packing was not very good; naturally so, remembering the immense number of growers, each with his own idea as to how the apples should be handled. However, I am told that this is improving all the time, as is to be expected. I saw some very beautiful Jonathan apples and a few fine Rome Beauty, but even those were not as handsome as the same variety grown in this country, possibly because the selection had not been as carefully attended to. I must confess that the flavor of these

Tasmanian apples is fine, just like an apple fresh from the tree, when properly ripened on the tree. I was told that perhaps 700,000 boxes of these apples would go to England this season, and the trade is growing rapidly. London is a magnificent place, perfectly huge and with about seven millions of people, and no wonder the consumption of apples is very heavy.

Then I went over to Paris, and the comparison was really ridiculous, if I may use the word. The only apples that I saw had been grown in Southern France in the fall and had been kept in cool places, but not under refrigeration. They were of full size, well shaped, bright yellow color and very waxy in appearance. How they tasted I do not know, because in every restaurant, fruit store and in the midnight to 4 a. m. dance halls the universal price was one and one-half francs per apple—say thirty cents. I was told that the flavor was very fine, and it must have been to have induced the French people to pay such a price. All fruit was extremely high—big hothouse peaches, beauties, and handsome large nectarines (also hothouse) were eight francs, or \$1.60 each, while French melons, somewhat resembling our finest cantaloupe, but quite large, ranged in price from ten to thirty francs per melon—say \$2 to \$6 each. Think of it! They generally serve them in slices. These unheard of prices caused me to interview the largest apple house in Paris as to why it was not possible for us to sell them carloads of apples—fine Oregon and Washington Newtowns if they do not want red apples—at a price which would have permitted them to be sold around the streets at eight to ten cents each and still make good money. I was told that the French people are very clanish and prefer fruit grown in France, and when I pinned my friends down they said they



PLATE 7—SHOWING THE TOP OF THE BOX

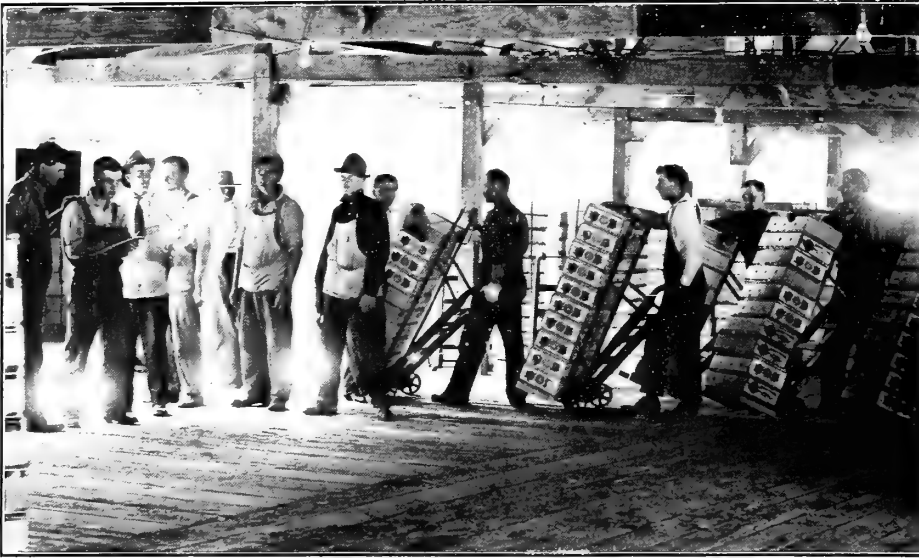


PLATE 14—SHOWING THE WAY THE PEACH CROP IS HANDLED AFTER IT IS UNLOADED FROM THE WAGON TO THE PLATFORM
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thought possibly one carload, or perhaps two carloads, of apples might be sold in a week in Paris. Remembering that there are about two and one-half millions of people in that city this made me shake my head in wonderment. On my return to London, by the way, I was told that a certain enterprising house there intended to open up the Paris market on apples this year, and I was glad to know it.

I saw no fruits of consequence in the other sections I visited, Monte Carlo, Nice, Milan, Venice (where they had the cheek to ask me ten francs, or two dollars, for a half of a deliciously fresh cold lobster) or in the three points on Lake Geneva. I was told that through the regular fruit season all fruits are fairly reasonable in France, but what struck me forcibly was that such exaggerated prices could be obtained, no matter how fine the fruit was, from December to May.

Alluding to Tasmanian apples, it will interest your readers to know that about

one thousand boxes were taken out of one of the cargoes arriving in Liverpool and sent here—New York Pippins, Scarlet Pearmain and Sturmer Pippins—and they were auctioned here about a week ago, but averaged only about \$1.50 per box, although a few very handsome Rome Beauties sold at \$2.10. Naturally, coming into a heat of about 100 degrees and at this bad season of the year for the consumption of apples (our people, of course, preferring peaches, berries, cantaloupes, etc.) the result was very bad. The freight is, of course, heavy, coming under refrigeration Australia to England and England to New York, and the duty equals about twenty-five cents a box. Another two thousand boxes are due here in a few days, and all these apples come to the representative of the Tasmanian Apple Growers' Union, who arrived here some two weeks since. The second lot, I am told, will not be auctioned. England, France and Italy are fine, but New York is good enough for me.



PLATE 12—GRAND JUNCTION FRUIT GROWERS' ASSOCIATION BRANCH AT PALISADE
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PLATE 10—PACKING AND NAILING SCENE AT PALISADE, COLORADO
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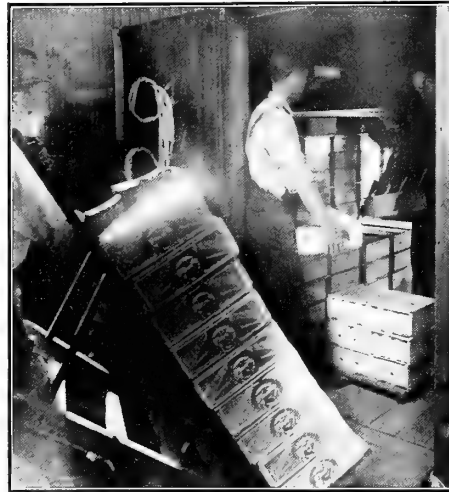
THE RICHARDSON-HOLMES & LAMB COMPANY of Los Angeles, California, successors to the Richardson & Holmes Fruit Company, commenced business in 1905, and have steadily grown until they are now one of the largest and best equipped fruit and produce houses west of Chicago, handling for the year of 1910 over one thousand straight cars of fruit and produce. This company is located in the heart of the fruit and produce district in the city of Los Angeles, and has every facility for receiving and shipping; also has first class cold storage warehouses, and is fully equipped to handle large quantities of apples. The California Bellflower and Pippin apples are the largest sellers in the Southern California market, but there is a large demand for Northern and Eastern Jonathans, Winesaps, Spitzenbergs, Rome Beauties and Baldwins. The apple prospects for the coming season are the best in the history of Southern California. This industry has grown so in this section that the City of Los Angeles has become known as one of the largest apple distributing points in the world, bringing apples from all the districts west of the Mississippi.

THAT special agricultural high schools should be established in every state in the Union is the contention of Dr. A. C. True, director of United States Experiment Stations, who lectured on the subject recently at the Oregon Agricultural College. "Every state would do well to establish special agricultural high schools," said Dr. True. "They would be able to render important service, too, in preparing teachers for the agricultural courses in the other high schools. It is not an isolated movement. It is simply along the same line with other movements, such as the scientific management of all business."

CAMPAIGN AGAINST TARIFF FINANCED IN EUROPE

SPECIALLY CONTRIBUTED TO "BETTER FRUIT"

SOME phases of the tariff revision war are peculiar and almost humorous. When the Payne-Aldrich bill was under discussion the most insistent demands for reduction of duties were voiced by the importing interests, which naturally have no sympathy at any time with American industries or American labor. In the present fight certain importers have sought and obtained the co-operation of foreign producers, who are submitting to a tax for the creation of a fund with which to fight protection in its lair and to influence legislation in Washington. It is a fact well known now that speculators in Palermo, Sicily and in New York City have joined hands to secure a reduction in the lemon tariff, which in 1910 paid into the United States treasury the very respectable sum of \$2,233,527.87, as compared with collections of \$1,351,758.88 for 1909, the year before the new tariff went into effect. As a tariff producing a substantial revenue this appeals to conservative Democrats, while as a measure giving reasonable protection to a growing home industry it is favored by Republicans and protection Democrats alike. The consumer does not suffer by it. On the contrary, he is benefited by competition, which would not exist if the tariff were wiped out or reduced to a figure which would not allow the American lemon growers to exist, or which would keep them out of the New York market. With no tariff, or an inadequate one, the American growers would hardly be able to sell their fruit east of the Alleghanies. This would give the Sicilian fruit an absolute monopoly of that section of the United States by reason of the lower price at which it can be produced, and the cheap ocean freight rate to New York. As the business is in a very few hands, combined under a close working agreement, and as it enjoys further the protection of the Italian government to an extent which



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PLATE 15—CAR OF EXTRA ELBERTAS BEING
LOADED FOR NEW YORK MARKET

would drive them back into their limited Western territory with severe losses, after which the prices would again advance for the benefit of the importers.

Here is a stake worth playing for. It is for this that the Sicilian growers are giving up an assessment which has ranged from four cents to ten cents on every box of lemons shipped to the New York market. It is for this that they are vociferously demanding the reduction or abolishing of the lemon tariff. It is for this that they are hiring lawyers and lobbyists to try to influence legislation. It is because of this meddling with American legislation that the names of certain congressmen, who are held to be friends of the Sicilian lemon growers, are spoken freely in the home of the Camorra and the Black Hand, and that they are referred to as friends of the alien rather than as representatives of American industry.

With a well financed campaign like this, aimed at an American industry, it became necessary for the lemon growers to defend their commercial existence. Through their mutual organization they employed the foremost expert in their line in the world, G. Harold Powell, whose investigations for the Department of Agriculture in California, Spain and Sicily demonstrated his high standing as a practical scientist. It was decided to procure detailed figures showing the cost of producing lemons in California, and also to procure full data regarding the industry in Sicily, Italy and Spain, although the latter country does not figure largely in the production of lemons for export. Mr. Powell has just returned from his tour of investigation, and while he has not collated his data he is in a

position to substantiate all that he has said previously regarding the cost and conditions of production abroad. Mr. Powell sailed April 18th for Europe, accompanied by Frank F. Chase, vice-president of the National Orange Company of Riverside, California, and one of the best authorities in the world on the orange and lemon. Mr. Chase's intimate, practical, as well as theoretical knowledge of irrigation engineering, and on every phase of the industry, constituted him an expert and supplemented the practical and scientific knowledge of Mr. Powell, so that the investigations made by them had all the value of a dual inquiry. They studied the industry in all of the important lemon producing sections of Sicily and Italy, took numerous photographs and found that they were able to determine the variations in the difference of cost of production, cultivation, irrigation, fertilization, yields of trees, number of trees per acre, value of properties, cost of equipment and all of the factors entering into the problem. They also determined the cost of transporting the fruit and the variations in the cost of getting it from the groves to the steamships. Mr. Powell's investigation two years ago for the government had made him thoroughly familiar with all the details of the business, and the growers and shippers, appreciating this fact, extended him every courtesy and opportunity to study the industry from all standpoints.

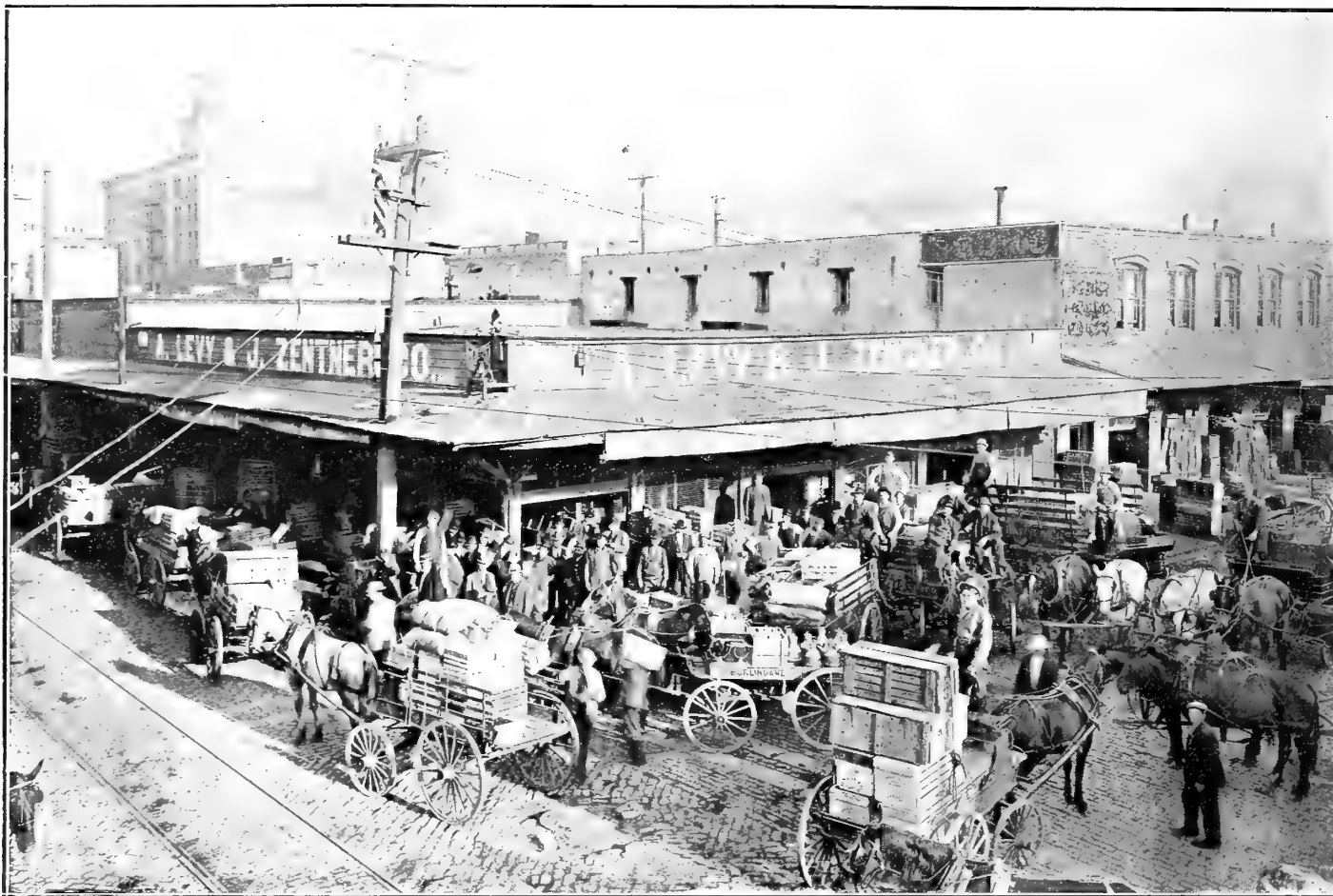
The most striking thing found by the investigators was that no two groves or shippers gave the same figures as the basis of cost. This is doubtless due to the fact that the groves vary in size from a few trees to groves containing hundreds or thousands of trees. The cost often represents but little more than the



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PLATE 13—INSPECTING PEACHES AT THE
PALISADE BRANCH



H. M. GILBERT
President Richey & Gilbert Company
Toppensish, Washington



ONE-STORY FRAME STRUCTURES ERECTED IN SAN FRANCISCO, CALIFORNIA, IMMEDIATELY AFTER THE FIRE OF 1906, OCCUPIED AT PRESENT BY THE WHOLESALE FRUIT AND PRODUCE TRADE

This particular corner is the busiest corner in San Francisco's immense fruit district and is occupied by the A. Levy & J. Zentner Company, without exception the heaviest dealers and distributors in that metropolis.

value of the labor of the family that cares for the grove. The greatest variation was found in such items as the cost of gathering the crop. Sometimes this would vary one hundred per cent in different localities. An important factor in the situation is the protection extended to the industry by the Italian government through the citrate of lime monopoly. Twenty per cent of the entire crop is converted into citrate of lime and the government guarantees a minimum price, thereby materially affecting the price of the fruit exported to the United States. It acts practically as a bounty on the price of the fresh fruit, and in that way the Italian government does practically the same thing this government does through a customs tariff.

Mr. Powell secured a large amount of data from Rome and from the various experts in Italy on lemon and orange culture. He found that the lemon industry is now in a very flourishing condition there. Lemons constitute the most profitable crop in Italy and Sicily, and the growers are prosperous. The price of lemons to the grower is higher now than it has been for years on account of the great growth in the demand for lemons all over Europe. Lemon exporters at Palermo told the Americans that the European market is expanding rapidly and that new markets are opening up every day. With the increased demand, the damage to the crop by frosts and

wind storms has resulted in an abnormal increase in the price. There is a tendency in New York. Mr. Powell found, to attribute the higher prices to the Payne-Aldrich tariff, but the tariff on lemons has had no adverse effect on the business in Sicily, where the exports are heavier than ever before. For the year following the enactment of the Payne-Aldrich bill imports of lemons into the United States were 25,000,000 pounds in excess of the importations for the previous year, and it is probable that the imports for this year will equal those for last, as lemons are coming over in unprecedented quantities.

As has already been stated, Mr. Powell found in Palermo a very vigorous organization which is collecting funds and sending them to the United States to be handled through the American-Italian importers. The existence of this fund is no secret in Italy, and its purpose is known and understood by everyone. Prior to May 1 this money was collected by the American importing interests. A change was made in the place of collection on account of the difficulty of making the collection in New York. Mr. Powell learned in Palermo that the collection of the fund is provided for in the steamship rate. The rate was raised to cover the amount of the assessment for the fund, and the amount of the increase is rebated and paid into the anti-tariff campaign fund with which the foreign

interests are seeking to influence public sentiment and to effect legislation in congress.

That there is a big difference between the cost of labor in this country and in Europe was fully proven by Mr. Powell's inquiries. He learned that labor is about one-third to one-fourth as dear in Italy and Sicily as it is in California, while the cost of handling the fruit is only one-half to two-thirds as expensive, and the cost of transportation is about one-third as great as it is in this country.

Another proof of the fact that foreign interests are back of the fight on the lemon tariff is the activity of Congressman Francis Burton Harrison in the fight for the importers. He comes from the "push-cart" district, and the Italian push-cart men are completely dominated by the importing interests. Moreover, Harrison has said that three hundred politicians in New York have petitioned him to have the duty lowered. The importers are very active and are circularizing the trade through their New York office, but the nature of the campaign is well understood in Washington.

SITUATION WANTED

By young man of 30 as foreman or horticulturist for some company. Had some college and many years of practical training. Can handle help to best advantage. References. F. W. SABRANSKY, care "Better Fruit."



ONE OF THE WAREHOUSES OF ROGUE RIVER FRUIT AND PRODUCE ASSOCIATION

ROGUE RIVER FRUIT AND PRODUCE ASSOCIATION

THIS association was incorporated in April, 1910, with over half of the capital stock of \$50,000 subscribed. The whole of the Rogue River Valley from Grants Pass to Ashland was interested to the extent of subscribing this capital, thus putting the association on a good financial basis. The association owes its existence to the fact that the growers saw the absolute necessity of combining their interests if the chaotic, unintelligent handling and marketing of fruit was ever to be overcome. The immense acreage about to come into bearing made organization of work and grading of fruit of prime importance. A distinctive feature of the association is the fact that the large shippers, as well as the small, are connected with it, and doing their business through it.

During 1910 the association shipped ninety cars of pears and two hundred and twenty cars of apples, this being nearly seventy per cent of the output of the valley. This season the shipments will be one hundred and eighty cars of pears out of two hundred shipped from the valley, and sixty out of seventy cars of apples, this being a short year on apples. Instead of a selling agency for the distributing and marketing of fruit, this association aims to be a part of the producing end, its definite function being the preparation of the fruit for the market, making it a distinct business to pack, grade, supervise, assemble, inspect, secure uniformity and ship the fruit. The packers of the valley are organized thoroughly, and the association assumes the responsibility for the pack, no grower being allowed to pack his own fruit. We have eliminated the "farmers' pack" entirely, and are in a position to guarantee every box of fruit shipped.

Distributing and selling fruit cannot be made a side issue to anything. When we are large enough we shall probably have our own marketing organization, but in the meantime we employ the highest class selling agencies, with the most comprehensive facilities for covering

every market, to distribute our fruit for us, having abandoned definitely the haphazard method of consigning to whatever market we happen to fancy at the moment. The Northwestern Fruit Exchange distributes our apples and Stewart Fruit Co. our pears.

All that has been said of the Rogue River pear is true; no section approaches us either in flavor or keeping qualities. We top all markets because we have the quality. The only possible objection to Rogue River pears is that there are not enough of them, but the quantity is steadily increasing, and in a few years every city can have enough. The Rogue River Bartlett is as good in London as it is in Chicago—it will carry half way around the world in first class shape. The Howell, one of our specialties, is growing in favor, and we can always sell our crop many times over, as is the case with our long-keeping, honey-flavored Winter Nelis. The Bosc, of unbeliev-



K. S. MILLER
Manager Rogue River Fruit and Produce
Association

ably fine flavor, is demanded in ever larger quantities. The large, smooth Anjou, so eagerly sought, is not yet plentiful enough for everybody to have a few, and crowds our Comice, king of all pears, in price every year. Nothing equals the Comice; it is the finest fruit that ever grew on trees, and if you have not eaten one there is a gastronomic experience par excellence waiting for you. We do not get ten dollars for all of them, but every season someone thinks that much of a few cars. Our other special product is the Yellow Newtown; and while the British and New York markets take all we can produce now, the time is close when we shall have enough to introduce it to all American markets; it is "the autocrat of the breakfast table" and the best keeping apple grown. Our Spitzenbergs, Jonathans and Ben Davis really class by themselves, and no one who has eaten them can ever forget. With such products as we raise, our growers cannot afford to put them on the market in any but first class shape, and we expect to maintain our reputation with the best fruit and the best packing in the Northwest.—K. S. Miller, Manager.



AN EXPOSITION THAT WILL EXPLOIT AGRICULTURAL DEVELOPMENT

NO exposition ever held was so interesting or valuable to the agricultural interests as the one to be held in San Diego, California, in 1915 promises to be. Few persons have any realization of the vast work the government has been doing in recent years in increasing the value of the products of the soil. It has been spending millions—yes, hundreds of millions of dollars in irrigating arid lands, in reclaiming lands that had been classed as worthless, in conserving the forests and in showing how the best could be made of the land by farming, stock raising, bee keeping, taking care of the forests and in re-foresting burned-over or waste land.

The Panama-California Exposition, to be held in San Diego to celebrate the opening of the Panama Canal, will run a full year, as the equable climate makes this possible. The Panama-Pacific Exposition, to be held in San Francisco, also in 1915, will be kept open six months. The two expositions will be supplementary to each other, but the San Diego exposition will have many features never before seen in such a show, and it promises to be equally as interesting in its way as the exposition by the Golden Gate. San Diego has about \$2,500,000 to spend on its exposition independent of county aid or the expenditures of foreign countries. The latter probably will include the Latin-American Republics, and possibly China and Japan. The style of architecture will be wholly of the Mission or Spanish Renaissance type. All buildings will be permanent. The site of the exposition is Balboa Park, in the center of San Diego, containing fourteen hundred acres. In it will be the finest exhibit of floriculture and arboriculture ever seen in the world. Millions of plants and trees are now being propagated for this purpose.

TRIAL SHIPMENTS OF PEACHES TO GREAT BRITAIN

BY J. A. RUDDICK AND W. W. MOORE, DEPARTMENT OF AGRICULTURE, DAIRY AND COLD STORAGE BRANCH, OTTAWA, CANADA

THIS department, in 1897, made trial shipments to Great Britain of about 7,000 cases of tender fruits, of which over 1,400 cases were peaches. As a result a good deal of valuable information was obtained and placed before the shippers and growers in the peach belt. During the past three years, in order to encourage the shipment of tender fruits to Great Britain, the department has reserved cold storage chambers on the steamers and guaranteed the earnings thereon so that shippers of small lots might be accommodated and have their fruit carried at a proper temperature, and at the regular rates. With the same end in view, the department also agreed to pay the icing charges up to five dollars per car on all shipments of early apples and tender fruits received at Montreal for export in cold storage from August 1 to October 1 in each year. During the past four years small lots of peaches, grapes, etc., have been sent to various parts of Europe for exhibition purposes with most excellent results. While the action of the department in respects stimulated the shipment of early apples and pears it had no appreciable effect on peach shipments, for the reason that the opinion was pretty generally held that it was not possible to ship our peaches to Great Britain on a commercial scale and land them in good condition.

Owing to this apparent disinclination on the part of shippers or growers to forward such quantities as would thoroughly test the market, it seemed advisable that this department should make a few trial shipments in 1910 in order to procure accurate data respecting the proper degree of maturity at picking time, the best method of packing and proper temperatures during transportation, especially as the acreage under peaches in Ontario has been rapidly increasing in recent years. If shipments are made by private individuals or firms such information is not readily available for the general public. The extension of markets for farm products is one of the chief duties assigned to the dairy and cold storage branch of the department and its organization, including the cargo inspectors at Montreal and at ports in Great Britain, along with the iced car services and the specially reserved refrigerator chambers on the steamers, permits of such work being undertaken with little extra expense or interference with other duties. An appropriation was secured for the purpose during the session of 1909-10, and the preliminary arrangements were completed early in the month of June.

The St. Catharines Cold Storage and Forwarding Company, Limited, St. Catharines, Ontario, agreed to furnish the peaches and pack them as directed for a guarantee equal to the local market price plus the cost of the special packing and package. It was understood that if the net returns were more than the amount guaranteed the excess should go to the growers. As soon as this agree-

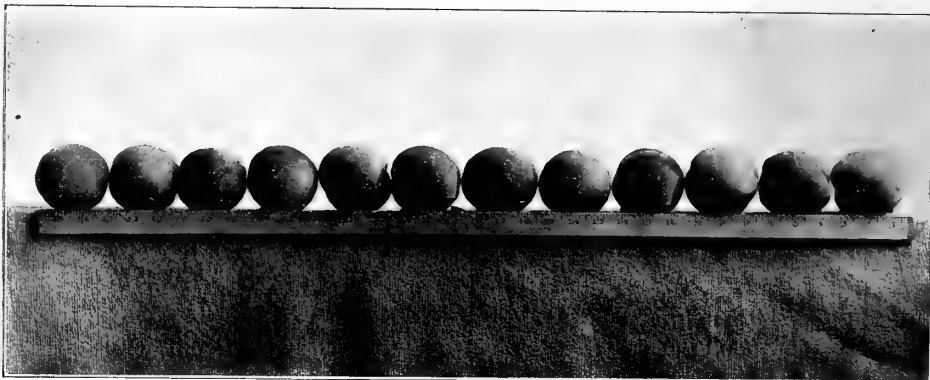
ment was reached some of the principal fruit brokers in Great Britain and the cargo inspectors for the department at Liverpool, London, Bristol and Glasgow were advised that trial shipments of peaches would be made by the department in September and October, and they were asked for full information as to the quantity which it would be advisable to ship. Following is a copy of a letter addressed to Messrs. George Monro, Limited, London, and their reply thereto:

Ottawa, Ontario, June 2, 1910.

Messrs. Geo. Monro, Limited, London England.

Dear Sirs: In October, 1908, the Canadian commissioner at the Franco-British Exhibition sent you sample cases of Canadian grown Elberta peaches, which you reported as arriving in extra good condition compared with others of the same variety. The present prospects are for a good crop of peaches in Canada this year, and I have been authorized by the minister of agriculture to encourage the shipment of peaches to Great Britain. I propose to purchase from the growers Elberta peaches and have them packed in single layer cases, surrounded with wood wool, each peach wrapped in paper. We could forward these in lots of any quantity up to 1,000, or more, cases. Would you care to accept consignments of these peaches, and, if so, about what quantities do you think it would be advisable to send? If you are

each shipment would give a fair test of the market. After hearing from the different correspondents it was decided to make shipments during the weeks ending September 17 and 24 and October 1, to London, Liverpool and Glasgow, and one shipment to Bristol on September 15; part of the Liverpool shipment to be forwarded to Manchester and Leeds, and a portion of the Bristol lot to go to Cardiff and Birmingham. This plan, it was expected, would thoroughly test the leading markets with the least expense and the least risk of delay in transit, and in accordance shipments of single layer boxes were made as follows: September 15, to Bristol district, Bristol 50, Cardiff 25 and Birmingham 24, a total of 99 boxes; September 16, to Liverpool district, Liverpool 51, Leeds 12 and Manchester 12, a total of 75 boxes; September 17, to Glasgow 93 and to London 150 boxes, making a total for the first week of 417 boxes. September 24, to Liverpool district, Liverpool 102, Leeds 24 and Manchester 24, a total of 150;



A YARD OF ELBERTA PEACHES

favorable to the proposal I would be glad to have you make any suggestions, which may occur to you from your experience, as to how the peaches should be packed and the cases marked. We can have the cases printed or use paper labels, whichever is considered to be the most practicable.

Yours very truly,

J. A. Ruddick, Commissioner.

On June 13 Messrs. Monro replied as follows:

We are in receipt of your letter of the second instant in reference to sending peaches. We remember the lot we received in 1908, which were delivered to us in exceptionally good condition, and met a very good market, as English were short at the time. We are also aware that a good many of this variety of Elberta have been shipped here, but have not realized nearly so much money as we were able to make of the consignment referred to. We, therefore, should suggest merely trial consignments this year, commencing as soon as possible, and sending them through the season so that you could be in a better position to judge whether it would pay to send in the quantities you name. Peaches—of all fruits—vary in price very much according to the demand, quality and the condition of the fruit, and if they are not good enough for the best class customer the price is very low, indeed, compared with the good ones. We shall certainly be pleased to do the best we can, but do not wish you to send anything but what would find a ready and good sale, and should certainly prefer that you send on as above for the ensuing season. Your inspector here, Mr. Davis, who meets the shipments at the docks, has called, and we have told him as written you, and we think that he agreed with us that it would be better to go carefully at first. We are able, also, to give him some particulars in reference to South African pears, which may be interesting to you.

In a subsequent letter, dated July 5, Messrs. Monro stated that they thought about five hundred single layer cases for

Glasgow 177 and London 342, or a total of 669 boxes for the second week. September 30, to London, via Liverpool, 198 boxes were shipped, or a grand total covering the three weeks' period of 1,284 boxes of peaches.

All the peaches shipped by the department were carried to Montreal by refrigerator car and fast freight, with the exception of the Bristol consignment, which was shipped by express. The peaches in this lot were at a temperature of 60 degrees when unloaded at Montreal. In the three subsequent shipments by refrigerator cars, in which thermographs were carried, the temperature in the first two cars during transit to Montreal ranged from 50 degrees at the start to 44 degrees when the cars were unloaded, and in the third car from 56 to 40 degrees. The actual temperature of the fruit at Montreal, except the first refrigerator car, was 44 degrees for those peaches which had been pre-cooled before shipment and 54 degrees for those packed the day of shipment and loaded without pre-cooling. In the second car the average temperature of the peaches was 50 degrees and in the third car 45 degrees. The express shipment left St. Catharines on Tuesday at noon and was delivered to the steamer at Montreal

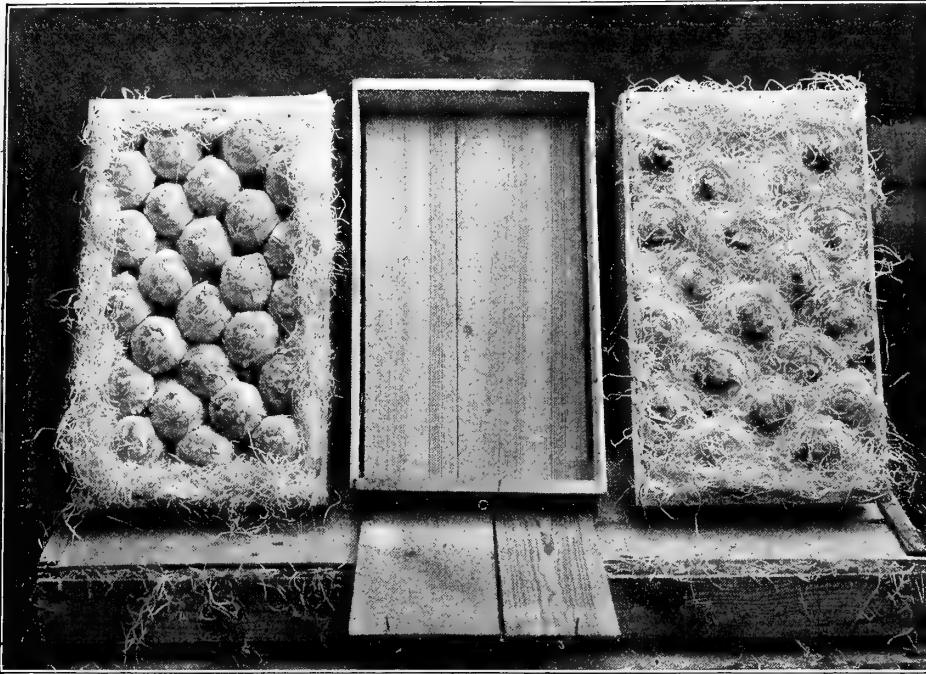


FIGURE 1—SHOWING EMPTY CASE AND TWO STYLES OF PACK

about noon the following day. In each case the refrigerator car left St. Catharines on Wednesday about 6:30 p. m., arrived at Point St. Charles, Montreal, before 7 o'clock Friday morning, and was placed alongside the steamship sheds on the dock about 2 p. m. All the peaches were reported as in firm condition at Montreal.

It will thus be seen that the express service was about twenty-four hours faster than the freight, but that the peaches carried in the refrigerator cars were at a much lower and better temperature than the others. Should there be any delay en route, peaches will not receive any damage in a well iced car, whereas, if they are carried by express, any delay at the temperatures mentioned above is dangerous. That this is liable to happen was shown in the case of a private shipment by express for the steamship, Tortona on September 10, which, owing to an accident to the car, arrived in Montreal on the evening instead of on the morning train, and as a consequence was not delivered on the dock until 11:30 p. m., the peaches being loaded in the steamer between 1 and 2 o'clock in the morning.

All the peaches were closely watched by our cargo inspectors at Montreal. Cars in which peaches were carried, whether by express or fast freight, were followed up by the chief cargo inspector, and the officials of the harbor commissioners' staff were urged by him to have the cars placed alongside the steamers with the least possible delay. Care was taken to see that the peaches were promptly loaded in the steamers and that proper care was exercised in handling the packages and in stowing them in the chambers. The cases were well dunnaged in the steamers (by dunnage is meant the placing of strips of wood between the tiers of cases, both horizontally and vertically, so as to insure a good circulation of air) and thermographs were placed in each chamber.

At London, Liverpool, Glasgow and Bristol our inspectors were also on the alert, and remarkably quick deliveries were made. For instance, London peaches were on the market within three hours from the time discharge of cargo commenced. Our inspectors also made a careful report regarding the condition of the fruit on arrival and the prices realized by the brokers.

Throughout the peach shipping season private shipments were made to Liverpool, Glasgow, Bristol and London by Mr. A. C. Dobson, Jordan Station, the Biggs Fruit and Produce Co., Burlington, and Mr. D. Johnson, Forest. These consignments went forward in the chambers specially reserved for fruit, and received the careful attention of our cargo inspectors at Montreal and at the above mentioned ports. We furnished the shippers with copies of the inspectors' reports, showing the condition of the peaches at Montreal and at the port of discharge, with the time of transfer from car to boat at Montreal, the temperature in the ship's chamber during voyage, etc. The inspectors carefully supervised the handling of the peaches.

and as a result not one case was landed in a damaged condition. All the peaches shipped by the department were landed from the steamships in most excellent condition.

Reliable information regarding the best storage temperature for peaches is somewhat limited, but according to some careful experiments made by the United States Bureau of Plant Industry peaches held at 32 degrees continued in good condition longer than those held at 36 degrees, or at 40 degrees. Heretofore South African peaches have been carried by the Union Castle line at a temperature of from 34 to 36 degrees, the voyage occupying seventeen days from Cape Town to Southampton by fastest boats, but the South African trades commissioner in London, in his last report, recommends a lower temperature. The keeping quality in peaches is of short duration at best, and the limit for Canadian peaches is pretty well reached in shipment to Great Britain. Our instructions to the steamship companies were to carry peaches at a temperature of from 34 to 36 degrees, with a gradual rise to 55 degrees during the last day of the voyage in order to prevent sweating or the condensation of moisture on the cold fruit when removed from the refrigerators and exposed to a warmer atmosphere. Thermograph records in the steamers sailing to London, Glasgow and Bristol were satisfactory, but in the case of the three Liverpool boats, in which our department had shipments of peaches, through a misunderstanding, no rise in temperature occurred at the end of the voyage, the peaches being removed from a temperature of 35 degrees to a temperature of 60 degrees, and while our inspectors reported that the peaches were landed in good condition they did not appear to stand up as well as those shipped to the other ports, and most probably this was owing to the abrupt transition from a low to a high temperature.

The department's last consignment for London went forward via Liverpool per steamer Laurentic, which left Montreal on September 30, arrived at Liverpool Saturday, October 8, and discharged the peaches Monday morning, October 10. The peaches left Liverpool by refrigerator car at 7 p. m. same day, and were



FIGURE 2—SHOWING LABELS ON ENDS OF CASES



FIGURE 3—SHOWING MANNER IN WHICH PEACHES WERE PACKED FOR CONVEYANCE FROM ORCHARD TO PACKING HOUSE

delivered in London at 7 a. m. the following morning, October 11, or within eleven days from the time they left Montreal. These peaches were all sold by October 14. The average time in transportation between the shipping points in the Niagara district and the port of destination in Great Britain by fast freight to Montreal and regular line steamships was as follows:

Liverpool, three shipments, eleven; Bristol, two shipments, ten; London, six shipments, sixteen, and Glasgow, three shipments, eleven days, a general average for the fourteen shipments of 12.8 days, showing a gain in time over 1897 from the same district of 7.1 days.

The peaches shipped by this department went to the ports of Liverpool, London, Glasgow and Bristol. The two Liverpool shipments were each divided between that market, Leeds and Manchester. The Bristol lot likewise served three markets, Bristol, Cardiff and Birmingham. The claim has been made that it would be better to have all the Canadian peaches which are exported shipped to London and distributed from there to the various markets, but while London is undoubtedly the best market for peaches it does not seem reasonable that fruit intended for sale in Liverpool or Glasgow should first be forwarded to London, and after a delay of one or two days there be reshipped by rail to these points, both of which have fast direct steamers from Montreal. The extra cost of shipping by rail would be a heavy item, as it cost the department nine cents per case to ship 198 cases from Liverpool to London in an iced car, or within half a cent per case of the freight from Montreal to Liverpool or London. Then there is to be considered the risk of injury from extra handling and exposure during fairly warm weather, and the important question of time in transit. The boats in the Montreal-London service are slower than those running to Liverpool, Glasgow or Bristol, and peaches shipped via London would require from twelve to eighteen days to reach either Liverpool or Glasgow, as compared with ten and nine days by direct boats. The argument applies with even greater force to

Bristol, which has a seven-day service from Montreal once every two weeks. The cold storage freight rate to each of the ports mentioned is the same, six dollars a ton of forty cubic feet.

All the peaches shipped by the department were disposed of by private sale, excepting the two Liverpool lots of 51 and 102 cases, which were sold under the hammer. Cardiff made the highest price, \$1.58 per case of 23 Crawford peaches, while the highest average price received was \$1.45 per case for 72 cases Old Mixon, sold in London. At the same time 78 cases of Elbertas made an average of \$1.39. In Cardiff 25 cases Crawfords averaged \$1.30 per case; Manchester made \$1.33 per case for 12 cases and Leeds \$1.22. On the other hand, 198 cases Elbertas sold in London for 94 cents per case, 24 cases sold in Birmingham for 83 cents per case and 177 cases in Glasgow for 85½ cents per case. The whole shipment of 1,284 cases sold at an average price of \$1.04 per case, while the charges averaged as fol-

lows: Freight from St. Catharines to Montreal, 4 cents per case; ocean freight, 9.6 cents; selling charges in Great Britain, including commission, 9.7 cents; total charges, 23.3 cents per case, leaving an average net return f.o.b. cars St. Catharines of 80.7 cents per case, or about 13½ cents per pound. From this must be deducted, of course, the cost of the package, packing material and extra labor. As the guarantee to the growers was equal to about 40 cents per case, a net return of over twice this amount must be considered highly satisfactory.

In the marketing of Canadian peaches in Great Britain it would seem to be a poor business policy to instruct the broker in London, or elsewhere, to hold out for the last penny he can squeeze out of the retailer. If the latter is forced to pay \$1.44 and upwards for eighteen or twenty peaches, it means a retail price of twelve to sixteen cents per peach. At this price sales are necessarily slow and the trade restricted. Many of the retailers, in an attempt to get their money back, will hold the peaches too long, decay sets in and they lose money on the transaction. Where this happens they naturally will become prejudiced against Canadian peaches, and will not want to handle them another year at any price. It is much better to have the brokers clear the peaches quickly at a fair price and give the retail dealer a chance to dispose of them rapidly at a reasonable profit than to have them dragging in the market and in the shops until they lose their flavor and become wasty and rotten.

Figure 1 shows the case which was used for these shipments. The dimensions, inside measurement, are as follows: Length 18 inches, width 11 inches, depth 3½ inches. Empty the case weighed three pounds and packed nine pounds. Top, sides and bottom of the case are made of lumber one-quarter inch thick, planed on the outside. The end pieces are nine-sixteenths of an inch

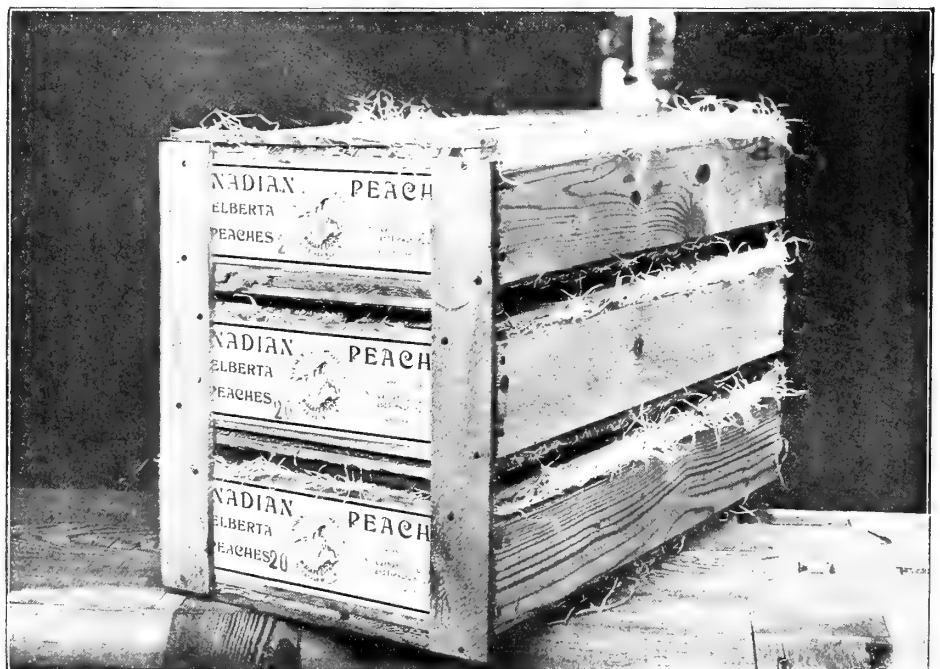


FIGURE 4—SHOWING THREE CASES OF PEACHES CRATED FOR SHIPMENT



FIGURE 5—TRUCKLOAD OF PEACHES READY FOR LOADING IN REFRIGERATOR CAR

thick, planed on one side. The cleats at both ends of the top and bottom are one-quarter of an inch thick and seven-eighths of an inch wide. These keep the cases apart when placed one on top of the other, and thus allow the air to circulate between the tiers of packages when piled in car, ship or warehouse. The sides, tops and bottoms are each one-half inch narrower than the inside dimensions given above, thus permitting ventilation at all four edges of the case. As shown in Figure 2, an attractive paper label was pasted on the ends of the cases, and as soon as each case was packed the number of peaches was stamped on the label in the space left blank for that purpose.

The bottom of the case was lined to the depth of about half an inch with excelsior. Each peach was first wrapped in white tissue paper and then encircled with a band of excelsior, so that one peach did not touch another (see right hand case, Figure 1). A thick layer of excelsior was then placed on top of the fruit and the cover nailed on. A number of cases were put up solid pack (see left hand case, Figure 1), that is, without the band of excelsior around each peach, and these carried as well and sold for as much money as the others, but the dealers expressed a preference for the right hand pack on the score of attractiveness. A very fine grade of imported aspen excelsior was used. It was very white in color and soft to the touch, so that it answered the purpose admirably.

In order to prevent bruising the utmost care must be taken in handling peaches for export. If, for instance, in picking, packing and sorting the fruit is grasped with the tips of the fingers slight bruises are sure to develop at the points of contact, but if the whole hand is used the pressure is distributed over a wider area and no injury will result. Special instructions must be given the pickers regarding the method of packing the fruit for conveyance from the orchard to the packing house. We got

the best results by using the eleven-quart basket and putting only two layers of peaches in it, with a lining of excelsior on the bottom and between the two layers of fruit (see Figure 3). By this method the peaches were below the edge of the basket, and the latter could be stacked without any harm resulting. One grower sent in baskets with three layers of peaches, with the result that most of the fruit was bruised and could not be used. Another utilized a large crate, such as is used for vegetables, but the lower layers were all damaged by the pressure of the fruit above. For convenience in handling, to save expense on the other side and to prevent pilferage, three cases were crated together by means of four battens, two of which were tacked at each end (see Figure 4). This made an attractive package which was easily handled, and called forth words of warm approval all along



M. E. OLSEN
President Yakima Valley Fruit Growers' Association, North Yakima, Washington

the line from railway and steamship employes and from the brokers in Great Britain.

The cases cost five cents each delivered at St. Catharines in knock-down shape, and it cost about one and one-half cents a case to put them together, making a total cost of six and one-half cents each. The excelsior cost about five cents per pound delivered at the packing house. In order to get delivery in time it was necessary to ship it by express, which accounts for the high cost. If shipped by freight the cost would be lessened considerably. About eight ounces were used in packing each case, so that the cost of this material amounted to two and one-half cents a case. The printed tissue wrappers which were used would cost about one cent per case. The total cost of the package and packing material, therefore, was ten cents a case.

The degree of maturity at which peaches for export should be picked is of primary importance, but it is impossible to lay down any hard and fast rule on this point. Both experience and good judgment are needed to determine the proper time to pick the fruit, so that it will possess flavor, size and color and yet be firm enough to carry safely until it reaches the consumer in Great Britain—a period of from two and a half to three and a half weeks. In deciding this question consideration should be given to the following factors: (1) Whether the fruit is a quick or slow ripening variety, (2) the weather conditions in respect to temperature and humidity, (3) the time which may elapse between picking and loading into cars, (4) whether the fruit will be cooled before shipment or not, and (5) the number of days the fruit will be in transit. If peaches are picked while they are green and hard they will be flavorless and unattractive when placed on sale in Great Britain, and as a consequence will not sell at a profitable figure, no matter how sound they may be. On the other hand, if picking is delayed too long decay is apt to set in before the fruit reaches the old country, and the broker may find only a small portion of the shipment in a salable condition. Judging from the results obtained from these trial shipments it would appear that the Elberta variety especially should not be picked until it is well grown and possesses a tinge of red, but is still in a firm condition. A distinction should be noted between firmness and hardness. A green peach feels as hard as a bullet, while a more mature specimen, although firm, is not hard. After some experience has been acquired in shipping to distant markets the eye can be relied upon almost entirely to judge the degree of maturity, and the danger of injuring the fruit by inexpert handling will thus be lessened. The more mature the fruit the greater the care required in picking and packing, the more urgent the need of quick cooling at the shipping point and of rapid transit to market under a controlled temperature.

Continued in September issue.

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

E. H. SHEPARD

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FOREIGN SUBSCRIPTIONS, Including Postage, \$1.50

ADVERTISING RATES ON APPLICATION

Entered as second-class matter December 27, 1906,
at the Post Office at Hood River, Oregon,
under Act of Congress of March 3, 1879.

WE conceived the idea last April of getting out a dealers' number of "Better Fruit" to be published in July, to be followed in August by a number devoted to general information about associations. We believe the entire staff connected with "Better Fruit," in all times and in all places, has favored the association idea. The editor has visited many State Horticultural Societies' meetings and made special trips all over the country to deliver addresses on associations and co-operations, and we might add, hoping at the same time that we have done some good on these various trips we have made, that the expenses of the trips the editor has made, where he has talked on the benefits of associations, organizations and co-operations, have been paid personally out of his own pocket.

In view of all of these facts it seems consistent that we are justified in claiming to have helped the whole fruit industry of the Northwest. To anyone who is familiar with the facts, it is beyond our comprehensions to understand how the opinion should have been conceived that the editor of "Better Fruit" or the publication itself could be in any way considered as being antagonistic to association work. However, it may be possible that we may have been misunderstood, but we believe the growers in general throughout the entire fruit country appreciate the good work that "Better Fruit" has done and believe that "Better Fruit" is accomplishing much for the

fruit industry of the Northwest in particular, and the whole country in a general way. The editor spent two weeks in one valley advocating the policies which "Better Fruit" stands for, and which are evident to everyone familiar with the paper, and there are hundreds of fruit growers in the valley referred to who will verify this statement.

THE July edition of "Better Fruit" was given up entirely to dealers' point of view, the articles were written by them. The August edition presents the views of the fruit growers and associations, their objects, aims and policies. We published these two numbers feeling that they would be instrumental in bringing about a better understanding between the grower and the dealer.

"Better Fruit" has studied the matter of association work for several years. All people do not think alike and it is not certain that every fruit dealer is in favor of the association, but it is true that many fruit dealers prefer to secure their fruit through associations; for this they give many reasons, chief of which seems to be that they are sure of regular grades and guaranteed pack which they can divert at any time with perfect confidence. An association has a standing, in general, in the fruit trade that an individual seldom secures, or only when he ships immense quantities. So far as we know fruit dealers are making just as much money, and frequently more, when they buy through associations, because they get just what they pay for. On the other hand, associations have been successful, generally speaking, in getting up a uniform grade of quality fruit that sells at a better price. It is our belief that in districts where good associations exist that fruit growers make more money and the dealers who handle the fruit make more money than they do in districts which are unorganized. We believe sufficient evidence could easily be collected to convince any unprejudiced person of this fact.

WESTERN FRUIT JOBBERS' ASSOCIATION OF AMERICA

Office of the Secretary

Denver, Colorado, July 22, 1911.

Enclosed please find check for two dollars to cover subscription for two copies of "Better Fruit," beginning with the July number. I wish to take this opportunity to congratulate you on the splendid edition which you have just mailed. I believe that it will be appreciated by shippers, growers and jobbers throughout the entire country. The paper is not only published in a beautiful manner, but the reading matter is simply great. Wishing you every success, I beg to remain
Yours very truly,

W. D. TIDWELL,
Secretary.

WE were of the opinion that no central agency could be effected during the year 1911 to cover the states of Idaho, Oregon and Washington. Perhaps because we stated that no central agency could be organized, we were understood to mean that no district organization could be effective. We believe district associations can be organized in all localities and will be a benefit to the fruit industry in general. With local and district associations as units general co-operation will be found much easier than by trying to organize with individual growers as units. Just what the future will bring forth the editor of "Better Fruit" does not presume to say—he is no prophet nor the son of a prophet. The future is before us; the problem of marketing is the greatest problem before the fruit grower, and the problem is yet to be solved.

WE believe every locality would be benefitted by a good association, and those districts that are large enough to form district associations can bring about splendid results by harmonious action. Associations, if they accomplish nothing more than the putting up of a good grade of fruit by eliminating the culls, will secure a better price for the whole output of their district, and if the business is handled properly, the culls manufactured into vinegar and other by-products, much that would otherwise be a total loss will be turned into profit for the grower. Individual growers will not always use the great care needed to properly grade and pack their fruit, but the grower who belongs to an organization is compelled to.

SEPTEMBER number of "Better Fruit" will be a packing edition devoted largely to the packing of apples, and we believe it will be a valuable number for everyone. The object of "Better Fruit" is to benefit the fruit grower by giving him information on all improved methods in connection with the fruit industry, and to create a better understanding between the fruit grower and the fruit dealer, which we trust will be a universal benefit.

THE July number was a surprise to everyone who received it; it was original in conception and execution, something never before attempted by any publication in existence, and although the edition has only just been mailed out we are receiving more complimentary letters than we ever received for any other edition, all stating in various ways that the July edition is the best number "Better Fruit" ever produced.

THE August number should convince any doubtful person that "Better Fruit" is in sympathy with co-operation. We have published several editions devoted to association work, in these five years, giving the constitutions and by-laws, and general advice about organizations.

The Fruit Marketing Question Solved

Numerous articles have been published recently covering the matter of a suitable solution of the important question of properly marketing the rapidly increasing fruit crop. Many ideas have been advanced which theoretically appeared feasible, but practical demonstration has proven that the real solution of this problem is to place the fruit in the hands of thoroughly equipped marketing experts who make a specialty of this feature of the fruit industry.

We have conducted a car lot distributing business for the past number of years, and by honest dealing, coupled with good judgment, have made a success. This season we are even better equipped, having added to our staff several fruit salesmen whose ability cannot be questioned, and we are now in position to offer to growers and shippers a fruit marketing agency second to none.

One of the largest new accounts which we have obtained this year is that of the Grand Junction Fruit Growers' Association, of Grand Junction, Colorado. This association is the most successful growers' organization in the country today, and they have been doing their own marketing for the past fifteen years, but they realized that better results were possible by turning this part of the business to a reliable marketing agency, thus giving their management opportunity to confine their efforts to the matter of grading, packing, loading and shipping the fruit. It was natural that they should select the very best agency doing business today, and a contract was signed with Denney & Co. of Chicago.

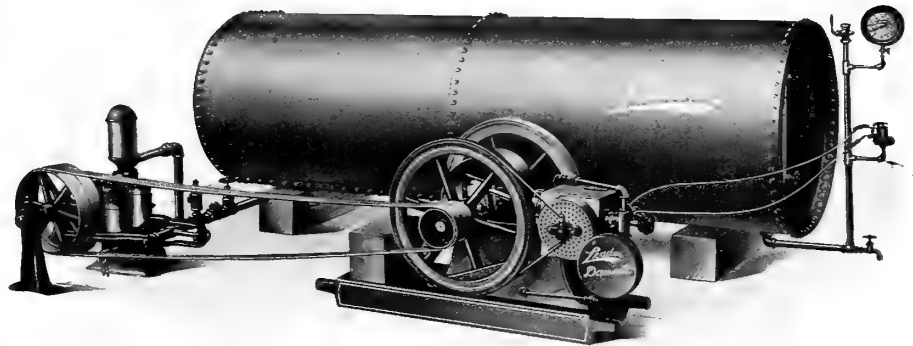
We will have a thoroughly equipped office located in Omaha, Nebraska, in charge of Mr. H. G. Fletcher, ex-assistant manager and general Eastern agent of the Grand Junction Fruit Growers' Association, covering the territory west of the Mississippi River and the South. Our general office, located in Chicago, in charge of Mr. John Denney, whose ability as a fruit distributor is well known, together with competent representatives located in all of the principal markets, giving us the opportunity of taking advantage of the very best markets at all times, we are in position to offer shippers and growers the very best service that marketing science can produce. We invite investigation as to our ability and integrity and solicit correspondence as to our manner of doing business and terms.

DENNEY & CO.

193 South Water Street

CHICAGO, ILLINOIS

Water Supply
Troubles
Unknown to
the Owner
of a



Leader Water System

You can enjoy, through the ownership of a LEADER WATER SYSTEM, the same water supply conveniences which are so much appreciated by city folks. And you may have them to even a greater extent, since there are no restrictions to bother the owner of a LEADER SYSTEM. You can have your bath, your sanitary toilets, all the water you want for domestic and sprinkling purposes. A LEADER WATER SYSTEM of suitable size will supply you with all the water you want under almost any pressure you want. Leader Tanks are tested to a pressure of 125 pounds. It is the system which is sanitary, satisfactory and sure. It costs little to operate and is practically troubleless. Write for our book, "THE QUESTION OF WATER," and folder showing homes in which the Leader Water System is furnishing satisfactory water service and opinions of users. Mention "Better Fruit."

FULL LINE OF

Pumps, Gasoline Engines, Wind Mills
Implements and Vehicles

Mitchell
LEWIS & STAYER CO.

Portland, Orego
Spokane, Washington
Boise, Idaho

HOOD RIVER COMMERCIAL CLUB

OF HOOD RIVER, OREGON

Respectfully requests each and every person interested in Hood River, or who may have friends interested, to request their individual grocers or fruit handlers to have on sale during the apple season the famous *Spitzenbergs*, *Yellow Newtowns*, *Ortleys* and *Jonathans* grown at Hood River. We request this because we want you to help us get the apples before a discriminating public so as to convince them of their superiority by a practical test. You are further requested to do this at once so as to insure your grocer placing his order in time to secure a supply in advance before they are all sold, so that he will have Hood River apples on hand when you want them.

Hood River Commercial Club



Secretary.

THE OREGON STATE FAIR FIFTY YEARS OF AGE

FIFTY years ago the sturdy pioneers of Oregon instituted the Oregon State Fair, and year after year, in decreasing numbers, they have made their annual pilgrimages to the fair grounds to witness the improvements that time and modern achievements have made to their original efforts. During all these years fair week has been a sort of home-coming event, where old acquaintances have been renewed and new acquaintances formed. In honor of the old pioneers and their customs Monday, the first day of the fair this year, has been designated as home-coming day, and every effort is being made to make the commemoration of the fiftieth anniversary fitting and complete. Woodman day (Tuesday) will be fittingly observed by the members of this growing fraternal order from every part of the state. The cabin which has been erected by the Woodmen will be dedicated on that day, and a diversified program will make the occasion one of pleasure and profit. Following the custom of years, Wednesday will be observed as Salem day and Thursday as Portland day. The German societies of the state will make Friday a gala day with a special program rendered by their members. The Germania Derby, for a \$1,000 purse, will be the racing event of this day. Saturday will be observed as closing day, for which a strong racing program, as well as other features, has been provided.

At no time in the history of the fair have the musical and carnival attractions compared with those offered this year. No better band than the Ferullo Band, which will be on the grounds for the entire week, has ever been engaged for a

like occasion in Oregon, and the Parker Show is the largest and best carnival company that has ever shown on the Coast. The free attractions will be many in variety and of unusual interest. Larger purses, faster horses and better track will make the racing events superior to anything ever seen in Oregon. Great interest is being taken by the county courts of the various counties, and the county exhibits will doubtless exceed in number and quantity such features of the fair in the past, while the live stock and poultry exhibits will be of especial interest.

In addition to the commodious grounds heretofore used for tents and buildings for residence during fair week an additional nine acres has been purchased, which will furnish additional accommodations for all who wish to take advantage of this feature. Every prospect for a better and greater fair is pleasing, and no detail looking to the comfort and pleasure of visitors will be overlooked. The Oregon State Fair will be held at Salem from September 11 to 16, inclusive, and for which reduced rates on the railroads are being arranged.

◆ ◆ ◆
THE MEDITERRANEAN FLY, otherwise known as the *Ceratitis Capitata*. This is one of the worst known pests and the most difficult to control in the fruit business. California is endeavoring to protect itself against the importation of the Mediterranean fly by making very rigid inspection of all fruits arriving from foreign ports where this fly is known to exist. In fact we have been informed that California has 19855 Bet Frt Morath 7-6-11 . . .34 placed embargo on fruits arriving from certain districts, with the exception of pineapples and bananas, which are supposed to be immune, the fly having not yet been known to attack these two varieties of fruit. There seems to be a lack of certainty about pineapples and bananas being immune, so it seems to us that it would be but wisdom to call the attention of the proper authorities at the different ports of entry that they may take all necessary steps to protect the Northwest against the importation of this fly by ordering proper inspection of all varieties of fruits arriving from districts where it may exist.

◆ ◆ ◆
WE are informed that Denney & Co. of Chicago will open their Omaha office about July 15. It will be in charge of Mr. H. G. Fletcher, who recently severed his connection with the Grand Junction Fruit Growers' Association of Grand Junction, Colorado, and is now associated with Denny & Co. This firm has been strengthening their marketing facilities all along the line, and it is evident they will be well equipped to secure satisfactory results for all fruits placed in their charge. Denney & Co. are making a specialty of distributing Western fruits in car lots, and by sparing no expense in securing competent men to handle the sales end instead of exerting all their efforts and money in soliciting

shipments from the growers, will no doubt enable them to carry out their desire to build up a reputation and business by results to the growers. They are of the opinion that the fruit growers are rapidly learning to discriminate between the marketing concerns of integrity and ability and those which are operating merely for their own financial gain. The general offices of Denney & Co. are located on South Water Street, Chicago, Illinois, right in the heart of the largest fruit marketing district in the world, which enables this firm to keep in close touch with market conditions, and the judicious use of the information gained by reason of their location is responsible in a large measure for the great success they have made of the fruit marketing business.

◆ ◆ ◆
A GREAT OFFER TO OUR READERS.—The American Underwriters' Corporation offers in this issue of "Better Fruit" a most remarkable book bargain. The Union Book Company, one of the largest publishing houses in Chicago, failed a short time ago and The American Underwriters' Corporation, acting as receiver, is closing out the sets they have left of the famous "Library of Universal History" at much less than the original price. "The Library of Universal History" is a massive work of fifteen volumes, bound in genuine English crush buckram. Each volume is ten inches high, seven inches wide and two inches thick. The complete set weighs nearly seventy-five pounds and contains over five thousand pages, one hundred double page maps and over seven hundred illustrations, many of which are in colors. It is one of the most handsome and valuable sets of books ever published, and the only world history on the market that can be procured at a reasonable price. The American Underwriters' Corporation offers to send this great set of books on approval, all charges prepaid, to our readers. This speaks well for their confidence in the set and the terms on which they are offering it. They will, upon request, immediately send a handsome book of sample pages, and if you think you would like to see the complete set they will send it at once, fully prepaid. You can keep it a week for examination, and if you should not wish to purchase you can return it at their expense. See page ad in this issue for further particulars.

◆ ◆ ◆
ELSEWHERE in this issue appears the advertisement of Security Ladders. From our investigation it appears that this line is destined to become very popular with the fruit growers of the Northwest. The writer has inspected a stock of these ladders at the Stewart Hardware and Furniture Company's store at Hood River with a view to verifying the claims made for them, and believes that he has found the acme of perfection in Security Ladders. The slogan, "Not a Nail in Them, Strongest Where Others are Weakest," as applied to Security Ladders is appropriate, and will cause careful buyers to make close investigation of the many economic features claimed for them. Security Ladder Co. of Los Angeles, California, the manufacturers, received the gold medal award on this line at the Alaska-Yukon-Pacific Exposition.

CREST SPRAY



A Heavy Miscible Oil
for Orchards and
Gardens

An Effective
EXTERMINATOR
of all Insect Life,
Germs and Vermin

We Guarantee
Results

CREST SPRAY is the result of scientific and practical experiments by the best phytopathologists and chemists.

Analysis: Tar and kindred products, Nauhthal, Pyroligneous Acid, Douglas Fir Oil, Phenols, Creosote, Turpentine, Resin, Sulphur and Soda.

DIFFERS FROM OTHER SPRAYS

Crest Spray is a soluble or miscible oil and mixes readily with water. It remains in solution, forming an emulsion. It is non-poisonous and harmless to operator. It requires no boiling or preparation like the Lime-Sulphur. Its use is a saving of time and money. Home-made Lime-Sulphur costs from 1½ to 2 cents per gallon. Crest Spray costs from 1½ to 3 cents per gallon. A gallon of Crest Spray has a covering power almost twice as great as Lime-Sulphur, reducing the most nearly one-half.

Scientific, Effective, Convenient, Economical

Barrels, 25 or 50 gallons, per gallon . . .	\$1.25
Five-gallon cans, per gallon . . .	1.35
One-gallon cans, per gallon . . .	1.50
Half-gallon cans, each . . .	.90
Quart cans, each . . .	.50
Pint cans, each . . .	.30

Testimonials sent on application

CREST CHEMICAL CO.

84 BELL STREET SEATTLE, U. S. A.

To the Jobbing Trade:

We cordially invite correspondence from all high class fruit jobbers relative to supplying their trade the coming season with the finest apples grown on earth. Our brilliant red *Spitzenbergs* for early *winter* trade and our beautiful *Yellow Newtown Pippins* for the *spring* trade are the two ideals of the Apple World, and for flavor, beauty and keeping qualities they are not equalled. Buy goods of *quality* and your trade will appreciate the same. Write

Hood River Apple Growers' Union
HOOD RIVER, OREGON

IMPORTANCE OF FRUIT MARKETING TO GROWERS

ADDRESS BY E. H. SHEPARD, EDITOR "BETTER FRUIT," AT WASHINGTON STATE HORTICULTURAL MEETING, JANUARY, 1911

AS nearly everyone else has had an excellent paper I feel very much embarrassed in appearing before you without one, and, therefore, feel that you are entitled to some explanation. I wrote what, to my mind, was a splendid paper for this occasion; I submitted it to my wife and she said, "You are not going to read that stuff, are you? Those people up there don't want a lot of high toned expressions and big words—go up there and try to talk a little sense, if you can; I don't know whether you can or not; when you see them yawning and scraping their feet on the floor and sliding out the door stop talking and sit down." Well, I don't think I'll have to talk long. Now, you married men will understand thoroughly. I presume you are all married; if you are not you ought to be; a single man hasn't any license to be a fruit grower anyhow, with these increasing crops and the necessary help that is to be required to market them.

I find, in looking over the program, that the subject has been pretty well divided into three phases: One paper on "The Individual Organization," another on "District Organization" and another on "A Co-Operative Association for the Entire Northwest," composed of three states. Now, as each of these subjects is covered by someone else it leaves me to deal with marketing fruit in a general way. Each year in marketing fruit we come up against new

problems, therefore I will not go into past history, but speak of a few points connected with marketing fruit, during the season of 1910 more particularly. I have had some experience in the fruit business, having been manager of the Hood River Fruit Growers' Union and a member of the board of directors for some years, and I think I know something about the business, but at the same time I want to say I realize that I know only a little. My first commercial ven-

ture as a boy was selling squirrel tails; I sold them to my father, and he paid me very generously in the beginning at ten cents per squirrel tail. I shot them with a gun, but powder and shot were expensive, particularly in my case, as I missed a good many squirrels, or a good many got into the holes after I shot them, so I had to devise some way to reduce the cost of production. I bought some traps, and then caught more than I had previously been able to shoot.



COTTON SCENE ON THE LEVEE, NEW ORLEANS, LOUISIANA, THE GREATEST COTTON MARKET IN THE UNITED STATES



SECTIONAL VIEW OF THE STORE OF RICHARDSON, HOLMES & LAMB COMPANY, LOS ANGELES, SHOWING ATTRACTIVE EXHIBIT OF FRUIT
An exhibit of this kind helps to sell the fruit. This is one of the finest wholesale fruit dealers' stores in this section of the country.

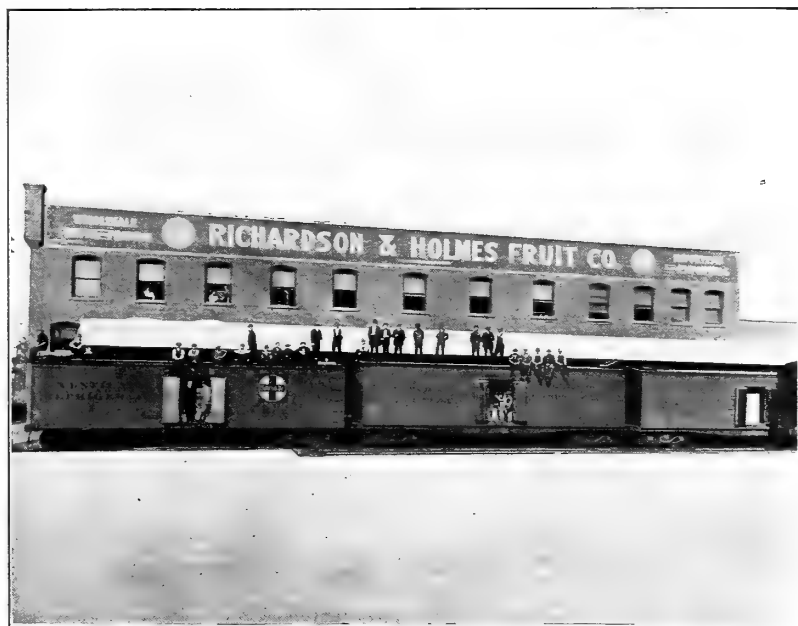
Father thought I was making too much money, and so he reduced the price from ten cents to five cents. "Well," I said to myself, "I have got to meet the situation," and so I went over to a neighbor and asked him if I could sell him squirrel tails at five cents apiece, and in that way extended my field. Now, this has its significance in the apple business today—in the fruit business in general. I think we have got to do two things: We have got to reduce the cost of production wherever a way can be devised for doing it, and we have got to increase the field of operation, or, in other words, create a wider distribution of our fruit and market our fruit in a more thorough and intelligent manner. With that object in view, which is the same object that each one of us should have, I want to talk of a few conditions that existed the past season, as I saw them. I don't want you people to assume that I am laying down any law, or that what I say is necessarily right—I simply submit my own opinions for your consideration, for your investigation.

I went East in July, 1910, to address the International Apple Shippers' Association, and soon after reaching the East I became convinced that we had a very difficult year in which to handle our increased crop in the Northwest. The main trouble, in my opinion, was not the enormous crop we speak about, but the financial disturbances during the past year all over the United States, largely due to political conditions. Now, I want to bring this point out with considerable emphasis, because I am under the impression that a good many people are scared to a frazzle about overproduction, which is not worrying me for one moment. I think this year's conditions and results are explainable in an intelligent way, so that any person can understand the situation with a very brief

explanation. First, you know we have had disturbances all over the United States in politics; in Oregon we had the assembly, the initiative and referendum, and in the East we had insurgency business, Cannon and Cannonism, Roosevelt and anti-Rooseveltism, a change from a Republican to a Democratic congress—not that I want to say that a Democratic congress is any worse than a Republican congress, but it is a change, and all changes are disturbing elements, at least for the time being. The very fact that capital anticipated money was going to be tight had a tendency to make it all the tighter, in fact it did make it

tighter; the banks, anticipating money was going to be tight or times a little hard, raised the reserves from fifteen to twenty-five per cent, as the case might require, and some to thirty and forty and fifty per cent. This simply meant that that much money was taken out of circulation. If banks anticipated hard times and followed this method, of course it made money scarce, and things got pretty tight, and when money gets scarce and things tight then we all are forced to economize in one way or another: that affected market conditions and the prices of our fruit, which was evidenced in many ways and proved by personal research and investigation.

A great many growers can't understand why some of the higher quality apples have been slow sellers in comparison with other years. As a matter of fact I think it can be stated without reflection upon any particular district high class, high quality varieties that commanded high prices in the past have been slower sellers the past year than the more medium quality grades. Not only was this true, but those higher quality apples, which the growers took great pains in growing, producing to splendid size by thinning, found that the splendid size was an element that worked against selling. There is a reason for it. First, if money is a little bit tight the man with a family, instead of buying a box of apples that contained 72, or 80, or 96 to the box, will buy the box that contains 125, or 140, or 150 at the same price. Why? Because one hundred and fifty apples will go further with the children than eighty or ninety-six. Now, as a matter of fact we do know positively that buyers of fruit to sell to the trade realized these conditions, and bought accordingly. I know of a case in Chicago where a dealer was offered Spitzenbergs, number one in quality, fancy, at two dollars a box, and he bought Spys



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propagated from selected trees in the most celebrated
orchards of this famous valley

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at a dollar seventy-five; the Spys, so a man who was present told me, were really ripe, almost off condition, while on the other hand the Spitzenbergs were in number one condition. Now, it wasn't quality with that man—he had to get something that he could sell at a low price; at the two dollar purchase price he couldn't sell his trade even if it had the quality.

The Eastern situation, I think, has had something to do with things. We are having opposition from the East throughout the great Northwest that exists not only in the apple business, in the fruit business, but in financial circles; the drain from the West on Eastern capital has been steady and continued, and some bankers in the East are advising their clients to loan their money in the East at four and five per cent instead of putting it out on Western loans, where they can get seven or eight per cent. I am told by financial men that the reason is that Eastern bankers are endeavoring to keep the money at home for the development of their own surrounding territory which pays tribute to their own business. Now, I don't mean to say that this is general, but there are a number of

instances where it is true without a doubt.

Our fruits are growing in favor. During the trip I made through the East the past year I found that dealers who never had handled box apples were now prepared to handle them, and consequently the distribution of our crop has been wider than ever before; I know that Wenatchee and Yakima, Southern Oregon, Southern Idaho and other parts of the Northwest have sold in territory never sold previously, and in Hood River, where I live, we have sold some

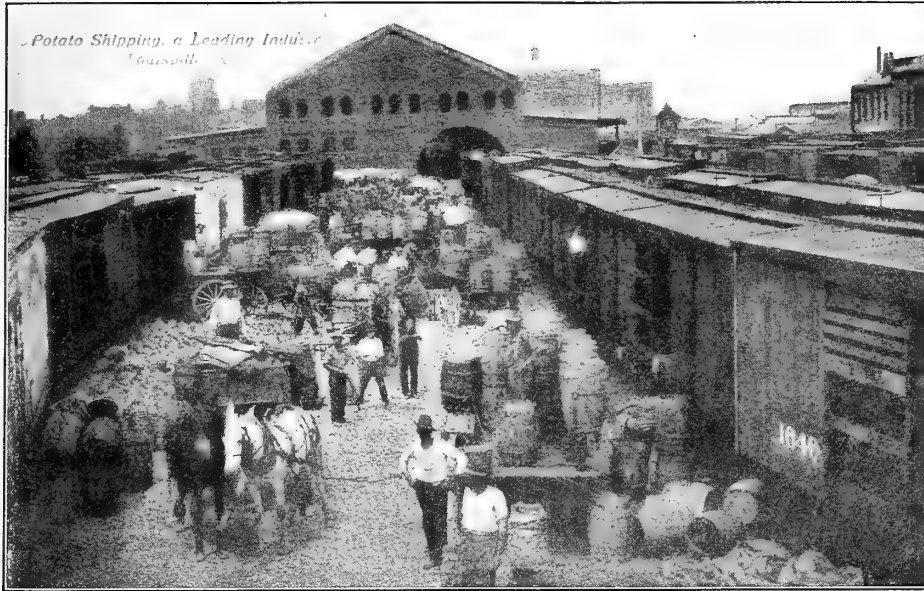
twenty-four different states, some sixty-eight different cities and some eighty-seven different buyers. That is distribution, and which is essential for us in the future. Through associations I believe we can create a better distribution than we can as individuals. The past year's marketing was affected through a lack of proper estimates by our individual selves and by our own associations. We did not anticipate as large a crop, generally speaking, and we were not prepared with proper connections. The result was that an immense amount of fruit, particularly



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POTATO SHIPPING, A LEADING INDUSTRY, LOUISVILLE, KENTUCKY

in the apple line, went on the market all at once; early fall apples, like Jonathans and some of the other varieties of earlier winter apples, went on the market at the same time. The market was continually pounded in the big centers by the winter apples piling right on top of those for immediate use. There seemed to be an impression on the part of a great many people that the best markets in the United States were Chicago and New York—I believe possibly due to the fact that Wenatchee and Yakima, Hood River and some other districts had credit for securing high prices in those two cities in the past. The result was so much fruit went on the New York and the Chicago markets to be sold immediately that those markets were actually crowded day after day, when other markets in other towns would have bought readily at anything like a fair and reasonable price.

There is an immense trade for our fruit if we can only reach it, and there were many instances the past year to prove that there are immense marketing opportunities outside of New York and Chicago. One of our growers went to a little town of fifteen hundred people in Iowa and sold a carload of Spitzenbergs and some other varieties; I don't remember the price of all of them, but the Spitzenbergs brought two and a quarter, a higher price than we got any place else. I have heard of several cases, which I don't just recall, that are similar, showing a number of towns where our fruit can be marketed that have never been reached before. Where towns are of any importance whatever we can get an increased business. Nashville, Tennessee, three years ago handled one car of Northwestern apples—the next year seventeen and the following year thirty cars. A city of seventy-five thousand, in three years, went from one car to thirty; that would be, in three years, thirty times as much business. I have no doubt in my mind that if the markets are properly worked we can reach an immense consuming public that has never been touched before.

I believe a good deal in being reasonable in prices. At home we asked two dollars and ten cents for our Spitzenbergs, and sold them at that; we didn't sell the entire crop for the reason that we sold what was estimated we would have at the time we made our sales, but the crop was perhaps fifty per cent or more greater than we anticipated, and so it left us with a quantity of Spitzenbergs and other varieties that we had not sold at shipping time; some of them we have sold since, but, as you all know, the market has been rather slow, and we have some on cold storage at the present time. I am satisfied in my own mind that if we had made the price on Spitzenbergs two dollars instead of two ten that we would have sold out long before this. There are certain principles in business that we speak of as "popular prices" which command the attention of the public; department stores realize this perhaps more thoroughly than any other class of trade. You never see a department store putting an article at

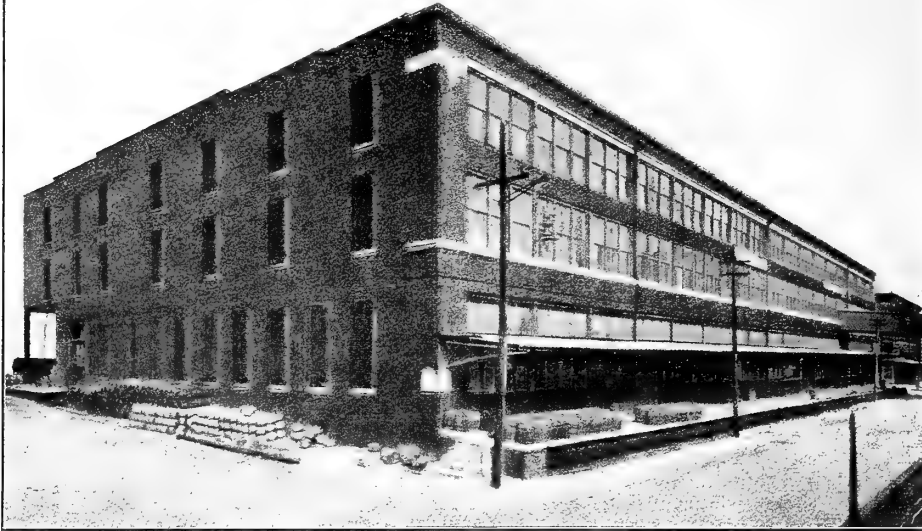
one dollar and five cents; it is either a dollar, or ninety-eight, or ninety-seven cents, and I think it is a mistake to put our fruit five cents over the even figure; better take the even figure, because, I believe, when you do it will increase the sale and increase the consumption of fruit.

A good many of us speak of the Northwest as being such an awful big fruit country and of the immense crop of apples that we have grown. Now, we haven't had such an awful big crop of apples the past year as a great many people imagine; we had something like fifteen thousand cars of apples, or less, from Oregon, Washington, Montana, Idaho, Utah, Colorado and California, inclusive, or from Colorado to the Pacific. At six hundred boxes to the car this would be nine million boxes, or three million barrels, which was perhaps only about one-eighth to one-tenth of the entire crop of the United States. In connection with that statement you must take into consideration the fact that we are a fruit producing country; including about seven or eight states, and we are only one-eighth of the number of states, we have produced about one-eighth to one-tenth of the quantity of apples in the United States. Every section of the United States in time, sooner or later, is going to grow and produce that which it can produce to the best advantage, that which it can produce in an economical way and command good money for. Only a few states are apple producing states. One riding on the train from the West to the East through Kansas and Nebraska doesn't have to know very much to observe that Kansas and Nebraska are corn states, and when you get up north from Chicago, on to New York City, through the northern portion of Ohio, you would immediately reach the conclusion that that was not an ideal corn section; so it is through the apple sections, or so-called apple sections, of many Eastern States—when we see them, with the quality of fruit on the trees and the way they compare with ours, we



THE FRUIT AND PRODUCE MARKET AT ST. LOUIS, MISSOURI

Linden Station-Wholesale District, Memphis, Tenn.



LINDEN STATION, WHOLESALE DISTRICT, MEMPHIS, TENNESSEE

realize that they are not keen competitors of ours for good quality of fruit; I don't mean to say that they cannot grow fruit, because they do grow fruit, and good fruit, but not the apples of quality that we grow.

These fifteen thousand cars of apples are not very many apples if properly distributed; figure it out for yourselves; six hundred boxes to the car and a hundred apples to the box, it gives you nine hundred million apples; there are ninety million people in the United States, and if our crop of apples was distributed so that the inhabitants of the United States could have one apple per capita per day they would eat up the immense over-production apple crop of the Northwest in ten days. If we could only create, through the associations and through us individuals, a proper distribution of our fruit I think the problem, in a large measure, would be solved.

One word about prices. I believe in a reasonable price, and I think in the past, although perhaps I will be misunderstood in making such a statement, that our prices have been high for general consumption. I believe that something should be done to bring about a reasonable figure in the retail selling prices of fruit. While in Washington, D. C., I had the pleasure of meeting and spending the evening with a senator who owns a large apple orchard. Near his residence in Washington is an Italian who keeps a fruit stand, in which he never carried more than about fifty dollars' worth of fruit in stock; that was his special business, selling fruit. After paying all of his store expenses and living expenses that man, on a fifty-dollar capital, sent three thousand dollars to Italy in one year. This is an exorbitant profit. Think of any retail business that will pay three thousand dollars on the small investment of fifty dollars; the profit is too great for us to permit to continue if we can prevent it; allowing it to continue means curtailment of consumption. Apples sold at a dollar fifty a dozen, not alone in big cities like New

York, on Broadway, but even in smaller cities, even in cities as small as New Haven, Connecticut. Apples from the Northwest have been sold at these unreasonably high prices, which prevents consumption. If something could be done to establish a retail price that is reasonable I believe it would be a great help to the fruit industry of the Northwest. If apples could be retailed—and they can—so as to give everybody a good profit all the way through, including the railroad, and we have got to take care of them because they take care of us, a family of four would only need to spend ten cents a day for fruit. Of the great class of men working in the factories and shops and at trades in the East, and there are millions and millions of them, there are few that could not afford ten cents a day for fruit, because nine out of ten of them will spend ten cents a day for two five-cent cigars, or ten or twenty-five cents for beer; so it doesn't look as if we were assuming anything unreasonable if we expect those families to buy our fruit if we make the fruit to them at a reasonable price.

I hear a good deal about cold storage. There is a certain amount of fruit that must go on the market at the marketing season; we can't put all the fruit in cold storage and hold it up for the trade in January, and February, and March—perhaps fifty, or I should be inclined to say, sixty per cent of the fruit has to go onto the market in the fall and early winter months. Now, we should use intelligence in marketing our fruit, selling those varieties first that are ripe and putting others in cold storage that will keep, and supplying the markets in proportion to their needs.

I have already taken up a good deal more time than I intended to—there are papers that I know are far more important—papers that mean great big things in the association line, and we have before us three or four different plans for our consideration. These are pretty big projects that are before us, and I have not the time, nor am I prepared to

discuss them, but I do want to say that I believe a great many good things will come through evolution; I believe that whatever is coming to assist us in marketing our fruit will be to a great extent a matter of evolution, and that the development of this field, this marketing problem, will come from units; I believe the units will be the associations in the individual districts; I think it is important to organize and get these associations in working shape. There are some districts, like the Yakima Valley, and others for that matter, where there are certain sections in that district that are not large enough to maintain a proper organization that would be effective as a selling organization, and, therefore, I can readily understand why it would behoove such districts to consider the plan of a district organization with a selling head that in no way need interfere with other existing organizations. There are two plans for marketing fruit through the associations, either as individual associations or district associations; and, again, through the co-operative association with a central head, which is controlled in every way and run by the growers; another way would be selling fruit from your associations or from the district associations, through some association that might be a commercial organization.

It is not within my province or my purpose to discuss all these things; they are too big for me to feel competent to advise you about or offer suggestions, but I believe they are problems that we have all got to face in the near future, and they are worthy of our consideration and merit discussion; and whether anything definite comes out of this meeting that we are having, or whether it is to come out of the meeting to be held later, remains to be seen; only the future can tell; whether we will get the immediate result that we are expecting or not I am sure we will be benefited, for I firmly believe that all such meetings, all such discussions are instructive, educational and developing. That is what we want—we want development of the marketing end of the fruit business—we want knowledge. We want ways and means that are proper to sell this fruit.

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The simplest and most efficient device ever made.

Contains no weights or springs. Does not even have to be oiled. First cost the only expense.

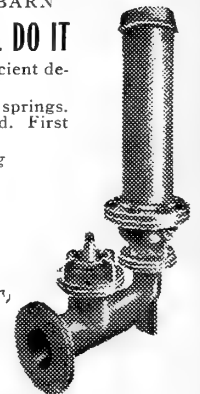
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NORTHWEST COMMERCIAL EXECUTIVES' MEETING

THE first meeting of the Northwest Association of Commercial Executives will be held at Boise, Idaho, August 23, 24 and 25, 1911. A very strong program is being arranged by the committee in charge and Boise Commercial Club promises something absolutely new in the way of entertainment. The Idaho State Press Association will also meet at Boise at the same time and there is reason to believe that the newspaper and commercial club men will succeed in having a good time. Among those who have accepted places on the program and the subjects assigned to them are Joseph E. Caine, secretary of Salt Lake Commercial Club, "The Troubles of a Commercial Secretary;" A. L. Sommers, secretary of the Tacoma Chamber of Commerce, "The Northwest Association of Commercial Executives;" C. C. Chapman, manager of Portland Commercial Club, "What Constitutes Good City Advertising;" Francis Hope, of the California Development Board, "The Exhibit;" W. B. Wells, of Sunset Magazine, "Railroads as Community Advertisers;" W. R. Rothacker, manager of Industrial Moving Picture Company, of Chicago, "Moving Pictures and Lantern Slides;" A. J. Breitenstein, secretary Missoula Chamber of Commerce, "Magazines and Periodicals;" J. E. Barnes, secretary Southwest Washington Development Association, "How the State in General Can Assist in Advertising its Resources;" Rufus R. Wilson, secretary Seattle Commercial Club, "The Efficient Secretary." A number of talks have not yet been assigned as the committee is making every effort to give to each executive to address the meeting that point which he is best able to cover. The commercial executives who have called the meeting intend that it shall be a school for those who are anxious to keep up with the times in the profession. All talks will be short and each will be followed by a general discussion in

which the views of the leader will be commented upon by the members. A strong feature of the meeting will be the round table discussions at the noon hour. A special luncheon will be held each day in the rooms of Boise Commercial Club at which only the members of the association will be present and different ones will be appointed every day to lead in the discussions of subjects close to the work of the commercial officer. Membership in the association probably will not be restricted to commercial club executives, but the officers of the ad clubs are expecting to be admitted also. The address of welcome will be delivered by Governor James H. Hawley of Idaho, and should Congress adjourn before that time, Senator William E. Borah will be on the program. The organization into a permanent association of those who are actively engaged in commercial club work is a very important step in the development of the Northwest. It will materially assist in bringing the different states closer together and will prove a great help to each individual in his year's work. The exchange of ideas should prove particularly beneficial to all, especially the secretaries in the smaller towns, who experience great difficulty in keeping themselves posted on what others in their profession are doing to advance the interests of their respective communities. The committee in charge of the program is A. L. Sommers, of Tacoma, R. W. Raymond, of Portland, and Reilly Atkinson, of Boise. The call to the meeting was issued at the last annual convention of the Oregon Development League, held at Salem, November 30,

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1910, and is signed by C. C. Chapman, Francis Hope, J. E. Barnes, A. L. Sommers, Reilly Atkinson and R. W. Raymond.

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Satisfactory references guaranteed.

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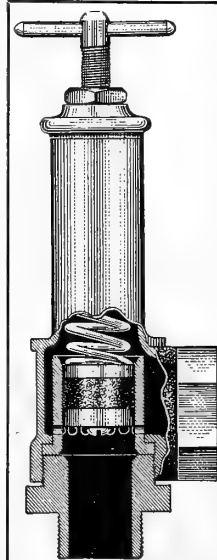
We have a large stock of the standard commercial varieties for the Northwest coming on for fall and next spring's delivery. It is being grown in a rich volcanic soil under irrigation in the famous Wenatchee Valley, by experienced men.

From a small beginning six years ago our business has grown to a half million plant this year. We must be delivering good stock and treating our customers right or our business would not make such a large growth in so short a time. Give us a trial order and we are satisfied that you will order again from us.

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THE YAKIMA VALLEY PLAN OF ORGANIZATION

BY J. H. ROBBINS, GENERAL MANAGER YAKIMA VALLEY FRUIT GROWERS' ASSOCIATION

CAN the reader imagine, in this day and age of organization and combines, an industry involving one hundred million dollars which has not, in self protection, been thoroughly and efficiently organized—yet this is the unfortunate position of the fruit industry of the Northwest. The estimated value of the orchard trees of the States of Oregon and Washington alone, at ten dollars per tree when in bearing, say within the next six years, will reach the stupendous sum of over one hundred million dollars. Someone has truly said that "all harmony is the result of co-operation, whether it be of human effort or of the laws of nature. The seasons and conditions must co-operate to produce our fruit. Without co-operating there is lack of harmony and discord and failure in everything. The co-operation of mind, will and body makes man and the works of man. The co-operation of men makes communities, sections, nations; the individual man is a helpless unit, an atom on the sea of existence. The co-operation of a body of men in a community makes for strength, and that strength is just in proportion to the strength of the co-operation of the community for the good of the community. When any community is imbued with the single spirit that the injury or success of one is the concern of all it becomes a community of great strength. The co-operation of many communities produces a nation, and the strength of the nation is in direct proportion to the co-operation of the individual units comprising that nation for the welfare of the nation."

In view of the lack of organization and the haphazard manner in which an industry was being cared for involving the enormous wealth represented by the three and one-half million fruit trees now growing in this valley between Ellensburg and Kennewick—thirty-five million dollars when reckoned at ten dollars per tree, which will be a fair valuation when in full bearing, and in view of the confusion and generally demoralized and chaotic conditions existing during the marketing season of 1910, when there was shipped from this valley 4,100 carloads of fruit and when some 200 or more carloads of peaches were permitted to rot on the ground for the lack of a profitable market, our growers became so thoroughly aroused to the necessity for better marketing facilities and for a wider and better distribution of their orchard products that they met in mass meeting, appointed committees and proceeded to organize a co-operative association upon a sufficiently comprehensive basis to insure a wider distribution, better efficiency, greater economy and other needed reforms in all matters pertaining to their industry. Thus came into existence on November 9, 1910, the Yakima Valley Fruit Growers' Association. Like the Orange Growers' Exchange of Los Angeles, the California Fruit Exchange of Sacramento, the

Georgia Peach Exchange, Florida Citrus Exchange and all other successful co-operative associations of this country, it was organized in obedience to a general demand on the part of fruit growers in their search for relief from conditions that threatened the very life of their industry. The plan of organization is based upon "co-operation, not opposition;" it is planned from top to bottom for the common good of all of its members, dominated and controlled absolutely by the growers themselves, involving a system simple in arrangement, yet thoroughly democratic in its operations and relationships, one in which no corporation nor individual reaps either personal profit or private gain.

The Yakima Valley plan copies closely after that so successfully worked out and adopted by both the citrus and the deciduous fruit growers of California, where, after trying various expedients, they finally succeeded in working out the details and placing in operation the most successful co-operative fruit marketing agencies in the known world. We hold that any proposed system covering distribution and marketing that does not aim to cheapen our fruit to the consumer as well as to maintain or increase the net profits to the grower is based upon wrong principles. From the grower's standpoint this can only be accomplished through the elimination of all unnecessary middlemen's profits and

the proper division thereof between grower and consumer. The essence of the whole subject is distribution, and proper distribution can only be guaranteed through those channels which control the tonnage; the whole of this being in the hands of the growers themselves, it would seem that they were not only in the best position but were the only ones who could safely guarantee anything like a satisfactory distribution. The combined growers' interests not only embrace the whole product, but cover the whole territory, and extend throughout the whole season and each succeeding season, thereby securing due consideration to the importance of maintaining a high standard grade and pack on account of its bearing upon the markets of the future. Another cardinal provision of the plan is that all fruit shall be marketed on a level basis of actual cost, with all books and accounts open for inspection at the pleasure of the members. The basic principle of our plan is that none but growers themselves shall ever have control over the affairs of the association. No officer or trustee is permitted to hold any office or other position in the employ of any other association, organization or firm engaged in the same line of business, or in competition therewith for profit. Any officer or trustee accepting such position or employment becomes disqualified, and his office or position is instantly forfeited.

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INCORPORATED

LOUISVILLE, KENTUCKY

Local units or district associations are formed by growers contiguously situated in the several fruit sections of our valley, who unite themselves for the purpose of preparing their fruit for market on a co-operative basis. We at this time have thirteen of these units or district associations, covering the entire Yakima Valley from Naches and Selah to Kennewick, each a separate and distinct corporation, governed by its own officers and separate board of trustees. Full freedom is retained by these several district associations over all matters of local concern. They retain their own separate identity, elect their own officers and have absolute control over their own separate affairs not in conflict with the laws and rules of the central association; the latter, however, must, and does, retain absolute control over all questions relating to grade and pack. Each local provides its own warehouse or shipping facilities. These may be elaborate or simple, according to the requirements of the several locals. The theory being that each separate local is its own best judge of the expenditures it should be required to make, and that no one local shall be taxed for the support or equipment of any other local. Each district association annually elects two representatives to the central association, and these form the board of trustees and sole membership of the central association, each having equal voice and power with all other trustees in the government of the central organization and all of its affairs. The policy making and govern-

ing power of the organization thus forever remains in the hands of the local or district associations. All danger of its power or policies being diverted or too greatly centralized is thus avoided. The central organization is maintained as a marketing agency and clearing house only, with full supervision over all questions of grade and pack. In effect the central takes charge of the car after it is loaded by the local, looks after the transporting, re-icing, diversion and marketing, collects for all sales and properly distributes the proceeds, maintains an adequate claims department and vigorously prosecutes all claims for damages arising from any cause that will justify making a claim, and in general serves as a clearing house for the several districts or local associations.

Each grower, early in the season, makes requisition upon his local or district association for the necessary supplies, including box material, paper, spray, etc. Each local in turn makes a requisition upon the central for the gross amount of its supplies, which enables the central to contract in large quantities at a great saving to the individual grower.

These supplies are shipped direct to the several locals for distribution, no central warehouse being maintained. It is not contemplated that the central association itself shall ever establish or maintain warehouses, canneries, driers, ice plants and the like, but that these, when deemed advisable, shall be established and maintained as subsidiary organizations by and through the united action of such local associations as may be directly benefited and shall desire to contribute toward the establishment of the same, to the end that no one district shall be taxed for the benefit of another without its own consent.

Any person who is owner or lessee of lands set to any kind of merchantable fruits or agricultural products may become a member of the association. Each member is required to enter into a contract with his local association appointing the central association as his agent and representative to sell and market all fruit grown by him, binding himself to deliver to said local for sale through said central association all fruits raised by him during the life of the said contract.

NEW RESIDENTS

We are always pleased to extend courteous assistance to new residents of Hood River and the Hood River Valley by advising them regarding any local conditions within our knowledge, and we afford every convenience for the transaction of their financial matters. New accounts are respectfully and cordially invited, and we guarantee satisfaction. Savings department in connection.

HOOD RIVER BANKING AND TRUST COMPANY HOOD RIVER, OREGON

CAPITAL STOCK \$100,000 SURPLUS \$22,000

FIRST NATIONAL BANK

HOOD RIVER, OREGON

F. S. STANLEY, *President*
J. W. HINRICH, *Vice President*
E. O. BLANCHARD, *Cashier*
V. C. BROCK, *Assistant Cashier*

ESPECIAL ATTENTION AND CARE GIVEN TO BUSINESS DEALS FOR NON-RESIDENT CUSTOMERS

Thorough and Conservative

Assets over \$500,000

Savings Bank in connection

LESLIE BUTLER, *President*
F. McKERCHER, *Vice President*
TRUMAN BUTLER, *Cashier*

Established 1900
Incorporated 1905

Butler Banking Company

HOOD RIVER, OREGON

Capital fully paid \$50,000 Surplus and profits over \$50,000

INTEREST PAID ON TIME DEPOSITS

We give special attention to Good Farm Loans

If you have money to loan we will find you good real estate security, or if you want to borrow we can place your application in good hands, and we make no charge for this service.

THE OLDEST BANK IN HOOD RIVER VALLEY

LADD & TILTON BANK

Established 1859

Oldest bank on the Pacific Coast

PORTLAND, OREGON

Capital fully paid - - - - \$1,000,000

Surplus and undivided profits - - - - 800,000

Officers:

W. M. Ladd, *President* R. S. Howard, Jr., *Assistant Cashier*
Edward Cookingham, *Vice President* J. W. Ladd, *Assistant Cashier*
W. H. Dunckley, *Cashier* Walter M. Cook, *Assistant Cashier*

INTEREST PAID ON TIME DEPOSITS AND SAVINGS ACCOUNTS

Accounts of banks, firms, corporations and individuals solicited. Travelers' checks for sale, and drafts issued available in all countries of Europe.

Since we are organized under the non-profit taking section of our statutes and have no capital stock to be assessed, and no other provision providing for a substantial asset or surplus fund except through the gradual accumulation of such commission charges as may from time to time be established, we provide for a limited loan of collateral security to be furnished by each grower in proportion to the acreage he may have planted to trees. While this obligation is sufficiently restricted to insure its not becoming a burden upon any individual grower, yet in the aggregate it gives to the association a solid and responsible backing, entitling it to a substantial rating with all commercial and credit rating agencies, and with the business world. A commission charge, established at seven per cent for the present season, is each year established by the board of trustees of the central association sufficient to cover the operating expenses of the organization, including the salaries of its employes, agents, salesmen, telegraphing and all other costs incidental to marketing and otherwise falling under the jurisdiction of the central body. Each local association makes, or may make, such charges as it deems necessary to cover loading charges and other necessary expenditures of the local.

Provision is made for withdrawal of contracts upon a specified date each year, but only members with live contracts have any vote or voice in the management of the association, thus insuring freedom from the too frequent complaint made regarding the usual stock company that non-contracting members oftentimes are enabled to control the policy of their company against the best interests of contracting members. Each trustee represents a community, and his actions respecting all proposed laws, rules and other questions of vital concern are, by reason this relationship, both deliberative and devoid of personal preference or favoritism, which is another strong point in favor of the unit or district system. All bars are effectually laid up against official or employes' abuse of position, against all efforts on the part of any official, clique or faction in their attempts to perpetuate themselves in power. Its every relationship is mutual and co-operative in fact as well as in name. It is thoroughly departmentized, with an expert in his particular line at the head of each department. A sales manager of wide experience attends to the marketing and all questions concerning grade and pack. The traffic manager, with many years of experience in railroad traffic and refrigeration, directs the routing, checks our expense bills and maintains a thorough claims department. An experienced auditor supervises the

accounting. A field superintendent, passing from district to district, will supervise all local inspectors and pass upon questions of grade and pack. Our machinery has been most carefully constructed with a view of guaranteeing to our members both efficiency and economy in the conduct of their business.

For the aid and assistance in the working out of these many problems we are heavily indebted to the officers of the California Fruit Exchange, with which we occupy very close working relations, they having rendered us substantial assistance in arranging our marketing connections in addition to the special arrangements through which they furnish us daily with most valuable market information. By reason of their assistance and many valuable aids we are thus enabled to eliminate everything in the nature of an experiment, and present to

our growers a proven and well tried out plan and policy fully demonstrated through years of successful operation.

While our association is yet new, it is nevertheless in complete and successful operation. The thirteen district associations, for which the central association acts both as a marketing and purchasing agent, and for which it serves in the capacity of a general clearing house, are all working together in perfect harmony and unison. For them it has thus far marketed this season 926 separate shipments of early fruits, berries and other products, and during the same time has purchased and distributed many carloads of supplies at a very material saving over former prices. What we have done in the Yakima Valley we hope to see done in all the natural divisions of the Northwest, and they all come together in one central exchange.

Order Direct and Save Agent's Profit

Why not order your nursery stock direct from us, and save that 25 per cent commission which most nurserymen allow their salesmen? The price we name for our stock is a price based on actual growing cost, plus our one small margin of profit, a price eliminating all traveling men's expenses, dealers' profits and agents' commissions. Write us before placing your order.

DONALD NURSERY COMPANY, Donald, Oregon

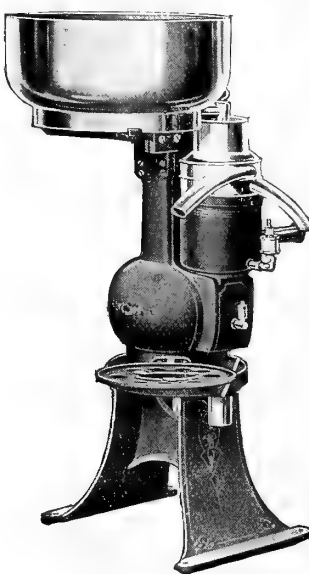

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More Progressive Than Ever

Results Better Than Ever
Attendance Larger Than Ever

ATTEND THE BEST

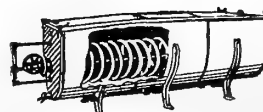
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PORTLAND, OREGON





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Standard Varieties.

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C. D. THOMPSON, Hood River, Oregon

THE CO-OPERATIVE CENTRAL MARKETING AGENCY

BY LARNED B. MEACHEM, WALLA WALLA, WASHINGTON

THIS is not a story so much as a message. My purpose is to herald the news that the long sought and much talked co-operative "central" has in all probability come. Not yet, of course, full grown, but here. It matters not how impossible its critics declared it, nor how timid its friends may have been, it is a fact, a very real fact, from now on. And in describing it and its spirit and workings, I am charged by its sponsors, first of all, to say to all growers: "Come in." They are not building it to be their central any more than your central. It is not designed to become in the slightest way exclusive, but in every way inclusive, and all are invited, in the truest fraternity, to share without restriction every benefit implied. Of course, you who read this are a normal man and enjoy association with neighbors who are likewise normal men, and both you and they recognize and welcome the necessity, in this age, of the individuals in every calling getting together for mutual advantage and to avoid mutual disadvantage. By you, then, and by them, this message may be read with greater good if a generous self-interest shall at once impel the thought, "our central," to take lodgment in your mind.

It has cost a great deal of money and a vast amount of effort to bring this nucleus of the apple exchange into being, but the expenditure was unselfishly made for the general good. It was made on the theory that somebody had to volunteer the pioneering and constructive work or all must suffer the certain disaster of indefinite delay, and to the extent that these specific pioneers would lose in the resulting chaos their benevolence may be measured as no more than a sensible foresight. They felt that they could not continue to flock by themselves and live, so they undertook to federate a larger, stronger flock.

Now for the details. Elsewhere in this issue the working plan of the Yakima Valley Fruit Growers' Association is fully set forth. Their organization, positively the strongest in the whole Northwest, is fully manned, their markets are established, their machinery is ready, their spirit is right. Please note that I use the personal pronoun rather than the usual corporation "its"—and this is done advisedly, for the organization at North Yakima is made of a live, red-blooded, human sort of men, whose interests are identical with yours, and whose ideals are quite similar. They represent themselves and their neighbors, not some far-away "interests." Their vision is keen for the welfare of the apples that their brain and brawn have grown, not alone for the present year, but all the years to come, for each man's apple orchard is his family treasury. With them, then, a peculiarly personal aspect makes the doings of the Yakima union their doings rather than its. And, too, the word has a more brotherly sound.

Their fullest aim is co-operation, pure, unalloyed man with man co-operation, and not a cent of gain is now or ever can be sought, for they've written in their charter "not for profit." They are selected men, picked by other men from the ranks, or more properly, from the front rank of the largest of all our great districts. They are "old timers;" they know the apple trade in every phase; they know their own needs and your needs, for your needs and their's are the same. There are twenty-six of them, these men of Yakima, two each from thirteen districts, for the valley is a big one. It is bigger in fact than some whole states; so big that the different ends and sides and sections, before they got acquainted, used to "scrap," but now their slogan is "all for all"—they have learned to pull together and to win.

Well, these twenty-six men, as directors, are the association, each owing allegiance to his home constituency, which is held together by a local, or, as they call it, a district union. Under the directors, and in immediate daily contact with and control over the entire organization, is an executive committee of seven members. Under them is the general manager, Mr. J. H. Robbins; the sales manager, Mr. C. C. Waite, and the traffic manager, Mr. J. T. Ronan, and as these are the men you need to know let me say, briefly, that each was sought out with the greatest care, and was retained only after the strictest investigation proved him to be just the right man for the place. All of them are high priced, too, but their ability to make things come to pass, and the fact that each has done it elsewhere with eminent success, makes the salaries, after all, quite low. Each of these men is big enough to fill his place and do his part even if that should mean to handle every apple from the whole Northwest. And it was just for this the men of Yakima deserve your thanks. They have assembled an organization of utmost efficiency at greater cost than any other district would or could have dared, and they have done it with the thought, at every step, that sooner or later the "central" must come, and that when it did come a strong working force would be needed, and they would contribute these men as the leaders and they themselves fall back into the ranks.

Such is their attitude, but even more. The "central" must grow; it cannot stand, full statured, in a day. To grow at all, however, it must have all of its departments and efficiencies in force, in fullest operation, from the first. But this is too costly. "Therefore," say these men of Yakima, "we will pay the bill. All of the risk shall be ours. We will maintain the organization, underwrite all losses, render service without partiality and guarantee to each and every district that will join us the most complete and efficient marketing arrangement yet afforded—and we will do it, too, at actual cost, with the definite limit that it will not exceed seven per cent." Here

is a challenge, Mr. Grower, that must compel your respect. In a nutshell, it means simply this: Get busy with your neighbors; organize a local union, if you have not one already; make it co-operative; admit growers only; provide for rigid inspection and apply to the Yakima Valley Association for a marketing contract to cover your business this year; other fruits as well as apples, if desired. If you are timid about the future never mind, sign only for this crop and try it out; Yakima is paying the bill. If you are satisfied with the trial you may then go ahead for 1912, as a part, equal with every other part, of the central exchange that will begin business in its own name next year with a twelve months' record already to its credit, and when the central opens, North Yakima, with usual generosity, will not dictate where the headquarters shall be.

Now, this is easy, isn't it? A little risky for Yakima, you may think, but they are willing. And, after all, there isn't any risk that can in the slightest way compare with the disaster that is impending for Yakima and every other section if, as the vastly increasing acreage comes to bearing year by year,

S. E. Bartmess

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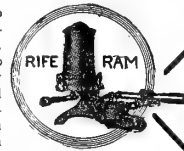
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Supply Water for Fruit

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Rife Rams.

Costs little to install—nothing to operate. Raises water 30 feet for every foot of fall. Land lying above canal or stream supplied with water. Pumps automatically day and night, winter and summer. Fully guaranteed.



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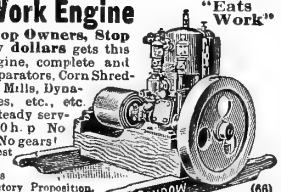
If there is a stream, pond or spring within a mile write for plans, book and trial offer, FREE

RIFE ENGINE CO., 2525 Trinity Building, NEW YORK

Let SANDOW Run It!

Wonderful Work Engine

Farmers and Shop Owners, Stop Sweating! A few dollars gets this grand little work engine, complete and ready to run Cream Separators, Corn Shredders, Grist Mills, Feed Mills, Dynamos, Printing Presses, etc., etc. Gives a lifetime of steady service! All Sizes: 2 to 20 h. p. No cranking! No chains! No gears! Only 3 moving parts. Finest construction. Thousands in use. Guaranteed 5 years. Write for Special Introductory Proposition.



DETROIT MOTOR CAR SUPPLY CO., 238 Canton Ave., Detroit, Mich.

no co-operative program is worked out. What California experienced is headed this way. How they met the issue is well known. The Yakima plan is built on identical lines; it has been studied by the experts of the California exchange, is approved by them as "safe, sane and conservative" and has behind it every ounce of their moral support. It has, too, at this writing, already won the support of a sufficient number of representative local unions, not only in Washington, but in Oregon and Idaho as well, to assure the success of its contract plan and to guarantee to it a larger tonnage, by far, than has ever been controlled by any single management in the Northwest states. Its distribution arrangements, already definitely contracted in all desirable market centers, have never been equalled.

With the exhaustive discussions of the winter meetings, the marketing problem came from the talk stage into the realm of action. It was shorn of all its mysteries, pruned clean of every doubt, brought forth as the living issue of the day. There is no need for longer wait-

ing; postponement can do no good. There are no side issues, no entanglements, no pitfalls; nothing ahead but loyal, intelligent, co-operation. The grading problem, the storage problem and that of distribution—all will be solved the sooner by mutual cohesion. Every interest dependent upon the stability of values owes allegiance to this cause. Good authority concedes an early yearly output of 100,000 cars of apples from these Northwest states—about ten times the present yield. Every acre planted is aimed to add another car; some will and some, of course, will not, but the land man is still selling and the nurseries grafting roots. But all is well and as it should be—if the growers organize. The Yakima plan points the way. It proposes no pool, no trust, no combine. Each and every grower retains identity. Every district's product may retain its local brand. The stimulus to excellence is in no way curtailed. In every way it's right. Your part is to write them, or, better yet, take the train and get a first hand view, and catch the spirit of these men of Yakima.

CO-OPERATIVE MARKETING CONTRACT FOR 1911

Offered by Yakima Valley Fruit Growers' Association as Basis for Preliminary Organization of Central Agency.

This agreement, made and entered into this.....day of....., 1911, by and between the Yakima Valley Fruit Growers' Association, a corporation organized under the laws of the State of Washington, with its principal office at North Yakima, Washington, party of the first part, and....., a corporation organized under the laws of the State of....., with its principal office at....., parties of the second part, witnesseth:

Whereas the party of the first part is an association formed for marketing fruit for growers, and has perfected a comprehensive system of marketing agencies for the handling and selling of fruit and other products for the growers who are members of said association, or of district associations which hold memberships in said association, and the party of the second part is an organization composed of persons engaged in growing fruit for market; and

Whereas the parties hereto desire to enter into an arrangement whereby the party of the second part can temporarily have the advantages of the selling agencies of the first party;

Now, therefore, in consideration of the premises and the mutual advantages to be derived herefrom and the covenants herein contained, the parties hereto do covenant and agree with each other as follows:

1. That the party of the second part, or its members, will, at its or their own expense, pick, pack and load in accordance with the regulations of the first party, and deliver to it, or its order, f.o.b. cars at the loading station of second party, all carload shipments of apples grown by its members, or under the control of the second party, and will supervise the grading and packing of all apples so that the same shall conform to the specifications adopted at Walla Walla on March 1 (a copy of which is attached). It being understood that the party of the first part may designate the individual to be employed by the party of the second part as supervisor or inspector of grade and pack, to the end that a uniform high standard be maintained throughout all districts co-operating under this arrangement.

2. That the party of the first part will accept all such shipments offered to it by the party of the second part, upon due and proper notice, and will route and distribute the same in the same manner and without partiality or preference, and with equal diligence and attention, as it does any other shipments handled by it. That the first party will obtain for the second party the best price obtainable for apples delivered to it for marketing by second party and will promptly remit to the second party the proceeds of each sale as soon as the same are received by the first party at North Yakima. The party of the first part to deduct from the proceeds of all sales made by it for the second party, seven per cent (7%) of the gross amount received, to cover the expenses of handling and marketing said fruits, said deduction to be made before remitting to the second party.

3. That the party of the first part will at all times extend to the party of the second part all benefits and advantages which are enjoyed by its own members or by any other association with whom it may contract. If at the end of the season there shall be on hand any funds, over and above expenses, which are distributed to the members of the first party, a proportionate amount will be returned to second party. It being the spirit and intent of this paragraph that the fullest measure of mutuality shall prevail as between all parties in interest.

4. That the party of the second part will co-operate with the first party and use its best endeavors to facilitate and expedite the shipments and sales undertaken by the first party, and agrees to furnish to it, as promptly as practicable, all advance information obtainable respecting varieties, grade, pack, date of ripening and quality of fruit to be shipped.

5. That the first party will furnish to the second party a copy of each account of sales rendered to it by its selling agents which shall relate to shipments of said second party, and the originals thereof, together with all other records and accounts of business transacted for the second party, shall be at all times open to the inspection of said party, or its representatives.

6. That the second party shall have the option, if it desires, at any time to order any of its shipments put into storage and held for such period as it shall direct; all charges and costs connected therewith to be paid by the second party, in addition to the charge to be made by the first party, as above provided.

7. That the party of the second part, or its members, may use any individual or other brand or label upon their packages that they may choose, and all shipments made by them shall be marketed in such manner as to retain identity.

8. That the party of the second part shall have the use of the claim department of the first party under the same conditions and at the same rates as charged to members of the first party, said charge being now fixed at 15 per cent of all amounts recovered.

9. It is the intention of this agreement that it shall form a nucleus for a combination of associations working together for the mutual benefit of their members, with the ultimate view of forming a general selling agency for the co-operative associations throughout the State of Washington.

10. This agreement shall continue during the marketing season for fruit grown in the year 1911, and may be continued thereafter from year to year by mutual agreement of the parties hereto, their successors or assigns.

In witness whereof, parties hereto have executed this agreement in duplicate, the date and year first above written.

YAKIMA VALLEY FRUIT GROWERS' ASSOCIATION,
By General Manager
..... FRUIT UNION,
By

Are You A Quality Man?

When you go into a store to get a suit of clothes do you say to the salesman, "I want a good suit of clothes," or "I want a suit of clothes that will cost me about eight dollars"? Is the price your one and only thought, or do you give some consideration to quality? The thought which is uppermost when you go after a suit of clothes is the same one that will be uppermost when you go after nursery stock. We can supply you with nursery stock of unquestioned superiority, at a price which will please you. If you are the "Quality" man, you want our catalog, and we want your business. Let us show you what we have.

WE NEED MORE SALESMEN

If you can sell trees, we want you with us, and you want us with you.

Toppenish Nursery Company

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Unsurpassed nursery stock grown in the famous Yakima Valley

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(Twenty-five Miles South of San Francisco)

The school is trying to do for the moral and physical, not less than for the intellectual, welfare of each boy what a thoughtful parent most wishes to have done. Contributing to this end are the location of the school, removed from the temptations and distractions of town or city; the fineness of the climate, the excellence of its buildings and other equipment, and the beauty and extent of its grounds, with the wide range of foothills surrounding them. We are glad to have our patrons and graduates consulted. For catalogue, booklet and further specific information address the head master, W. T. REID, A. M. (Harvard) Fall term begins Aug. 14th.

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Fruit growers or apple growers and dealers of the Western markets in and around Portland, who have watched the markets closely for the past few years, have learned that in the spring there is always a good demand for apples, and that they usually bring good prices if they are in good condition. There is only one way to keep them in good condition for spring consumption, and that is to put them in cold storage.

We offer the best of cold storage facilities in the city of Portland and solicit correspondence from all the associations and fruit growers in general who want to store fruit in the fall or early winter to be used in the spring.

Write us and we will give you further particulars.

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APPLES!

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508 Columbia Building
Louisville, Kentucky

MARKETING THE NORTHWESTERN APPLE CROP

BY C. A. MALBOEUF, SECRETARY NORTHWESTERN FRUIT EXCHANGE

VARIOUS causes have been suggested for the disappointing returns that the apple growers of Oregon, Washington and Idaho received for their apple crops last year. Better quality of the Eastern product, better pack, a combined prejudice by the Eastern trade against the Western apple, abnormal yield on the Pacific Coast, and other physical and commercial conditions have been advanced as the responsible factors. That many of these features had some part in the general result is not to be denied, but that they were largely incidental rather than instrumental is also a fact. This is particularly true with respect to the improved character of the Eastern apple and what proved to be the record crop of the Pacific Coast; the former was certainly not formidable enough to have effected the marketing ability of the latter to a much greater degree than it had done during the previous years, and it is just as illogical to attribute the mere physical fact of increased production in the Northwest orchards as the occasion for the demoralization which the season developed. While the Eastern quality was better than it had been for some years, this was the inevitable result of the awakening spirit throughout its fruit sections in order to meet the Western competition; the improved pack was a step in co-operation with the better methods employed in the orchard, and the lining

up of their forces against the Pacific Coast apple represented the commercial side of the situation. In other words, the East had been steadily preparing to meet the increasing competition of our products because of the great inroads they had been making into their markets. The introduction of a new article of superior quality and pack had created a high class demand unknown before the advent of the Western boxed apple, and stirred them into the necessity of commercial retaliation. These were some of the obstacles that the Northwest growers encountered at the opening of the season, which should have been known in advance, but were not the definite causes. The competitive struggle between the Eastern and Western apple was a natural consequence in 1910, for the reason that both crops had reached their maximum in volume, at least for the first time since the Pacific Coast product became a commercial factor. The East had forseen the evolution of this condition, and was organized and ready for it. The West had not, and this state of unpreparedness was almost as general as it was deplorable. There was a noticeable absence of local co-operation in many districts, and in many sections where organization existed, it did so more in name than in fact. No analyses had been made of what the growing crops would amount to; indeed, few localities had estimated their own

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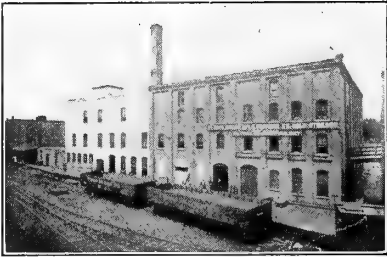
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output, and no one came forward with the forecast that the combined yield in the three states would reach a total of more than eight thousand cars. Lack of organization, therefore, meaning lack of general co-operation, and a more than corresponding defect in knowledge of markets and marketing methods, were the foremost governing factors in the slump of last year's prices. In plain English, the responsibility was with the grower himself, and no one else. The Northwest apple, that had been supreme in values throughout the Union and Europe for a period of years, was again sacrificed upon the markets of least resistance, because the general voice of co-operation was silent, and it automatically followed that the disposal of a banner crop which did not aggregate seven per cent of the entire country's yield, cost the growers in net returns between one and two millions of dollars. It was experience dearly bought.

And now, in the preliminary stages of the new season, what do we find? A short crop of fine quality, in the Northwest, that would naturally suggest high prices for the grower; an Eastern crop of uncertain quantity which has been heralded as the largest in recent years, and made the occasion for the prediction of low figures—abnormally low. And we find the speculator in the field contracting for the crops at figures that to the intelligent mind, strongly point to the possibility of healthy conditions later, at the proper marketing period, and too many growers, members of associations

and non-members, willing to accept the tempting offers of small advances, in total disregard of the advantages and vital necessity of organized action. Do not the loudly sounding tones of low prices carry with them the suggestion or the hope of the speculator that the practices of former years are to be repeated, and the few centers where the Northwest apple first made its appearance and its record values, again congested with the products of nearly every district, instead of being spread judiciously and opportunely in the many markets that are anxious to consume the fruits and take them at their full physical worth? If this is not the explanation, what is? Are we to believe that the entire marketing area has been developed and must be made the annual "dumping ground" for our crops? Or must we be forced to admit our inability to place less than six thousand cars in more than three hundred separate markets, if those markets are fostered, exploited or developed, and at the rate of twenty cars for each market, will the prices be profitable or otherwise? But how many of those markets are acquainted with the excellence of our fruits through past contact? Less than one hundred and fifty in the United States and Canada alone last year, and less than one hundred in the previous history of the Northwest apple. If a city with a population of less than thirty thousand, lying within the zone of Eastern shipment, and with transportation charges much less than those applying

from the Pacific Coast shipping districts, could and did consume in one introductory season at strong prices, and during periods of demoralization in the overcrowded cities, eleven carloads of our products, is it not reasonable that our expected output in 1911 can find ready and waiting demand at favorable values,

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**Fine Eating Apples
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among ninety millions of people, if the fruit is placed with intelligence, and with due regard to conditions of supply from other competitive localities? Has the Northwest profited by last year's results, and prepared itself for a competitive condition that may or may not be accompanied with its difficulties in disposing of a short crop, in the face of an undetermined Eastern crop that the elements of nature have continuously worked against, from the period of bloom to the present? Should not every local organization in Oregon, Washington and Idaho strive by every effort at its command to strengthen its membership and hammer it into a proper realization of the situation? It can be stated, and stated definitely, at this time, that with co-operation well and firmly established, and supported by scientific and effective marketing principles, there would have been no occasion for the occurrences of 1910, and with those methods in force, there should be no cause for alarm as to the prospects for depreciated values in the present season's crops. Unfortunately the outlook for broad co-operation is not as bright as it should be. Our fruit industry is represented by seventy-five or eighty growers' unions; some of them are strong and others are not. Perhaps an average of forty per cent of the growers in each district belong to their unions; it is doubtful if the number is greater, but it is certain that in some of the most prominent sections the actual percentage is less. And of the membership what ratio ships exclusively through the union

and abides by the discretion of its officers? It may reach fifty per cent, but that is also doubtful. There is, therefore, between twenty and thirty per cent of the numerical strength of the Northwest working co-operatively in their respective districts, and representing less than thirty-five per cent of the entire crop. In the meantime, what are the remaining growers doing? Are they helping the industry as a whole by standing on the side lines, willing to listen to every appeal aside from that of organization; waiting to join in the general tendency to ship to the congested centers as they have done for years; anxious to do anything except to share their burden of responsibility in the work and effort that must be carried on to insure success to themselves and their fellow growers? Does it not naturally follow that the indiscriminate and wholesale shipment of their crops, either at unreasonably low cash prices, or at the mercy of the markets, cannot mean anything but demoralization, and that it was these very conditions which led to the disastrous results last year? Has the

United States government not taken observance of these conditions, and commented only recently upon the lack of organization as responsible for the prevailing low values for fruits and other commodities that were so common in 1910? It is not, therefore, the local situation only that calls for criticism and severe arraignment of any producing and marketing effort that is without its definite and established system, and are not the virtues of co-operation being preached from every section of the continent today? Witness the difference in conditions between the Northwest last year with its limited crop of apples returning to its growers the lowest prices in the past decade, and the citrus fruit growers of California securing during the same period the highest prices in the history of that traffic, and at the same time placing nearly 40,000 cars to the consumer at lower prices than he had ever before paid. The Northwest grower must produce his crop at the lowest possible cost, and market it at the highest possible figure, in order to secure satisfactory returns on his

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investment. Co-operation will bring this about. The grower must get his boxes cheaper, his labor, everything connected with his operations in the orchard, and the packing house to do his business justice, but he cannot do so by indifference to the necessities of organization. The orange growers in California at an expense of less than three cents per box levied against the crops of two seasons, reduced the annual cost of their packages seven hundred thousand dollars, and yet the aggregate outlay for timber lands and plant did not exceed three hundred and fifty thousand dollars. The Northwest apple must be advertised far and wide to increase its consumption in the markets already developed, and to create new markets. One cent per box, figured upon the output in 1910, would have raised a sum of fifty thousand dollars for that purpose, and its advertising power would have created untold demand. It cost the independent orange grower of Florida fifty cents per box per year to successfully introduce their product in the Eastern markets through advertising methods. The Virginia Fruit Growers' associations last year obtained for their members from twenty-five cents to one dollar per package for the shipments made through their packing houses in excess of the average figures secured by the independent growers. Organization in Florida increased the price of the orange output thirty-five cents per box in a single season, and through the most rigid rules of inspection reduced the waste by decay in transportation from seven and one-half per cent to two per cent in one year. These are instances in the history of modern organization which it will pay the Northwest orchardist to reflect upon.

Co-operation in the apple industry means prevention of waste, because it prevents the shipment of over-ripe fruit, unsuitable sizes, improper grades, and undesirable quality. Rejection, the natural consequence of those conditions, means waste, and the latter brings inevitable reduction in prices. It will help to control the output, not only of each locality, but of each district, state and the entire Northwest. It will reduce the cost of production, increase consumption, and justify the maintenance of natural values. It will provide adequate packing facilities, cold storage plants, advertising fund, and every other physical element that the progress of the industry requires. Above all, it will insure a thoroughly effective, scientific marketing organization, against which the competition of the Eastern apple will be of little avail regardless of its character or volume.

◆ ◆ ◆

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.

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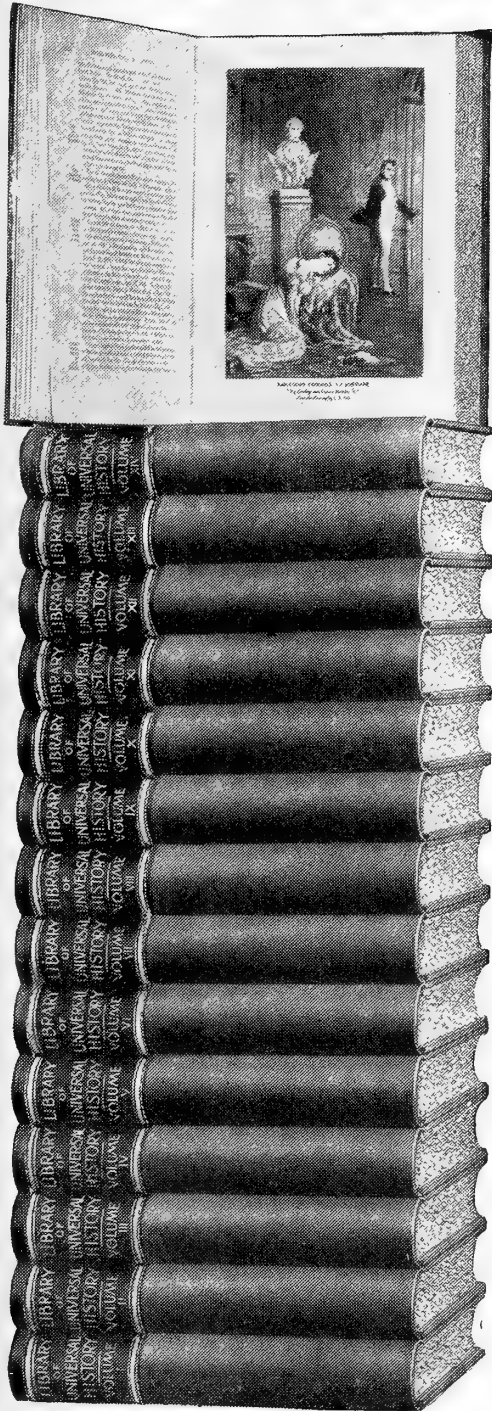
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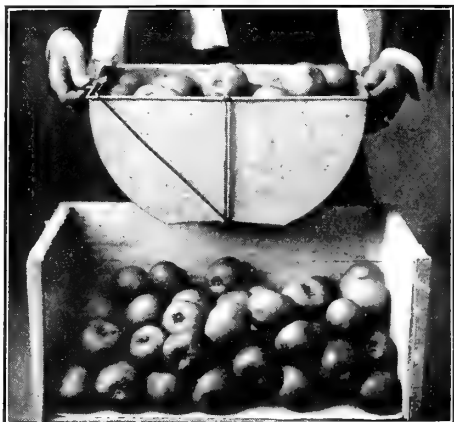
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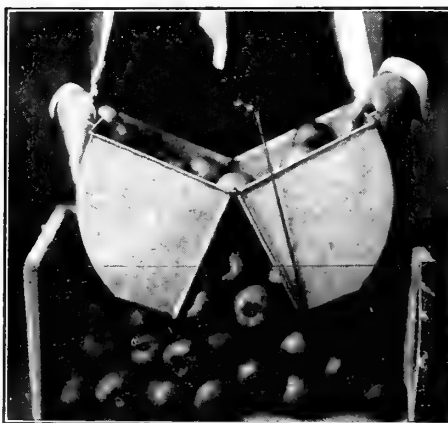
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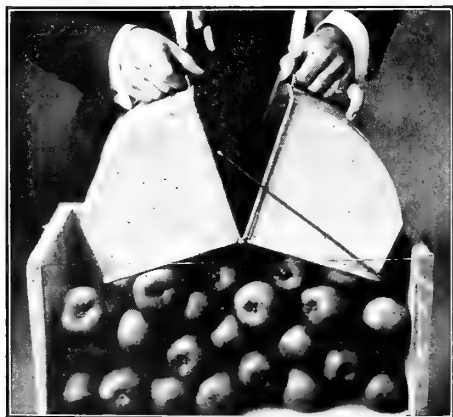
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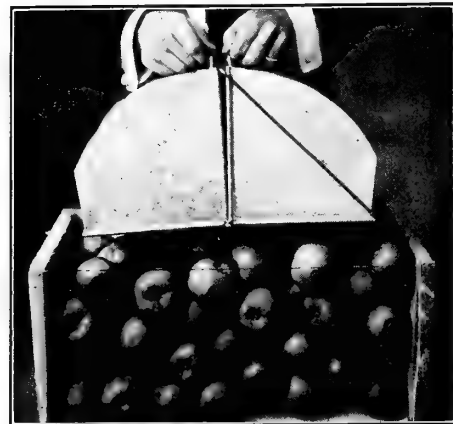
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Make Your Arrangements Now, Cold Storage Facilities Unexcelled
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DO NOT OVERLOOK THE PHILADELPHIA MARKET

SOME FEATURES OF INDUSTRIAL LIFE IN DENMARK

THE Co-operative Dairy at Esbjerg, Denmark, has a membership of 230 farmers, milking 1,500 cows. A small quantity of the milk is retailed in Esbjerg; the bulk, however, is made into butter, and, practically speaking, all exported to England. The milk is paid for by weight and quality. The manager, who receives \$750 per annum, embraces in himself the functions of managing director, manager, working foreman and clerk, his clerking being done during the afternoon after the butter is made. The board of directors of such a concern get virtually no remuneration. This society has fifty separate dairies scattered over different parts of the north and west of Denmark. The

membership embraces 30,000 farmers, and the society is shipping 4,000,000 pounds of butter yearly.

Eggs are sent in weekly from the different depots, each egg being stamped by the farmer with a rubber stamp with figures representing name of farmer, district and date, so that any bad egg can be easily traced back to the farmer who sent it. Every egg is tested. On the farmer who has sent the bad ones a fine is imposed for each bad egg. This method soon sharpens the farmer's wife, and she takes good care to see that the nests are cleared every day. The eggs are paid for by weight, so much a pound, not by number, and are all graded in packing into three different sizes. The farmer is paid weekly on a quotation fixed in accordance with market prices in London and Copenhagen. In order to avoid putting so many eggs on the market when the price is low, and still further depressing it, immense quantities are preserved in huge vats of lime and water, with an air-tight covering of water glass. These are sold as eggs become scarcer and dearer, so that the farmer has not to dispose of his eggs when there is a glut on the market. They can stay at home and look after the work of the farm. The turn-over in this society in butter and eggs is about \$2,500,000 per annum; cost of buildings and plant between \$65,000 and \$76,000. It has only been established ten years and is still growing, especially in the egg

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You can stand on the ground and pick your fruit with rapidity and ease. Its equal has never been offered to fruit growers before. Will pay for itself in one day. Its simplicity and practicability clearly shown in our free circular. Write today before you forget it.

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Apple Ridge, limestone, 80 acres, 50 in
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department. The estimated cost of collecting, forwarding to central depot, grading, testing and packing for export is about two cents per dozen.

The bacon factory at Hasley has a membership of 900 farmers, who supplied 13,000 hogs last year. It has been established eight years. That at Odense has a membership of 5,000 farmers, who last year supplied 70,000 hogs from all over the Isle of Fyen. At the entrance to the factory are posted the day's prices for first, second and third quality hogs, so that anyone can see current quotations, or a farmer can, by telephone, ascertain the current price, and then decide whether he will send in his hogs or not.

All these societies are purely co-operative. The farmers in a district meet together to establish a co-operative society to deal with their produce—milk, hogs and eggs. Each one undertakes to supply the factory with a certain amount of produce. A dairy has to be built and machinery bought. No prospectus is issued, nor are there any shareholders. How, then, is the money raised? Each farmer signs a document by which he is held responsible, not for a part of the money that must be borrowed, but for all. Say, for example, that \$10,000 has to be raised for cost of building, plant, etc., and that 200 farmers become members of the society. Every one of the 200 signs his responsibility for the \$10,000, so that if the 199 cannot meet their liabilities the remaining one is bound for the loan. Actual experience, however, proves that in Denmark no risk whatever is attached to this. Armed with such a bond there is not the slightest difficulty in borrowing the money at a low rate of interest. Banks or loan companies are only too glad to lend on such a security. The dairy is then built and equipped, a chairman and small committee of management appointed, their pay being practically nothing; these in turn appoint a skilled manager, the milk is delivered at the dairy, made into butter and either sold by the dairy direct to England, or if the dairy is too small it affiliates itself with a larger dairy, and so the produce is disposed of. The price to be paid for milk, hogs and eggs is settled by the weekly quotations for butter, bacon and eggs in Copenhagen or London, a certain margin being left for working expenses. At the end of the year the balance sheet is made out, all expenses paid, including interest on loan and depreciation, and the balance is distributed as bonus to each farmer in accordance with the amount of produce he has sent. Bacon factories are established in the same way. The Egg Society is the simplest and least costly of all, and is often worked as a branch of the Bacon or Butter Society.

The farmers of England, Russia, Canada and other countries are studying these co-operative methods of the Danish farmers in order to introduce them elsewhere. It might be well for American farmers to take the same trouble.—Consul W. C. Hamm of Hull, England, in the Co-Operative Journal, Oakland, California.

BARNETT BROS. 159 South Water Street CHICAGO

A Minute's Talk

with *Western Fruit Associations*, particularly those dealing in Apples, Cantaloupes and Peaches, are invited to correspond with us. We are able to put before you a plan for marketing your output in a manner satisfactory to you and mutually profitable.



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FOR COMMERCIAL PURPOSES—Strawberries give surer, quicker returns and larger profits than any other fruit crop.

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OUR "DIAMOND QUALITY" true to name plants, select strains of our own growing, give larger crops and better berries. Healthy, vigorous, heavily rooted plants with large, full crowns, packed in ventilated crates of 500 each, crowns up.

GOLD DOLLAR—Earliest and best of all early berries.

NEW OREGON—Handsomest, heaviest yielding, most uniform and delicious of all strawberries.

We Supply All Standard Varieties

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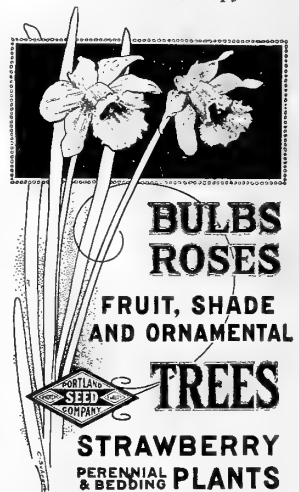
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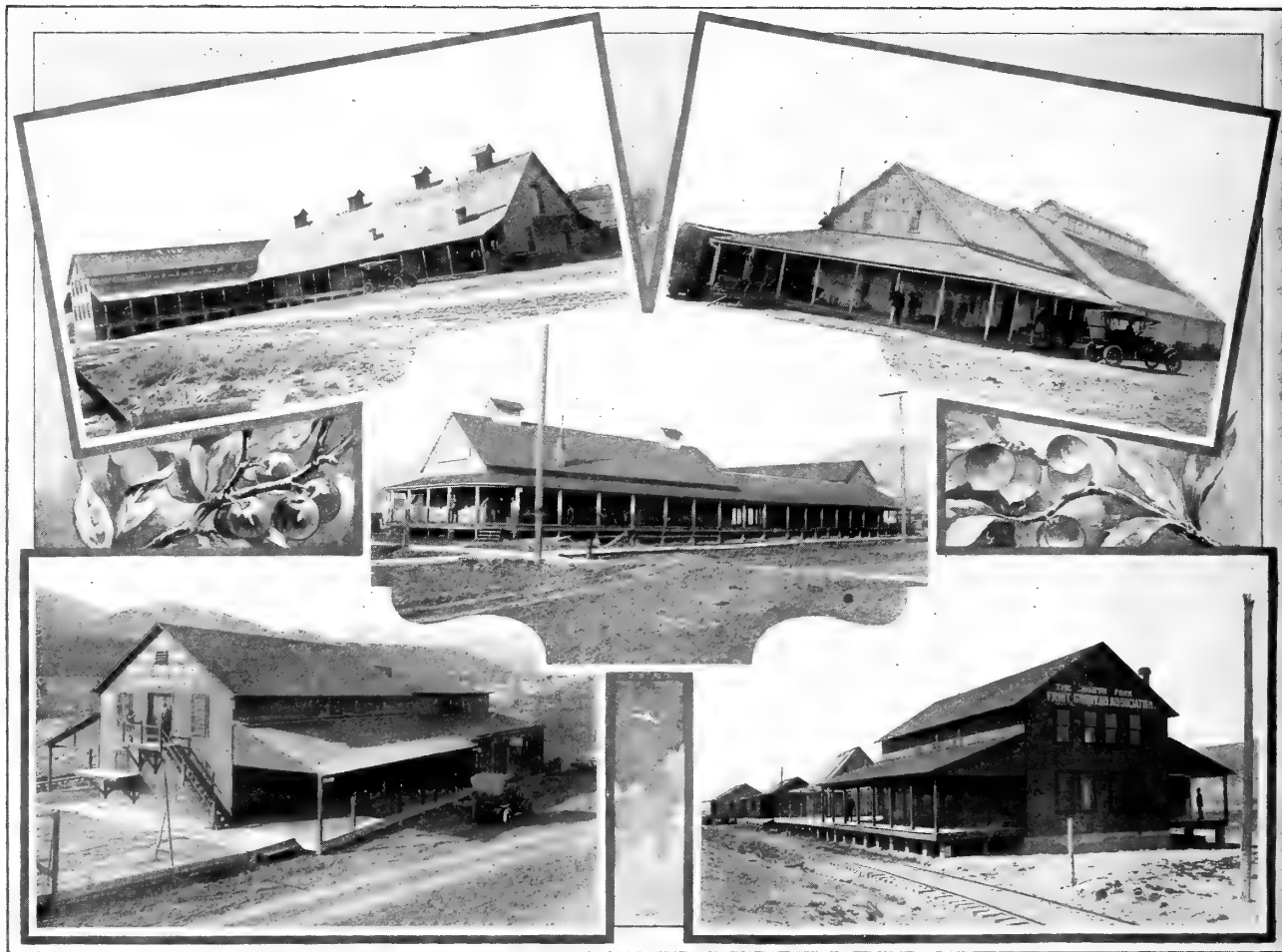
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THE MOST EXTENSIVE OPERATORS IN
HIGH CLASS FRUITS IN THE WORLD

THE Messrs. Steinhardt & Kelly take great pleasure in advising the fruit growers of the Northwest that a member of the firm will as usual make his annual trip to the Coast sometime during the latter part of August and the early part of September, for the purpose of acquiring, both by the outright purchase or such other method as agreeable to the growers, the large amount of reserve stock in all varieties of fruit which their business demands. Particularly do the Messrs. Steinhardt & Kelly wish to draw the attention of the growers to their practically unlimited outlet for fancy fruit and to their sincere belief in their ability to handle and dispose of the crops of the most extensive districts at prevailing market rates with celerity and dispatch.

☞ The Messrs. Steinhardt & Kelly might also incidentally mention that they have completed arrangements giving them cold storage space for several hundred carloads in the very best cold storage warehouses in the East and Middle West.

☞ All correspondence will get the prompt personal attention of a member of the firm



SHIPPING STATIONS OF THE NORTH FORK, COLORADO, FRUIT GROWERS' ASSOCIATION
 Reading from left to right: Top, Hotchkiss and Lazear; bottom, Roberts and Coburn; center, Paonia, all in Colorado

THE NORTH FORK FRUIT GROWERS' ASSOCIATION

THIS association was organized in April, 1902, at Paonia, Colorado. It was capitalized at \$25,000, but only about \$3,000 was necessary to commence operations in the first year. The North Fork branch of the Denver & Rio Grande Railroad had not yet been constructed, and in the first year of the association's history it was necessary to transport the packed fruit to Delta, thirty-five miles distant, in wagons. George S. Conklin, now manager of the Delta County Fruit Growers' Association, was the first manager of the North Fork association. The business was light and Mr. Conklin returned to his larger interests at Delta, leaving the management in the hands of Mr. W. A. Starks, who had been Mr. Conklin's assistant since the organization. In 1903 the association built as a nucleus for its present extensive real estate holdings

the brick warehouse which still stands at the corner of Second Street and North Fork Avenue, Paonia, adjoining the Denver & Rio Grande yards. The following year a packing house was added, which proved at that time to be amply large for all the fruit of the members. In this same year, 1904, by rare good fortune, the association secured the services of Mr. W. H. Garvin, one of the best known fruit salesmen in the Middle West, to take charge of the management of the association. The development of the association from a small community of growers to its present comprehensive system of packing houses and shipping stations and its constantly increasing patronage is largely due to the marked ability with which Mr. Garvin conducted the business. The following year saw the first extension outside of the town of Paonia in the building of the house at Roberts Switch, one mile east of Paonia. A house of similar construction was erected two and one-half miles west of Paonia to serve the growers in that territory. The house at Roberts Switch proved inadequate within a very short time, and an addition larger than the original building was constructed in 1908. At the close of the 1908 season, Mr. Garvin resigned from the active management of the association, and his

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assistant manager, Mr. A. L. Craig, was elected to succeed him, Mr. Garvin remaining in charge of the sales department continuously since that time. This beginning toward separating the different phases of packing, shipping and marketing into departments has been productive of most excellent results. Today the association operates ten main packing houses, with a number of smaller substations located farther inland, which ship through seven stations on the Denver & Rio Grande Railroad. The general offices of the company are in Paonia, where the affairs of all the stations are looked after by the manager and Mr. Bingel, the general superintendent. The general sales office is located in Delta, Colorado. Mr. C. T. Rule, secretary of the board of directors, is resident manager at Hitchkiss, and Mr. D. L. Blakely, a member of the board of the Rogers-Mesa Association, is manager at Lazear, while Mr. H. G. McCall has charge of the local business at Paonia.

The policy of the association is to pack, as far as possible, the fruit of its growers in the central packing houses described above. Each separate district forms a pool, and growers in each district receive the same amount for each grade and variety of fruit shipped. Where it is impracticable for the association to assume charge of the packing because of remoteness from shipping stations, and in some cases where growers prefer it because of local economy, packing in the orchard is practiced, but fruit packed in this manner is subjected to a rigid

inspection before it is shipped. The sales of fruit outside of the State of Colorado are handled by the sales manager, Mr. Garvin, in Delta, who in turn handles his shipments through the salaried agents of the largest fruit distributing institution in the United States. In class of patronage, in equipment, in service and results, The North Fork Fruit Growers' Association undoubtedly stands upon a level with any similar institution in the country. From a handful of growers possessing a community interest to an exchange of several associations its growth has been steady and most gratifying. In addition to buildings shown in the illustration, the association has two warehouses at Excelsior, one each at Pitkin, Elberta and Terror Creek, all in Colorado.

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MOSIER FRUIT GROWERS' ASSOCIATION INCREASING

MOSIER is thoroughly an "association" community. Ever since the association was organized five years ago its support has been increasing until last year it included every fruit grower of the district. The shining success of the Mosier Fruit Growers' Association is due primarily to the personnel of its membership. They are intelligent, up-to-date horticulturists, possessed of enough good sense, business training and far-sightedness to realize the advantage of working closely and harmoniously together in the marketing end of the proposition. As a

reward for so doing each season has brought very satisfactory returns and an increasing confidence in the future.

The greatest achievement of the association is its highly praised pack. Mosier has a corps of expert, home-trained packers, who work under the direction of association officers, but if they had to quarrel with growers who desired to work off every kind of fruit on them the result would never be a strictly honest and satisfactory pack; instead of this they have the unanimous and loyal support of all growers, who are proud of the

association's brand and proud to have their own names on the box also.

In 1910 the association shipped fifty cars of apples, thirteen cars of Italian prunes, two cars of cherries and one car each of pears, plums and peaches. The estimate for 1911 includes thirty-five cars of apples, ten cars of Italian prunes, four cars of peaches and one car of pears. Judging from the favorable reception of the Mosier Spitzenbergs and Newtowns in New York for the past eight years these varieties will probably find their way there again this year. Other varieties have found a wide distribution from New Orleans to St. Paul and from San Francisco to Boston, as well as across the Atlantic.

After years of experimenting to determine what varieties were best adapted to the climate and soil of the Mosier hills, the growers discovered that the choicest quality apples were the kinds that grew to most pre-eminent perfection. The younger orchards show a heavy preponderance of Spitzenbergs, Newtowns, Ortleys and Arkansas Blacks, but there will be enough of Baldwins, Wageners, Red Cheek Pippins, Ben Davis and other varieties to at least supply old customers who have been so well suited. All Mosier apples are non-irrigated, and while the high color, perfect flavor and desirable sizes equal the best from anywhere they have added value that the trade well understands, and that is for remarkable keeping quality.

The large acreage of orchards just coming into bearing will rapidly swell the shipments from Mosier. At least one hundred cars are expected by 1912 and two hundred cars for the following year. Mosier growers have taken numerous prizes at apple shows, and by comparison with other districts, especially their adjoining neighbors of Hood River, they feel well grounded in the belief that they produce a grade of fruit that will always bring remunerative prices because of its superiority. The directors of the association actually do the directing of its affairs, meeting every week, and oftener when occasion requires, giving close attention to all the details of the business.—A. P. Bateham, Vice-President.



How do you like the efforts of "Better Fruit" to raise the standard of growing and marketing? A word of comment now and then, will be appreciated.

The PACIFIC MONTHLY

has just closed the most successful and prosperous year in its history. We want to make 1911 even more successful than the year just passed. We want *your* name upon our subscription list. Here are a few facts which will help you to decide the question of subscribing,

☐ The Pacific Monthly is recognized as the most successful independent magazine in the West. It publishes each month artistic and unusual duotone illustrations of beautiful Western scenery, studies of Indian heads, or of animal life, ranging from Alaska, on the North, to Mexico on the South, and as far afield as Japan and the South Seas. From its striking cover design to the last page you will find a feast of beautiful pictures.

☐ Each month it publishes from five or six short stories by such authors as Jack London, Stewart Edward White, Harvey Wickham, D. E. Dermody, Seumas MacManus, Fred. R. Bechdolt, and other well known writers of short stories. Its stories are clean, wholesome and readable.

☐ Each month one or more strong articles are published by such writers as William Winter, the dean of dramatic critics, John Kenneth Turner, the author of "Barbarous Mexico", Rabbi Wise, the noted Jewish Rabbi, and John E. Lathrop, who contributes a non-partisan review of national affairs. Charles Erskine Scott Wood contributes each month under the title of "Impressions" a brilliant record of personal opinion.

☐ The Pacific Monthly has become noted for having published some of the best verse appearing in any of the magazines. Charles Badger Clark, Jr., contributes his inimitable cowboy poems exclusively to The Pacific Monthly. Berton Braley, George Sterling, Elizabeth Lambert Wood, Wm. Maxwell, and other well known poets are represented by their best work in our pages.

☐ A feature that has won many friends for The Pacific Monthly has been our descriptive and industrial articles. During the coming year one or more such articles will be published each month. Articles now scheduled for early publication are: "Money in Live Stock on the Pacific Coast", "Success with Apples", "Nut Culture in the Northwest", "Success with Small Fruits", "Fodder Crops in the Western States".

☐ In addition to these articles the Progress and Development Section will give each month authoritative information as to the resources and opportunities to be found in the West. To those who are planning to come West, the descriptive illustrated articles on various sections of the West will be invaluable.

☐ If you want a clean, fearless, independent magazine—one that will give you wholesome, readable stories, authoritative, descriptive articles of the progress being made in the West, a magazine that believes thoroughly in the West and the future destiny of the West—you will make no mistake in subscribing for the Pacific Monthly. Its subscription price is \$1.50 a year. To enable you to try it for shorter period, however, we will give a trial subscription of six months for \$.50.

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MAKING THE DESERT TO BLOSSOM AS THE ROSE

CENTURIES ago the Aztecs and Spaniards grew amazing crops in the Lower Pecos and Rio Grande Valleys of Western Texas by means of irrigation. The frequent discovery of old canals in that locality is evidence of this fact. The writings of early travelers also tell us of the wonderful vineyards and orchards that once existed in these fertile regions of the great Southwest. The recent revival of the grape growing industry has forced the growers to look for a combination of soil and climate that

will produce a big yield of the grape, and the indisputable evidence of ancient vineyards in the above named valleys has turned their attention in that direction. As a result these old canals are being opened up and new canals are being constructed until in many districts of these valleys there is a perfect network of laterals and ditches under irrigation reservoirs. Fruit experts from older states have gone into these districts and are already making a wonderful success. Pears, peaches and grapes have paid

upward of \$500 an acre profit. Pears have won prizes at many state and national fruit expositions. Grapes grown in the Lower Pecos Valley are said to possess a flavor that loses no favor when compared with the famous California varieties.

Agricultural development of the Lower Pecos Valley has been retarded by lack of railroad transportation. Recently, however, the Kansas City, Mexico & Orient Railway Company ran its survey across this rich valley, and is now laying steel into Fort Stockton. With the coming of railway transportation orchardists and grape growers are flocking there from old established districts. Hundreds of thousands of peach and pear trees and millions of grape vines have been planted in the Lower Pecos Valley since January 1, 1911. This valley, under irrigation, promises to be the next important vineyard of America. One hundred thousand acres of rich sandy loam can be irrigated and planted to orchards and vineyards. The rapid development now in progress leads experts to believe that this entire valley surrounding Fort Stockton will soon be one vast vineyard and orchard.—Contributed.

J. F. LITTOOY

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We handle thousands of cars of fruit yearly, Apples, Pears, Peaches, Prunes, Etc.

TWIN CITY MAY GET THE NATIONAL APPLE SHOW

THE following clipping from the Minneapolis Journal of June 28 is self-explanatory:

Mr. Ren H. Rice, secretary of the Spokane National Apple Show, has been in conference with L. S. Donaldson and with officers of the Minneapolis Commercial Club on the proposition of combining the apple show with the land show. Mr. Rice spent yesterday in conference with officials of the St. Paul Association of Commerce at the office of Secretary J. H. Beek. The plan of bringing the apple show east from Spokane and of combining it with the land show was discussed in detail, but no decision was reached. Louis W. Hill, chairman of the executive committee of the land show, is absent from the city, but will be back in a day or two, and upon his return the matter will be decided. Prospects seem very favorable for securing for the Twin Cities the apple show that has been three times a big feature of the Western country, when held in Spokane.

Last year there were 2,000,000 apples on exhibition and temporary buildings,

covering three and one-half acres of ground, were erected. The National Apple Show, which is incorporated, is backed by the Spokane Chamber of Commerce and the commercial interests of the great area commonly spoken of as the "Inland Empire." That greater advantage might be obtained for exhibitors and greater opportunity afforded the people to visit the show by holding it farther east, was suggested after the close of last year's show in Spokane, and Mr. Rice was sent East with the authority from the board of trustees to make arrangements for holding the show here, if it can be satisfactorily worked out.

Mr. Rice's visit to Minneapolis is partly for the purpose of testing sentiment here as to the co-operation that may be expected from this city for the St. Paul show, and he found, he said, that Minneapolis will give hearty support. The offer of Mr. Donaldson of a first prize of \$1,000 in cash for the finest car lot exhibit is an important influence. Mr. Donaldson said today that his offer holds just as good for the apple show if held

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and small fruits. Also ornamental trees and shrubs. Special attention given to roses. Send for catalogue and price list.

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We have lots and homes in all parts of the city, ranging in price from \$300 up to \$25,000, as well as farms near the city, which we will sell on easy terms or exchange for farms in any part of the United States. Tell us what you want or have to exchange.

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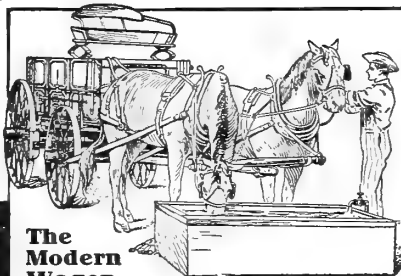
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NO AGENTS

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prepaid to any place in the United States without a cent deposit in advance, and allow ten days free trial from the day you receive it. If it does not suit you in every way and is not all or more than we claim for it and a better bicycle than you can get anywhere else regardless of price, or if for any reason whatever you do not wish to keep it, ship it back to us at our expense for freight and you will not be out one cent.

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in connection with the land show in St. Paul as if held in Minneapolis, and that while he has not given thought to the details the general idea of having the apple exhibit in the St. Paul Auditorium at the same time as the land show seems a good one.

"I will give the \$1,000 cash as a first prize for car lot exhibit just the same if it is decided to hold the apple show in St. Paul." Mr. Donaldson said. "The St. Paul Auditorium, it seems to me, would be a good place to hold it, and if that is decided upon there will be good support and patronage from Minneapolis. The two cities will work together for the success of the show." "Because Mr. Hill is out of the city, and as much will rest with him, I cannot say what will be done, but I have been not only surprised, but delighted to find that there is in Minneapolis and St. Paul a spirit of co-operation that, in my judgment, insures in advance the great success of the show if held here," Mr. Rice said. "If it comes there will be an apple display that in beauty and magnitude will surprise the people here."

PORTLAND WHOLESALE NURSERY COMPANY

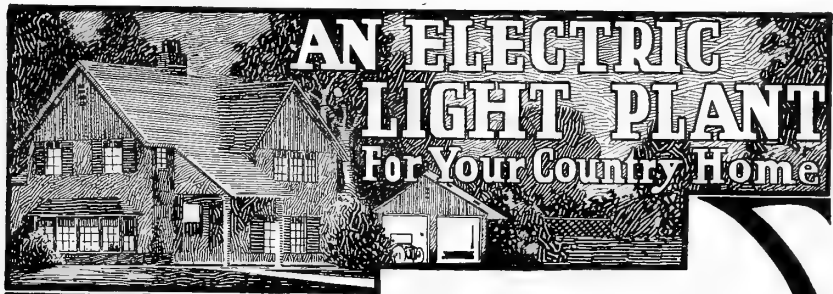
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- Brown Bros. Nursery Co., Rochester, N. Y.
- Elizabeth Nursery Co., Elizabeth, N. J.
- H. C. Baker, Route 2, Tunkhannock, Pa.
- O. K. Nurseries, Wynnewood, Okla.
- Jefferson Nursery Co., Monticello, Fla.
- J. A. Hess, Salt Lake City, Utah
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- Frank Brown & Son Co., Paynesville, Minn.
- Elm Brook Farm Co., Hallowell, Me.
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Especially designed for the electric lighting of ranches, country homes, stables and factories. While common coal oil lamps, acetylene systems and gasoline lamps sometimes explode, this electric outfit positively cannot explode. The force of current is so harmless you cannot even feel the current.

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With this system you generate electric current by the means of a small gasoline engine driving a dynamo or generator during the day. The current is run into a storage battery. Charging of the storage battery is done once or twice a week, or whenever the engine is being run for other work.

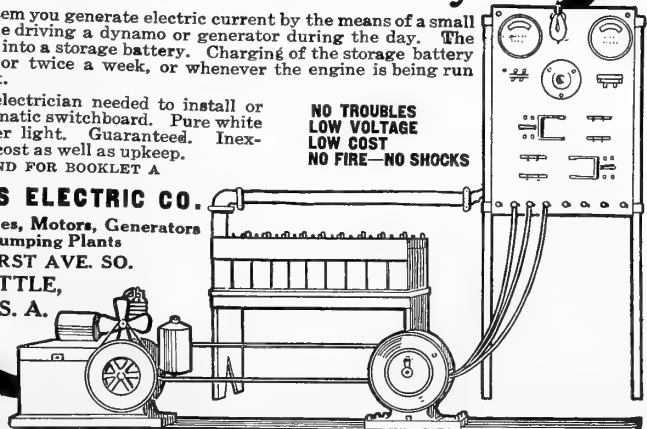
No skilled electrician needed to install or attend. Automatic switchboard. Pure white 16-candle-power light. Guaranteed. Inexpensive—first cost as well as upkeep.

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Soon save their cost. Make every wagon a spring wagon, therefore fruit, vegetables, eggs, etc., bring more money. Ask for special proposition. Harvey Spring Co., 784 11th St., Racine, Wis.



GUARANTEED

"Minneapolis and St. Paul make the gateway through which pass two-thirds of the people who go West for permanent residence. It is here that the exhibit should be placed that it may attract such people, and that the half million city people, and the thousands in Minnesota, the Dakotas, Wisconsin and Iowa, who are interested in horticulture scientifically, or as a business, may also have it within easy access. It would prove a great drawing card. I shall probably remain here until Mr. Hill returns, when the matter will go before the executive committee of the land show for consideration, but I have already learned enough to show me that if it is held here there is a spirit of unity between the two cities, and interest in it and a population density, both urban and suburban, within easy reach that will make it the greatest success ever."

"I HAVE SO LITTLE FUNGUS"

That I cannot afford to mark my fruit with bordeaux," says Mr. George T. Powell, of Ghent, New York, a grower of fancy apples. "I have less scale and finer foliage than ever before."

Reason: Five years' consecutive use of

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Cheaper, more effective, and easier to apply than lime-sulphur
Send for booklet, "Orchard Insurance"

PRICES: In barrels and half-barrels, 50c per gallon; 10-gallon cans, \$6.00; 5-gallon cans, \$3.25; 1-gallon cans, \$1.00

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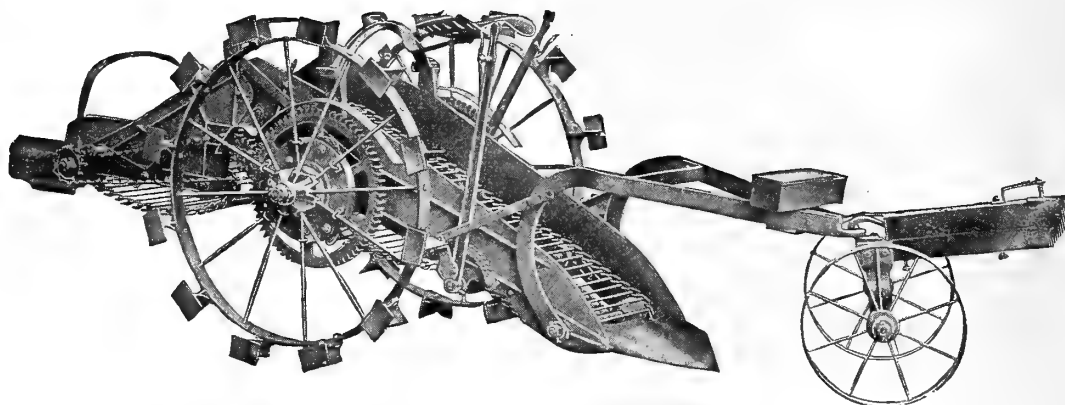
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J. B. PILKINGTON, Nurseryman, Portland, Oregon



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The Standard Elevator Potato Harvester Does the Work of 20 Men and Does it Better

For a long time we have been wanting to offer our customers and other farmers in the Pacific Northwest, a potato digger that would prove highly satisfactory in every respect. Until such time as we could supply one of this excellence we preferred to offer none at all.

A good potato harvester is a money maker for the farmer. And we are delighted to be able to offer so excellent an article and keen to have our customers reap the profits that result in a tremendous saving in time, labor and money.

This is How the Standard Operates

The shovel enters the hill deep enough to get every potato. The shovel is slightly concaved. It breaks the outside of the hill and turns it toward the center of the shovel. The elevator is a sort of apron—an endless belt of linked steel rods. The motion of the apron loosens the dirt from the potatoes. The dirt falls through the spaces between the steel rods of the apron, to the ground. The potatoes, after

being elevated to the highest point, are delivered to a rear apron which shakes off the last particle of dirt. The potatoes are finally delivered on the ground at the rear of the digger in a narrow row. They are all there—every one—clean—none cut or bruised—easily picked up.

Two levers control the entire machine. It is very easily guided and can be turned in a short space. The Standard Potato Harvester has high drive wheels, perfect traction, extremely light draft. Also a perfect Combination Evener for two, three or four horses. Direct center draft and each horse walks between the rows.

Made of A No. 1 First Class material throughout. We can supply only a limited number this season. We want every one of our customers and all other farmers in the Pacific Northwest to know all about this marvel of a potato digger. We have a number of descriptive booklets with illustrations and numerous testimonials from delighted users. One of these booklets free to every interested farmer—as long as they last. Be sure to get your copy. Send now.

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Will have for spring delivery a choice lot of one-year-old budded apple trees on three-year-old roots, the very best yearlings possible to grow. Standard varieties from best selected Hood River bearing trees—Spitzenbergs, Yellow Newtowns, Ortleys, Arkansas Blacks, Gravensteins, Baldwins and Jonathans. All trees guaranteed first-class and true to name. Start your orchards right with budded trees from our nursery, four miles southwest from Hood River Station.

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Experience has taught us how to grow the **Cleanest, Healthiest, Best-Rooted Trees in the World.**

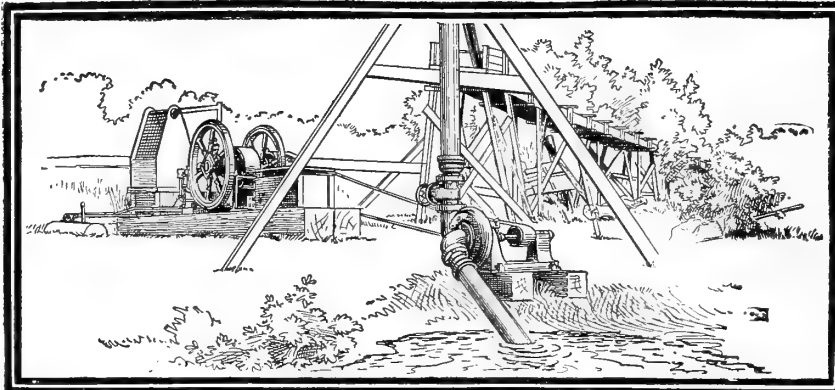
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Send in your list, whether large or small.

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They pump water from streams, lakes, rivers, or wells—economically, steadily, and easily. They are simple, strong, and durable, made on correct principles, of highest quality materials, by skilled workmen, in the best equipped engine factories in America.

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The Bureau is a center where the best ways of doing things on the farm, and data relating to its development are collected and distributed free to every one interested in agriculture. Every available source of information will be used in answering questions on all farm subjects. If the questions are sent to the IHC Service Bureau they will receive prompt attention.

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Strong faculty. Modern equipment. Twenty-five buildings; 1,800 students. College opens September 22. Catalog and illustrated literature free on application.

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Call on any S. P. or C. & E. Agent for full particulars as to fares, train schedules, etc.
also for copy of our illustrated booklet, "Outings in Oregon," or write to

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Portland, Oregon

THE INTERSTATE FAIR AT SPOKANE, WASHINGTON

INCREASED prize lists in every department and new buildings that will avoid the overcrowding complained of last year represent part of the outlay of \$126,000 that the Spokane Interstate Fair is making on its week of entertainment this year, October 2-8. To help take the place of the National Apple Show, which will not be held in Spokane this year, the fair association has nearly doubled the value of its apple prizes, this class of exhibits receiving the largest advance over previous years. The apple prizes aggregate \$1,458.50, and other fruit classes will be more liberally taken care of than ever before. Irrigated and non-irrigated products will receive the same consideration.

Extensive improvements, for the most designed to take care of big crowds, are now being made at the fair grounds. An addition to the grand stand will seat 2,000 additional persons and coin-operated turnstiles will be used at some of the entrances to do away with the customary crush at the gates on "big days." There is room for two hundred head of cattle in the new barn, which, with the

horse quarters, will be electric lighted for the convenience of night crowds. Mining and manufacturing exhibits will be housed in a new building, and their old home turned over to a dairy and pure food show. A large section of territory west of the main exhibit hall, never before utilized, will be covered with restaurants and other concessions, shut out from under the grand stand by the enlargement of the automobile display section.

There will be more racing horses quartered at the grounds during fair week than have come to Spokane in years, the chief contributing cause being the projected Lake City meet, run on a "wide open" basis, just across the Idaho line. This meeting, which will attract the best running horses of the Northwestern and Coast stables, will adjourn for a week to permit owners in attendance to race at the fair. Good cards in the harness events are assured by an early entry list of seventy-five pacers and trotters for the principal harness stakes. As before, the Spokane Derby,

worth \$2,000, will be the most important race.

Manager R. H. Cosgrove announces that he has secured as amusement features two of the Glenn Curtiss aviators, an Italian concert band led by Francesco Ferullo, the Parker No. 1 Carnival Company and Frank G. Odell of Lincoln, Nebraska, whose feats with bees at the First National Apple Show were a feature of that exposition. Ten thousand dollars will be spent on a night spectacle to be called "Pioneer Days in the Palouse." This will be staged in front of the grand stand, and will show a reproduction of the streets of a Palouse town in the '80s with realistic "wild West" features. Fireworks will, as before, be a part of the night show.



THE fruit grower or trucker who uses an International Commercial Car "gets there" quicker and more often than the man who uses horses and wagons.

The International makes two to four trips while the horse-drawn vehicle is making one. The man who uses an International goes whenever and wherever he pleases, regardless of road or weather conditions, while the man who uses horses and wagons must wait for good roads and good weather. The

International Commercial Car

saves work, time, and money, thereby adding to your profits. All in all, considering the matter carefully from every point of view, you will find that you must have an International Commercial Car if you are to attain the greatest profit from your possibilities. Get all the facts—read what the International has meant to others—actual facts and figures, not theories. See the I H C local dealer and inspect one of these cars, or write nearest branch house for catalogues and information.

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You can place the latest model, genuine Domestic, the recognized queen of all sewing machines, in your home, use it continually while paying \$2 a month, and enjoy a very special price direct to you or from our nearest agency. A magnificent machine—a stupendous offer.

We Will Take Your Old Machine if you wish liberal allowance on a splendid new Domestic. And you still take advantage of the special price and easy terms.

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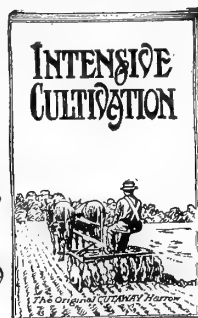
The perfect sewing machine that has always led all other makes and is today better than ever. Two machines in one—lock stitch and chain stitch. Straight drop-head, high arm, ball bearing. A complete set of attachments—every one practical, etc., made for every-day use. The Domestic is a revelation of modern sewing machine progress. Find out about it. **SEND FOR BOOK, FREE.** The Truth About Sewing Machines, telling you how you can have the finest sewing machine made at a Special Low Price and at ONLY \$2 a month. Learn why we sell direct where we have no agent and give you a 25 YEAR GUARANTEE. Get the facts before you buy any machine. This Free Literature will save you money. Send for it NOW. Domestic Sewing Machine Co., 48 Jackson Blvd., Dept. 444 Chicago.

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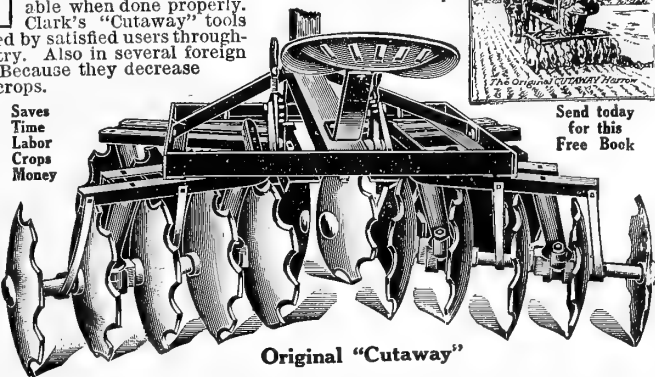


are used and endorsed by satisfied users throughout this entire country. Also in several foreign countries. Why? Because they decrease labor and increase crops.

Our disks are made of cutlery steel shaped and sharpened in our own shops and are the only genuine "Cutaway" disks.

Beware of imitations and infringements. We make a tool for every crop. If your dealer can't supply the genuine "Cutaway," write us your needs. Satisfaction guaranteed. Prompt shipments. Send a postal today for our new catalogue "Intensive Cultivation." It's Free.

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NORTHWEST 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

Eugene Fruit Growers' Association, Eugene; Ashland Fruit and Produce Association, Ashland; Hood River Fruit Growers' Union, Hood River; Hood River Apple Growers' Union, Hood River; Grand Ronde Valley Fruit Growers' Union, La Grande; Milton Fruit Growers' Union, Milton; Douglas County Fruit Growers' Association, Roseburg; Willamette Valley Prune Association, Salem; Mosier Fruit Growers' Association, Mosier; The Dalles Fruit Growers' Union, The Dalles; Salem Fruit Union, Salem; Albany Fruit Growers' Union, Albany; Coos Bay Fruit Growers' Association, Marshfield; Estacada Fruit Growers' Association, Estacada; Umpqua Valley Fruit Growers' Association, Roseburg; Hyland Fruit Growers of Yamhill County, Sheridan; Newburg Apple Growers' Association, Newburg; Dufur Valley Fruit Growers' Union, Dufur; McMinnville Fruit Growers' Association, McMinnville; Coquille Valley Fruit Growers' Union, Myrtle Point; Stanfield Fruit Growers' Association, Stanfield; Oregon City Fruit and Produce Association, Oregon City; Lincoln County Fruit Growers' Union, Toledo; Rogue River Fruit and Produce Association, Medford; Mount Hood Fruit Growers' Association, Sandy; Northeast Gaston Farmers' Association, Forest Grove; Dallas Fruit Growers' Association, Dallas; Northwest Fruit Exchange, Portland; Springbrook Fruit Growers' Union, Springbrook; Cove Fruit Growers' Association, Cove; Santiam Fruit Growers' Association, Lebanon; Washington County Fruit Growers' Association, Hillsboro; Benton County Fruit Growers' Association, Corvallis.

Washington

Kennewick Fruit Growers' Association, Kennewick; Wenatchee Fruit Growers' Union, Wenatchee; Puyallup and Sumner Fruit Growers' Association, Puyallup; Vashon Island Fruit Growers' Association, Vashon; Mt. Vernon Fruit Growers' Association, Mt. Vernon; White Salmon Fruit Growers' Union, White Salmon; Thurston County Fruit Growers' Union, Tumwater; Bay Island Fruit Growers' Association, Tacoma; Whatcom County Fruit Growers' Association, Curtis; Yakima Valley Fruit and Produce Growers' Association, Granger; Buckley Fruit Growers' Association, Buckley; Lewis River Fruit Growers' Union, Woodland; Yakima County Horticultural Union, North Yakima; Evergreen Fruit Growers' Association, R8, Spokane; White River Valley Fruit and Berry Growers' Association, Kent; Spokane Highland Fruit Growers' Association, Shannon; Lake Chelan Fruit Growers' Association, Chelan;

Zillah Fruit Growers' Association, Toppenish; Kiona Fruit Growers' Union, Kiona; Mason County Fruit Growers' Association, Shelton; Clarkston Fruit Growers' Association, Clarkston; Prosser Fruit Growers' Association, Prosser; Walla Walla Fruit and Vegetable Union, Walla Walla; The Ridgefield Fruit Growers' Association, Ridgefield; The Felida Prune Growers' Association, Vancouver; Grand View Fruit Growers' Association, Grandview; Spokane Valley Fruit Growers' Company, Spokane; Yakima Valley Fruit Growers' Association, North Yakima; Southwest Washington Fruit Growers' Association, Chehalis; The Touchet Valley Fruit and Produce Union, Dayton; Lewis County Fruit Growers' Association, Centralia; The Green Bluffs Fruit Growers' Association, Mead; Garfield Fruit Growers' Union, Garfield; Goldendale Fruit and Produce Association, Goldendale; Spokane Inland Fruit Growers' Association, Keisling; Elma Fruit and Produce Association, Elma; Granger Fruit Growers' Association, Granger; Cashmere Fruit Growers' Union, Cashmere; Stevens County Fruit Growers' Union, Myers Falls; Dryden Fruit Growers' Union, Dryden; White Salmon Valley Apple Growers' Union, Underwood.

Idaho

Southern Idaho Fruit Shippers' Association, Boise; New Plymouth Fruit Growers' Association, New Plymouth; Payette Valley Apple Growers' Union, Payette; Parma-Roswell Fruit Growers' Association, Parma; Weiser Fruit and Produce Growers' Association, Weiser; Council Valley Fruit Growers' Association, Council; Nampa Fruit Growers' Association, Nampa; Lewiston Orchard Producers' Association, Lewiston; Boise Valley Fruit Growers' Association, Boise; Caldwell Fruit Growers' Association, Caldwell; Emmett Fruit Growers' Association, Emmett; Twin Falls Fruit Growers' Association, Twin Falls; Weiser River Fruit Growers' Association, Weiser; Fruit Growers' Association, Moscow.

Colorado

San Juan Fruit and Produce Growers' Association, Durango; Fremont County Fruit Growers' Association, Canon City; Rocky Ford Melon Growers' Association, Rocky Ford; Plateau and Debeque Fruit, Honey and Produce Association, Debeque; The Producers' Association, Debeque; Surface Creek Fruit Growers' Association, Austin; Longmont Produce Exchange, Longmont; Manzanola Fruit Association, Manzanola; Delta County Fruit Growers' Association, Delta; Boulder County Fruit Growers' Association, Boulder; Fort Collins Beet Growers' Association, Fort Collins; La Junta Melon and Produce Company, La Junta; Rifle Fruit and Produce Association, Rifle; North Fork Fruit Growers' Association, Paonia; Fruita Fruit and Produce Association, Fruita; Grand Junction Fruit Growers' Association, Clifton; Palisade,

Grand Junction; Palisade Fruit Growers' Association, Palisade; Peach Growers' Association, Palisade; Colorado Fruit and Commercial Company, Grand Junction; Montrose Fruit and Produce Association, Montrose; Hotchkiss Fruit Growers' Association, Hotchkiss; Paonia Fruit Exchange, Paonia; Colorado Fruit Growers' Association, Delta; Crawford Fruit Growers' Association, Crawford; Amity Cantaloupe Growers' Association, Amity; Pent County Melon Growers' Association, Las Animas; Capitol Hill Melon Growers' Association, Rocky Ford; Denver Fruit and Vegetable Association, Denver; Fair Mount Melon Growers' Association, Swink; Fowler Melon Growers' Association, Granada; Grand Valley Fruit and Produce Association, Grand Junction; Independent Fruit Growers' Association, Grand Junction; Kouns Party Cantaloupe Growers' Association, Rocky Ford; Lamar Melon Growers' Association, Lamar; Loveland Fruit Growers' Association, Loveland; Manzanola Orchard Association, Manzanola; Newdale Melon Growers' Association, Swink; Roaring Fork Potato Growers' Association, Carbondale; Woods Melon Growers' Association, Las Animas.

Montana

Bitter Root Fruit Growers' Association, Hamilton.

Utah

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

New Mexico

San Juan Fruit and Produce Association, Farmington.

British Columbia

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

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Full information cheerfully furnished relative to entire cost of lighting your house and adjoining buildings

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As a watch dog, a "pal" or a companion for children he has no equal.

AT STUD—"Kootenai Admiral," sire of "Kootenai Commander," winner of first puppy and first novice awards at Seattle and Tacoma shows this year.

BROOD MATRON—"Clipstone Sunbeam," winner of ten firsts and six specials at New York and Minneapolis in 1909.

A litter of splendid puppies from the above mating will be ready for delivery September 1, 1911.

For particulars address or call on,
C. W. J. RECKERS,

Klickitat Kennels, White Salmon, Wash.

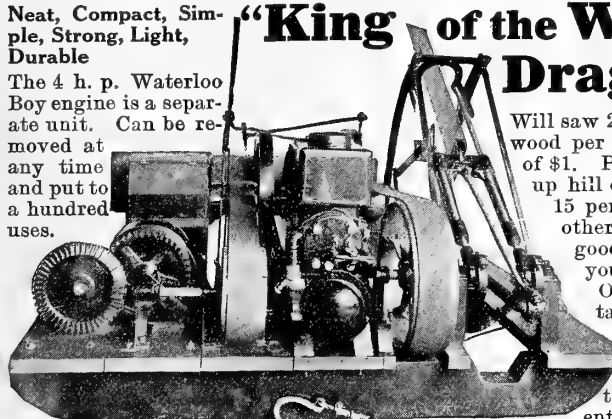
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THE KIND YOU CAN'T KEEP IN THE GROUND

They grow, and are true to name
Write for prices on your wants

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Poultry Supplies, Spray, Spray Materials, Fruit Trees, Etc.

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Have for the coming season a very complete line of

NURSERY STOCK

Newtown and Spitzenberg propagated from selected bearing trees. Make no mistake, but start your orchard right. Plant generation trees. Hood River (Clark Seedling) strawberry plants in quantities to suit. Send for prices.

RAWSON & STANTON, Hood River, Oregon

Nursery Stock of Absolute Reliability

That's the only kind to buy. Good trees bring success and poor trees failure. Fruit growers know this. They do not experiment. They buy non-irrigated, whole root, budded trees, and we number scores of them on our list of well pleased customers. We have prepared this season for an immense business. That means trees, trees, trees without limit as to variety and quantity. We also have an immense stock of small fruits and ornamentals. We solicit your confidence, and will take care of the rest. Catalogue on application.

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Reliable and live salesmen wanted.

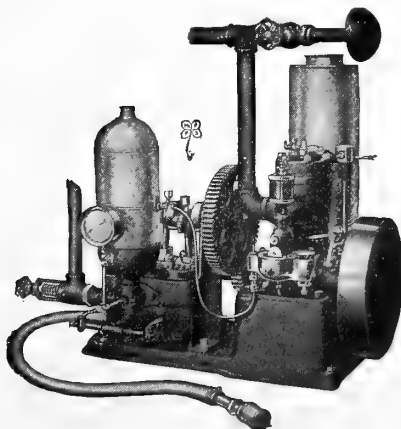
Deming Spray Pumps

RAPID AND THOROUGH WORK

The secret of successful spraying is to get over your trees as fast as possible, and at the same time do thorough work.

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Deming Outfits are made for speed and good work. With our larger hand pumps, and the powerful gasoline engine machines, you can run two or three leads of hose at once, each carrying several nozzles, and you can cover a tree in a few minutes.



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Is an example of the grand result of years of persistent, purposeful striving after the very highest musical ideal. Sons have taken up the task where fathers left off, so that alternate generations of genius, working through the finest piano factory in the world, have evolved the Steinway—a piano that has long since been acknowledged the musical masterpiece of the ages.

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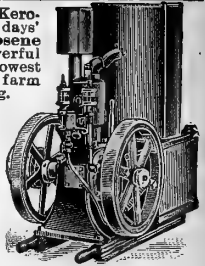
The tone is the Jewel.
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The combination is the Steinway—the Perfect Piano.

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The "DETROIT" is the only engine that handles coal oil successfully; uses alcohol, gasoline and benzine, too. Starts without cranking. Basic patent—only three moving parts—no cams—no sprockets—no gears—no valves—the utmost in simplicity, power and strength. Mounted on skids. All sizes, 2 to 20 h. p., in stock ready to ship. Complete engine tested just before crating. Comes all ready to run. Pumps, saws, threshes, churns, separates milk, grinds feed, shells corn, runs home electric-lighting plant. Prices (stripped), \$29.50 up. Sent any place on 15 days' Free Trial. Don't buy an engine till you investigate amazing, money-saving, power-saving "DETROIT." Thousands in use. Costs only postal to find out. If you are first in your neighborhood to write, we will allow you Special Extra-Low Introductory price. Write! Detroit Engine Works, 507 Bellevue Ave., Detroit, Mich.

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This is being sold in tracts of five, ten and twenty acres and upwards. We care for the orchards under the supervision of scientific horticulturists until the end of the fifth year development period.

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THE LABEL HELPS.

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Orchards near the city of Ashland, Oregon, hold the highest records for productiveness per acre, in comparison with all the other orchard localities of similar size.

A booklet descriptive of the many resources of this city and the surrounding country will be sent free on applying to the Publicity Department of the Ashland Commercial Club, Ashland, Oregon.

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Has no peer in the Northwest.

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Grand Junction, Colorado

*Ask the People Using Our Boxes About
Quality and Service*

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Multnomah Lumber & Box Co.

Jobbers of Pearson Cement-Coated Box Nails

Portland, Oregon



Rome Beauty Trees in Mr. W. W. Butler's orchard at Grand View, Washington, seven months from date of planting. Bought of Washington Nursery Company, Toppenish, Washington

TREES THAT GROW

Mr. W. W. Butler, of Grand View, Washington, in the Yakima Valley, is one of our customers. One day last fall he was kind enough to hand us some snap shot photos of some of the trees he had obtained of us in previous seasons.

We reproduce herewith two of these small photos, which were not taken for reproduction, but which nevertheless give some idea of the results obtained with our stock.

Mr. Butler is but one of thousands of our customers who have done equally well with our trees, and the showing made here can be duplicated times without number.

"IT'S THE ROOT," and the top, and the freedom from pest, and the fact that they are matured before digging and that they reach the customer in the best of condition, that makes it worth while to buy our trees.

They are grown on the best of soil, under irrigation, both of which, with months of sunshine and constant cultivation, produce an unsurpassed root system and a clean, well-balanced top.

There are no pests here to infest the trees or roots.

Our splendid fall weather ripens the wood fiber without starting a new growth, as is often the case in the rain belt, for we water for the last time in August and Nature and the cultivator do the rest.

A fine stock of good trees for fall and spring delivery this season.

Send us your order or give it to our salesman.



Spitzenberg Trees in Mr. W. W. Butler's orchard at Grand View, Washington, thirty months from date of planting. Bought of Washington Nursery Company, Toppenish, Washington

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Reliable Nursery Stock

All stock budded from bearing trees,
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This is to certify that I have used Cooper's Tree Spray Fluids, VI, for killing San Jose scale and found it very effectual.
G. R. Castner, County Fruit Inspector.

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THE SOIL FUMIGANT
DESTROYS INSECTS IN THE GROUND

REDUCES LOSSES SAVES PROFITS
IT WILL PAY YOU TO INVESTIGATE
Write for 1910 booklet (32 pages)
Testimony from fruit growers everywhere

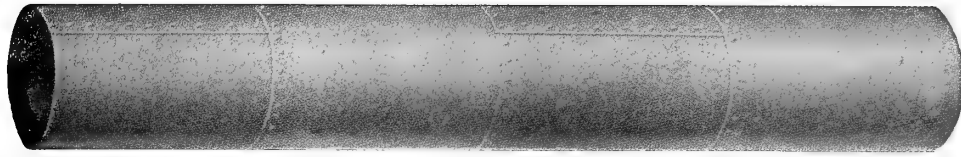
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425 Boxes of Jonathans From 100 Four-Year-Old Trees

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Results is what you want—Orengo trees will bring these results. They're bringing them to others—why not you?

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Permit us to figure on your wants.

Oregon Nursery Company

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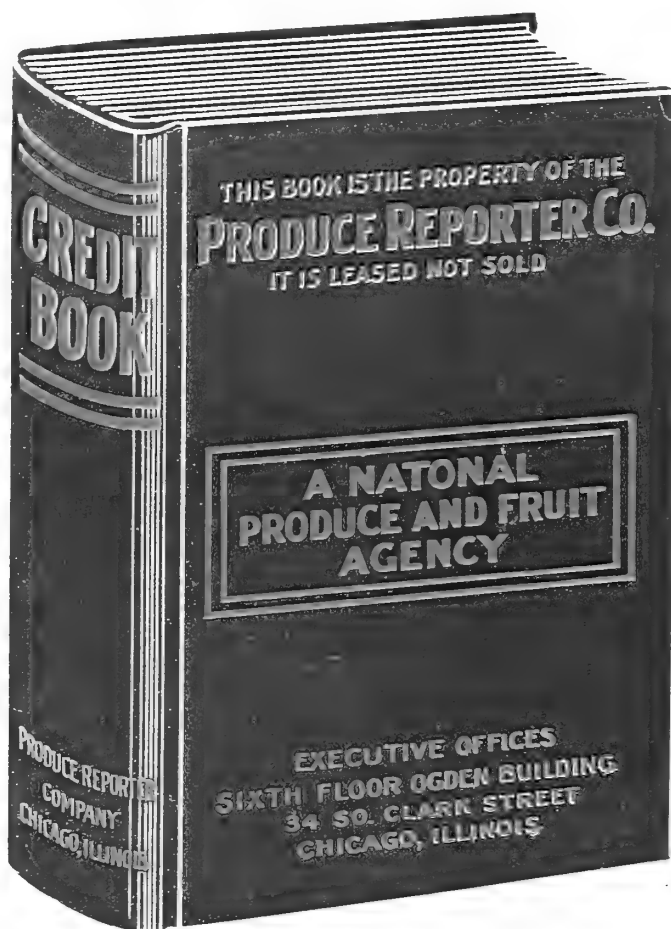
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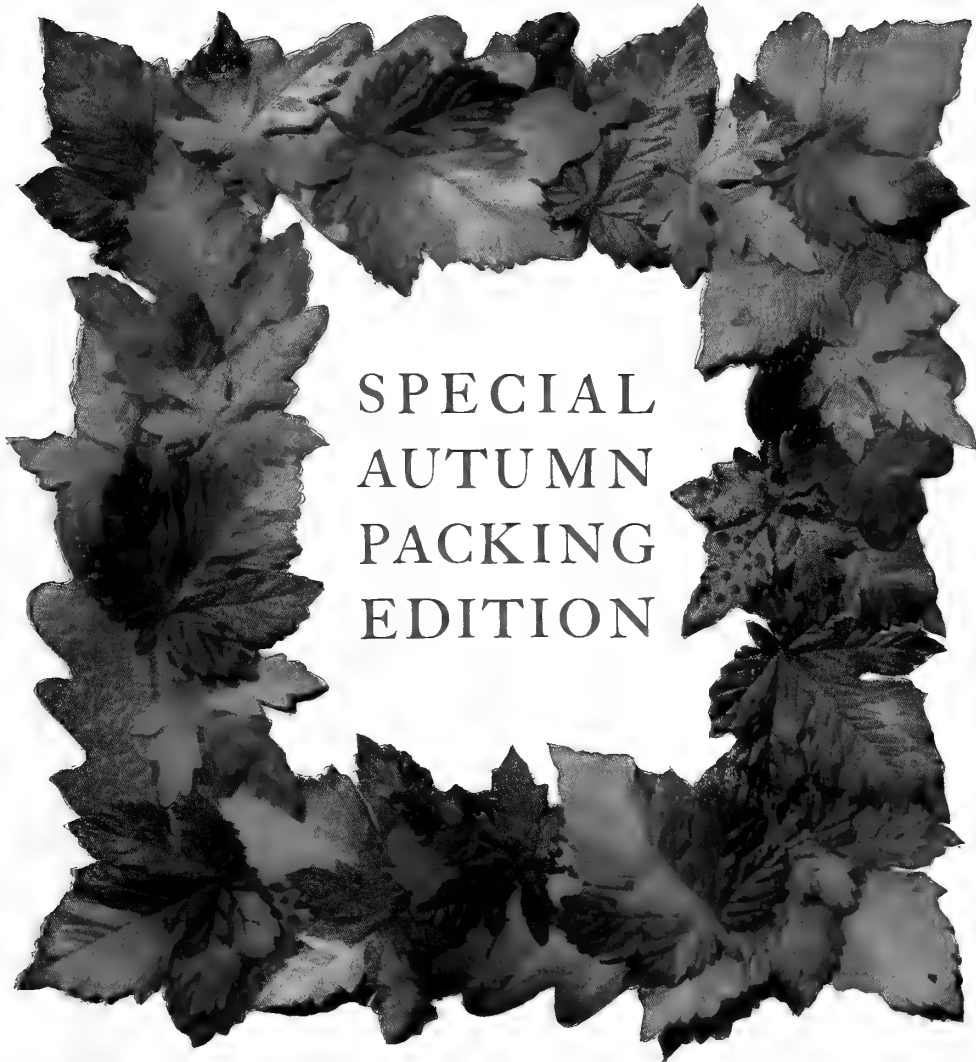
Produce Reporter Co.
CHICAGO

BETTER FRUIT

VOLUME VI

SEPTEMBER, 1911

NUMBER 3



SPECIAL
AUTUMN
PACKING
EDITION

BETTER FRUIT PUBLISHING COMPANY, PUBLISHERS, HOOD RIVER, OREGON

Subscription \$1.00 per Year in the United States and Canada; Foreign, Including Postage, \$1.50

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Dangerous Fruit Pests are Unknown
in the famous

Bitter Root Valley

on Montana's Pacific Slope
Where the Wormless Apples Grow

Smudging Is Unnecessary

There has not been a killing frost on the bench lands in the growing season in the history of the Valley. There are no dust storms.

Pure water and sunshine 300 days in the year make ideal health conditions.

Net profits annually range from \$2,000 to \$5,000

on a matured apple orchard of only ten acres.

Undeveloped land in this remarkable fruit district can still be bought for less money than is asked in other valleys less perfectly adapted by nature for successful fruit growing. Values now range from \$250 to \$350 per acre.

Developed tracts of ten acres, with contract to cultivate and care for same to five-year maturity, cost only \$5,000 if purchased now. Easy terms of payment for both developed and undeveloped land.

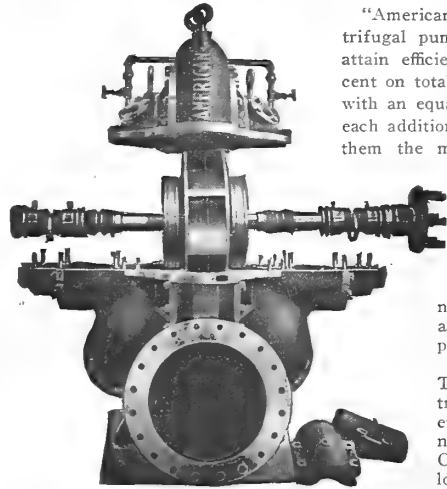
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All the Grand Prizes and All the Gold Medals
Given by the Alaska-Yukon-Pacific Exposition at Seattle
in 1909 to pumps were awarded to

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"American" single stage centrifugal pumps are guaranteed to attain efficiencies of 60 to 80 per cent on total heads up to 125 feet, with an equal increase in head for each additional stage, which makes them the most economical pump made for irrigation purposes.

"American" centrifugals are made in both horizontal and vertical styles, in any size, in any number of stages, and are equipped with any power.

Write for "Efficiency Tests of American Centrifugals," by the most eminent hydraulic engineer on the Pacific Coast. Complete catalogue, No. 104, free.

The American Well Works

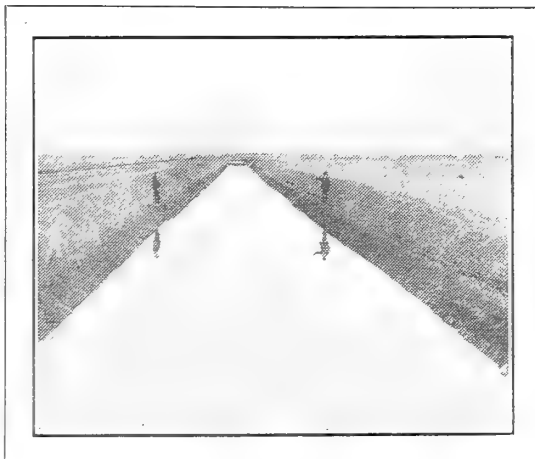
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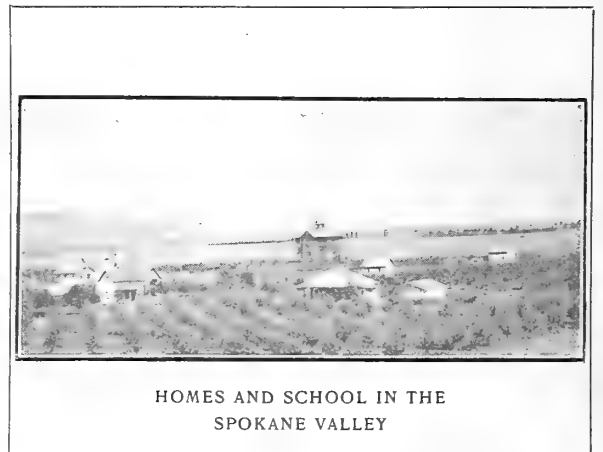
70 FREMONT STREET, SAN FRANCISCO
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Has developed the greatest apple and berry district of the West. Nearness to market causes larger net returns than in any other locality. Seventy-two trains daily through the valley. Every modern convenience. "Life's journey is swift; let us live by the way." The Spokane Valley has the unique distinction of being the only established apple district near a big city. Think what that means and investigate. Five thousand contented settlers.



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IN THE
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HOMES AND SCHOOL IN THE
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SPOKANE VALLEY IRRIGATED LAND CO.

401 SPRAGUE AVENUE, SPOKANE, WASHINGTON

A CHALLENGE

The NORTHWESTERN FRUIT EXCHANGE, from its General Offices in the City of Portland, Oregon, makes a SWEEPING CHALLENGE TO THE ENTIRE NORTHWEST, Washington, Oregon and Idaho, for a public comparison of AVERAGE NET CASH RESULTS on Apple Sales for the entire season of 1910.

The Exchange has already caused to be published through the public press, and otherwise caused to be disseminated in the widest possible manner, its season's averages, for over 60 different varieties of apples produced in every important district in the three states.

So far as it has been able to determine, based on the public announcement of others, it seems very clear that the results of the EXCHANGE are BETTER THAN THOSE OF ANY OTHER ORGANIZATION OR PERSON IN THE NORTHWEST not only from the standpoint of NET CASH RETURNS TO THE GROWERS, BUT also from the important point of distribution, the Exchange having employed 125 DIFFERENT Markets during the season.

Furthermore, the Exchange extends this challenge to embrace the METHOD OF SELLING, and makes the sweeping statement, based on the information available, that the Exchange disposed of a larger percentage of its output on an F. O. B. basis of sale than any other organization in the Northwest with an output of 100 cars or more.

Anyone wishing to accept this challenge may do so by appointing a certified public accountant who, together with another appointed by the Exchange, is to have access to the sales records of both contestants, the loser to pay for the services of both accountants. Access to its records will work no hardship on the Exchange, as its well known policy permits free access to its records at all times by any responsible, interested fruit grower.

IF YOU WANT TO
MARKET YOUR
FRUIT
RIGHT
ALWAYS SHIP TO
W. B. Glafke Co.
WHOLESALE FRUITS
AND PRODUCE
108-110 Front Street
PORTLAND, OREGON


W. H. DRYER W. W. BOLLAM
DRYER, BOLLAM & CO.
GENERAL COMMISSION MERCHANTS
138 FRONT STREET
PHONES: MAIN 2848
A 2848 PORTLAND, OREGON

Levy & Spiegl
WHOLESALE
FRUITS & PRODUCE
Commission Merchants
SOLICIT YOUR CONSIGNMENTS
Top Prices and Prompt Returns
PORTLAND, OREGON

Correspondence Solicited
RYAN & VIRDEN CO.
BUTTE, MONTANA
Branch Houses:
Livingston, Bozeman, Billings
Montana
Pocatello, Idaho
Salt Lake City, Utah
Wholesale Fruit and Produce
WE HAVE MODERN COLD STORAGE FACILITIES
ESSENTIAL FOR HANDLING YOUR PRODUCTS
*A strong house that gives reliable market
reports and prompt cash returns*

The Old Reliable
BELL & CO.
Incorporated
WHOLESALE
FRUITS AND
PRODUCE
112-114 Front Street
PORTLAND, OREGON

Richey & Gilbert Co.
H. M. GILBERT, *President and Manager*
Growers and Shippers of
YAKIMA VALLEY FRUITS
AND PRODUCE
Specialties: Apples, Peaches, ..
Pears and Cantaloupes
TOPPENISH, WASHINGTON

W. F. LARAWAY
DOCTOR OF OPHTHALMOLOGY
EYES TESTED  LENSES GROUND
Over 30 Years' Experience
Telescopes, Field Glasses
Magnifiers to examine scale
Hood River Oregon and Glenwood Iowa

Mark Levy & Co.
COMMISSION
MERCHANTS
WHOLESALE FRUITS
121-123 FRONT AND
200 WASHINGTON ST.
PORTLAND, OREGON

SGOBEL & DAY
Established 1869
235-238 West Street NEW YORK
Strictly commission house. Specialists in apples,
pears and prunes. Exporters of Newtown Pippins
to their own representatives in England

**QUALITY
QUALITY
QUALITY**

T. O'MALLEY CO.
COMMISSION MERCHANTS
Wholesale Fruits and Produce
We make a specialty
in Fancy Apples, Pears and
Strawberries
130 Front Street, Portland, Oregon

D. CROSSLEY & SONS

Established 1878

APPLES FOR EXPORT

California, Oregon, Washington, Idaho and Florida fruits. Apples handled in all European markets. Checks mailed from our New York office same day apples are sold on the other side. We are not agents; we sell apples. We make a specialty of handling APPLES, PEARS AND PRUNES on the New York and foreign markets. Correspondence solicited.

200 to 204 FRANKLIN STREET, NEW YORK

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LIVERPOOL

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SIMONS, SHUTTLEWORTH & CO.

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204 Franklin Street, New York

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OUR SPECIALTIES ARE APPLES AND PEARS

TREES APPLE, CHERRY TREES PEAR, PEACH

MILTON NURSERY COMPANY

A. MILLER & SONS, Inc.

You cannot afford to take a chance in buying trees to plant for future profit. It requires knowledge, experience and equipment to grow reliable nursery stock.

OUR 33 YEARS' EXPERIENCE in growing first-class trees, true to name, for commercial orchards, insures our customers against any risk as to quality and genuineness of stock.

Orders are now being booked for fall delivery 1911. Catalog and price list free for the asking.
Address all communications to

MILTON NURSERY COMPANY, Milton, Oregon

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know about*

OREGON

*Subscribe
for*

THE CHAMBER OF COMMERCE BULLETIN

The Largest Commercial Magazine in the West. Devoted to upbuilding Oregon and the Pacific Northwest
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ADDRESS

THE CHAMBER OF COMMERCE BULLETIN

DAVID N. MOESSOHN, Publisher
Suite 717 Chamber of Commerce Building, PORTLAND, OREGON

Ship Your APPLES and PEARS to the Purely Commission and Absolutely Reliable House

W. DENNIS & SONS

LIMITED

COVENT GARDEN MARKET
LONDON

and

CUMBERLAND STREET
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SLOCOM'S BOOK STORE

Office Supplies
Stationery

Ledgers, Journals, Time Books
Memorandum Books
Rubber Stamps
Souvenir Postals Picture Frames

SEATTLE

Increased 194 per cent in population, according to Uncle Sam's last census. This is more than any other large city in the PACIFIC NORTHWEST.

WASHINGTON

Leads all states of the Union in growth, having increased 129.4 per cent, according to the same authority.

If you want accurate information about Seattle and Washington, subscribe for

PACIFIC NORTHWEST COMMERCE

The official publication of the Seattle Chamber of Commerce. Comes monthly, \$1.50 a year.

Address

PACIFIC NORTHWEST COMMERCE

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Burpee's Seeds that Grow

140 VARIETIES ANY QUANTITY

Plenty of stock in our 40,000 pounds

Growing Plants as season requires

All makes high grade

Pruning Tools

Garden Tools

Hose and Spray Nozzles

International Stock and

Poultry Food

International Remedies

Incubators and Brooders

Everything for Building

Everything for Furnishing

Stewart Hardware & Furniture Co.
22,000 feet floor space. Hood River, Oregon

Spitzenbergs & Newtowns

From the
Hood River Valley,
Oregon

Took the first prize on carload entry at the Third National Apple Show, Spokane, Washington, and Chicago, Illinois, 1910.

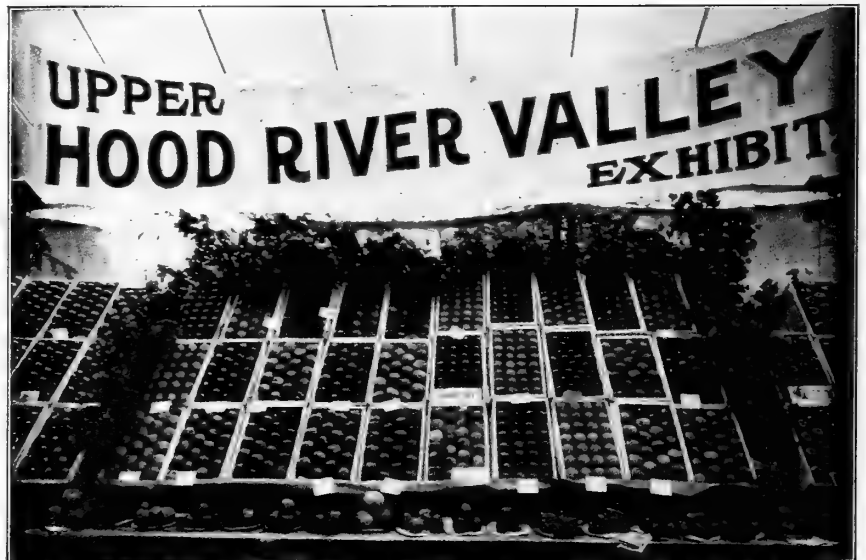
The Spitzenberg car scored, out of a possible 1,000 points, 997. The Newtown car, out of a possible 990 points, scored 988.

The Spitzenberg carload also won the championship carload prize at this show.

Can You Beat It?

We have got land improved and unimproved that is growing such fruit and that can grow it.

We are agents for the Mount Hood Railroad Company's logged off lands in Upper Hood River Valley. Many started in a small way; today they are independent. You can begin today. It pays to see us. Send today for large list of Hood River orchard land, improved and unimproved, and handsome illustrated booklet.



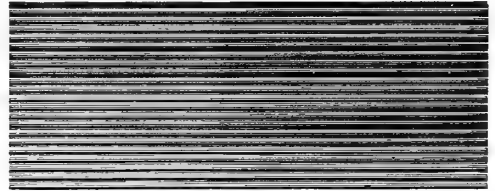
The above picture shows a prize-winning exhibit of Upper Hood River Valley apples at the Hood River Apple Show

W. J. Baker & Company

Hood River
Oregon

The oldest real estate firm in Hood River. Best apple land our specialty

Corrugated Paper



Its use in your Pear or Apple box will prevent the fruit from getting bruised when being packed or in transit.

Corrugated Paper Acts as a Cushion to Your Fruit

G. P. READ, 199 Duane Street, New York

Write for samples and prices. Send for one of my booklets on Fruit Packing Supplies. IT IS FREE.

Branch Office and Factory, Albion, N. Y.

Stanley-Smith Lumber Co.

WHOLESALE AND RETAIL

LUMBER

Lath, Shingles, Wood, Etc.

HOOD RIVER, OREGON

Ryan & Newton Company

Wholesale Fruits & Produce

Spokane, Washington

We have modern cold storage facilities essential for the handling of your products

Reliable Market Reports

PROMPT CASH RETURNS

YAKIMA COUNTY HORTICULTURAL UNION

North Yakima, Washington

C. R. Paddock, Manager

Apples, Pears, Peaches, Cherries
Plums, Prunes, Apricots, Grapes
and Cantaloupes

Mixed carloads start about July 20. Straight carloads in season. Our fruit is the very best grade; pack guaranteed

We use Revised Economy Code

References { District National Bank
American National Bank

Codes { Economy
Bakers
Revised Citrus

ERNEST M. MERRICK

Wholesale Fruit Commission Merchant

APPLES A SPECIALTY

937-939 B Street, N. W. WASHINGTON, D. C.

We have been established here for over twenty-two years in one of the best localities in the city. Our facilities are at least equal to any house in the city in our line of business.

WE SPECIALIZE IN
APPLES

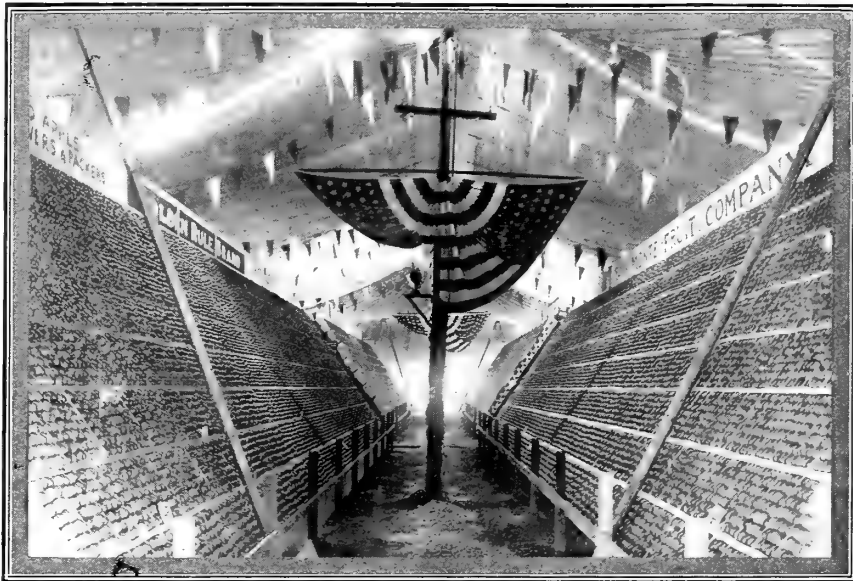
Ridley, Houlding & Co.

COVENT GARDEN, LONDON

WE WANT TO REPRESENT THE GROWERS OF
BETTER FRUIT. We know that our
BETTER METHODS of selling will bring
BETTER RESULTS

A Trial Solicited

All Shipments Receive Personal Attention



VISIT

THE SECOND

Apple Annual

An Apple Show Where Apples Grow. Instructive and Entertaining

Watsonville, California

October 9th to 14th

INCLUSIVE

20 Full Carload Exhibits.

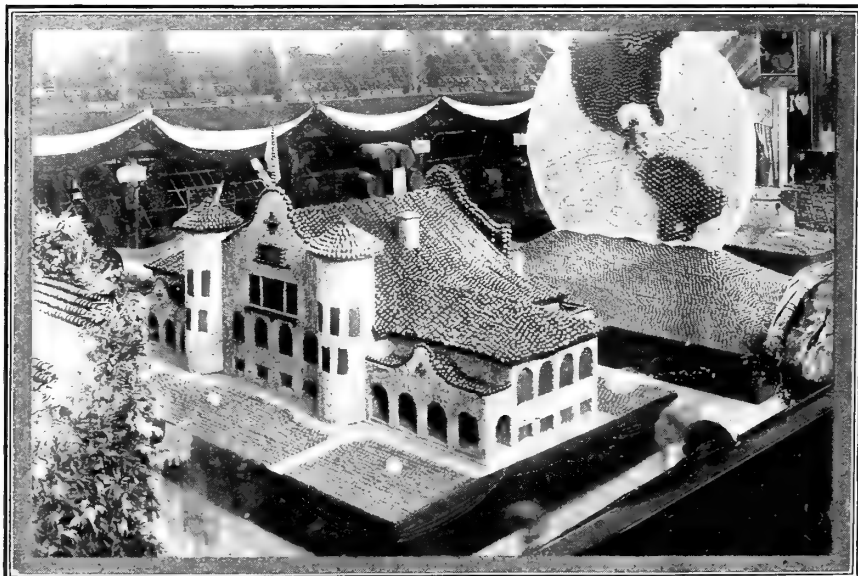
Many Unique Feature Exhibits

SEE THE WONDERFUL
PAJARO VALLEY
in SANTA CRUZ COUNTY
CALIFORNIA

1910 Apple Crop 5,000 Carloads.
Last Year's Apple Show was an
Eye Opener. This Year's Show will
be a Corker.

EXCURSION RATES
ON ALL RAILROADS

For Information, write
APPLE ANNUAL ASSOCIATION
Watsonville, California



AMERICAN APPLE EXPOSITION AND CARNIVAL

Auditorium, Denver, Colorado

Week of November 12

Growers in every apple district on the American
Continent are invited to send exhibits

AMERICAN APPLE CONGRESS ANNUAL CONVENTION SAME WEEK

The City of Denver intends to make this the greatest Apple Show ever held on earth. Carnival features will be introduced to make the week an occasion of continued festivities

WRITE FOR PREMIUM LIST

American Apple Exposition Association

210-211-212 Chamber of Commerce Building

DENVER, COLORADO

CLINTON L. OLIVER, General Manager

COLONIST FARES

FROM THE MIDDLE AND EASTERN PORTIONS OF THE UNITED STATES AND CANADA TO

Oregon, Washington and all the Northwest

WILL PREVAIL DAILY

September 15 to October 15, 1911

OVER THE

Oregon-Washington Railroad and Navigation Co.

AND CONNECTIONS

The Oregon Short Line, Union Pacific and Chicago and Northwestern

YOU CAN PREPAY FARES

The Colonist fares are west-bound only, but if you have relatives or friends or employes in the East whom you desire to bring to this state you can deposit the value of the fare with your local railroad agent, and an order for a ticket will be telegraphed to any address desired.

From Chicago at	- - -	\$33.00
St. Louis	- - -	32.00
Omaha	- - -	25.00
Kansas City	- - -	25.00
St. Paul	- - -	25.00
And from other cities correspond-		
ingly low.		

LET THE WORLD KNOW

Of our vast resources and splendid opportunities for home building. Call on the General Passenger Agent for good instructive printed matter to send East, or give him the address of those to whom you would like to have such matter sent.

Washington Non-Irrigated Apples

GROWN AT WHITE SALMON

Can be delivered by the ALL-WATER ROUTE, via PANAMA CANAL (when completed) to NEW YORK for LESS than from any point not on the COLUMBIA RIVER. It is estimated that our apples, now costing 60 cents a box to New York (by the car), can be shipped ALL-WATER in 1915 for only 25 cents a box. Worth considering.

NON-IRRIGATED FRUIT cannot be grown successfully in every climate. WHITE SALMON produces the FINEST GRADES OF WINTER APPLES WITHOUT IRRIGATION. Worth considering; irrigation means constant work. Our climate is cool summers as a rule, mild winters, our rainfall being about 37 inches. It's a pleasure to live here; our CLIMATE cannot be surpassed, neither our scenery. Our ranchers are CONTENTED and HAPPY, which is half of life. Write us and we will tell you more of this WHITE SALMON district, its past and FUTURE. Land values increase October 1, as a rule. We have a few SPECIALS for those who write us at once. Tell us your needs—we may have what you want.

H. W. DAY REALTY CO., White Salmon, Washington

APPLES

PLUMS

PEARS

PEACHES

PRUNES

WHITE SALMON VALLEY THE LAND OF OPPORTUNITY

Located across the Columbia River from Hood River, Oregon, the White Salmon Valley offers the greatest opportunities of any land on earth to fruit growers.

WHERE APPLES, CHERRIES, PEACHES, PEARS, PRUNES AND STRAWBERRIES GROW TO PERFECTION

A few dollars invested in fruit land today will return to you in a very few years sixty-fold. The SOIL, CLIMATE, WATER and SCENERY are unsurpassed by that of any country.

We have bargains in orchard lands in and near White Salmon, also large and small bodies of timber land, cheap.

WRITE US FOR DESCRIPTIVE MATTER AND PRICES

ESTES REALTY & INVESTMENT CO.

White Salmon, Washington

BERRIES

CHERRIES

STRAWBERRIES

NUTS

NEW TOWNS
JONATHANS

SPLITZENBERGS
WINE SAPS

Mosier Fruit Growers' Association

APPLES

“Fancy Fruit in a

PRUNES

Fancy Pack”

PLUMS

Quality Apples

CHERRIES

a Specialty

PEACHES

PEARS

MOSIER, OREGON

FRUIT LAND

In tracts of 5 to 10 acres each. Some cleared, some partly cleared; some all timbered and some planted to commercial orchards, at surprisingly low prices and on easiest terms. They are in the heart of a rapidly developing fruit section adjoining good railway town in the valley. Here is a chance to buy good land cheap. We will plant it for you if you wish. Write for particulars.

OREGON APPLE ORCHARDS CO.

432 Chamber of Commerce Building, Portland, Oregon

Eastern office, Bloomington, Illinois

Selling Goods

is quite as much of a science as producing them. If you have for sale goods of a high quality it is imperative that you employ a sales element of equal quality. Our Printing is designed to *sell goods*—its high standard bespeaks an equally high standard for what it advertises. We invite inquiries. Our prices are based on honest time and therefore reasonable.

F. W. BALTES AND COMPANY
PRINTERS DESIGNERS AND BINDERS
PORTLAND, OREGON

Let George Do It!

is a slogan that spells defeat for any fruit grower so far as marketing goes.

"George" may be a good fellow and all that, but—you know business is business.

On a basis of results—cold dollars and cents—we invite you to compare the service we have to offer with any other.

Mind you, we didn't break into the Western fruit deal yesterday, but members of our firm and men on our staff have literally camped on the north side of snow banks in reaching certain sparsely settled valleys some years ago that are today garden spots, and what is more, people there stick to us as sales agents year after year.

We're open for accounts and quotations.

Gibson Fruit Company

CHICAGO

P. S.—We make a specialty of Western Box Apples.

Some Talk Dutch, Some Talk German

SOME TALK EITHER

English, Irish, Swede, Danish, Italian,
Japanese or Chinese

We talk business.

We have the trees that please all nationalities.

Why? Because they are grown right. Proper care is given to varieties. They are packed correctly for shipping. They are delivered on time. Our prices are right. Write for catalogue or call our salesman.

IF YOU CAN SELL GOODS WE HAVE
AN OPPORTUNITY FOR YOU

Capital City Nursery Company

Rooms 413-415 U. S. National Bank Building, SALEM, OREGON

PHOTOGRAPHS CANNOT LIE—They show exactly what comes before the camera. Half-tones are exact reproductions of photographs and are necessarily true to nature.



A block of Bing, Lambert, Royal Ann (Napoleon) as the camera shows it

Sweet Cherry

For the western cherry grower we have thousands upon thousands of handsome 1-yr. and 2-yr. trees, grown in the finest cherry soil in the world. Bing, Lambert and Royal Ann (Napoleon) constitute the bulk of our sweet cherry blocks, and these three varieties are the ones that are planted almost exclusively and are the ones that have made the cherry regions of the West famous. They are unfailing money makers.

Sweet cherries can be grown only in favored localities; the area is so limited that over production cannot be considered even among the possibilities—at least for many years. Therefore, these regions must increase their plantings as the demand for the fruit is increasing with each season—much more rapidly than the production, and the markets have never been one-tenth supplied. They should be planted by the thousands of acres. Cherry growing for the canners—to say nothing of the great and growing markets for the fresh fruit—is becoming one of the great industries of the West and it is only fairly well begun. The markets of the world are open to the producer.

Condensed Stark Year Book, 1912, is now in the hands of the printers and will be sent free to any reader of **Better Fruit**. Write for it today, and when writing tell us your planting plans. Perhaps some lessons we have learned in our many years of experience in nursery and orchard will help you steer clear of some of the orchard mistakes that cost many planters dearly. We will be glad to be of any service. The help of our Special Service Department is yours for the asking.

Stark Bro's Nurseries & Orchards Co.

Louisiana, Missouri. Lock Box 12 A.

The Cyclone Apple Packer

Saves Time, Saves Labor
Saves Expense
Price \$15.00, F. O. B. Wenatchee

Is without exception the best machine on the market in the packer line, and is a great boon to all fruit growers. This machine is patented and is built here, under the supervision of wide-awake growers.

It does not injure fruits or other products that require careful packing. A boy can do more work on this machine than a man can on any other.

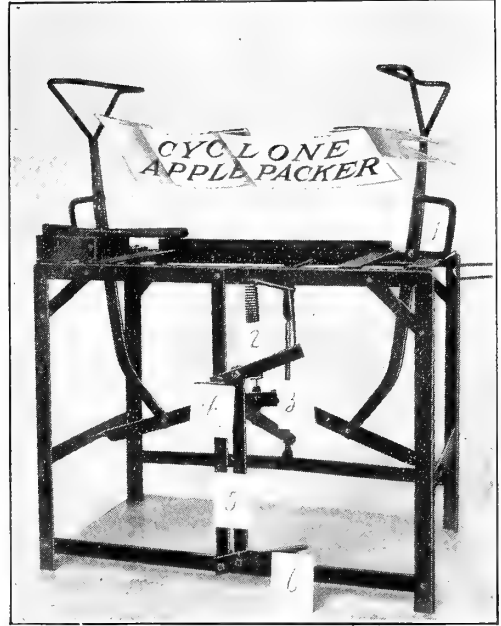
THE NEW COMPRESSION LEVER A FEATURE

This packer is designed to obviate the well known faults of other style machines. With the old style machine it is necessary for the operator to place the compression arms in position before tightening the covers. The Cyclone does away with this fault, by the operator merely pressing his foot on the compression lever, which immediately brings the arms to the proper position, besides adjusting the covers even with the ends of box. By the use of the patented friction clutch the arms can be set at any desired position, and instantly released by pressing the release lever, which brings the arms back to place.

STEEL CONSTRUCTION

The all-steel construction of this machine insures lightness and durability. The compression arms are positive in operation, by means of the guides which hold them in the slides, as is shown by Figure 1. Attention is called to wide space on the arms, which gives plenty of room for nailing and cleats. The heavy release spring, as shown by Figure 2, is sufficiently strong when released to bring all parts back to place. Figure 3 shows the connecting link, which is bolted to the connecting bars, and to these bars are bolted the compression arms, and by this attachment any unevenness in the pack is overcome and guarantees bringing the covers securely down on the box. Figure 4 shows the foot lever, which is conveniently bolted to the machine. The friction clutch (Figure 5) is so arranged that any pressure on the foot lever immediately expands the spring, and thus tightens on the lever, holding it at any desired position. Figure 6 shows the release lever, which is bolted close to the foot lever, making both easily operated with one foot. The machines are sold under a positive guarantee to give satisfaction Try one.

The Cyclone has made good where other presses have failed. It is perfection in every detail.



The Modern Fruit Packer

WELLS & MORRIS
WENATCHEE, WASHINGTON

\$1460 IN APPLE PRIZES

and Bigger Premiums in Every
Fruit Class at the

SPOKANE INTERSTATE FAIR

October 2nd to 8th, 1911

Special \$100 Prizes for Irrigated and
Non-Irrigated Displays. Additional
Awards to More Important Varieties.

ONLY APPLE SHOW IN SPOKANE THIS YEAR

Write for Premium List to
ROBERT H. COSGROVE, Manager
SPOKANE, WASHINGTON

Grafted Walnut Trees

We do not grow regular nursery stock, but make a specialty of first-class grafted Walnut Trees. While we are growing and grafting our own trees for our 250-acre tract, we decided to grow some trees for sale.

In doing so we believe we are offering the very best trees that can be bought at any price. Vrooman Franquettes grafted on Royal Hybrid and California Black roots.

Our supply has never been equal to the demand, so if you want to be sure and have your order filled, order early.

Ferd Groner

Rose Mound Farm

HILLSBORO, OREGON

Deming Spray Pumps

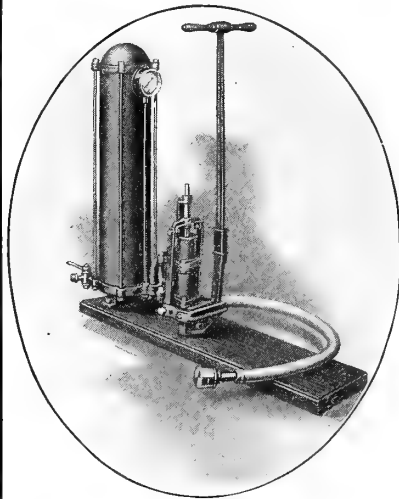
Good After Years of Service

Almost any sprayer does good work at first, but the true "character-test" comes when it is put to an extra hard piece of work that would break down an ordinary machine.

Deming Spray Pumps are built for this "character-test"—they do their every day work all the better for it, and still have "something in reserve" when you drive them harder than usual.

The same qualities which make them strong enough for the hard tests, make Deming Spray Pumps *long-lived*—make them work on and on, year after year, long after a cheaper outfit would have been cast aside.

Deming Outfits are "making good" everywhere. You need one of them, too. See the Deming dealer nearest you or write



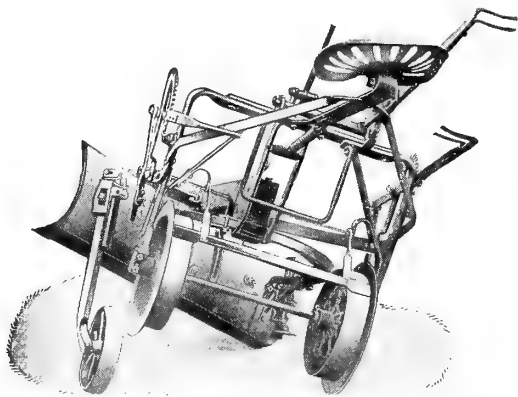
CRANE CO.

Pacific Coast Agents
Portland, Seattle, Spokane, San Francisco

The Deming Company
870 Depot Street
Salem, Ohio
Hydraulic Rams,
Hand and Power Pumps
for All Uses

20th Century Grader

The Light-Weight Wonder—600 Pounds



Will make your ditches—level your land—grade roads, throw up borders at a third usual expense. It's the Many Purpose Machine—the Irrigationist's best investment—the handy tool which you will find use for every day in the year—thousands in use.

Our new catalog full of pictures of the machine at work, shows how it will save you money. Send post card for it, name of nearest agent and distributing point.

BAKER MANUFACTURING CO.

542 Hunter Building, Chicogo, Illinois



Spray Your Fruit for Codling Moth with Grasselli Arsenate of Lead IT IS THE BEST

We are now ready to demonstrate the correctness of our statement from a practical standpoint.

We give you the following names and addresses of the winners of the Grand Sweepstakes prize of \$1,000 for the best car of apples shown at the National Apple Show, Spokane, Washington:

- 1908—M. Horan, Wenatchee, Washington.
- 1909—Tronson & Guthrie, Eagle Point, Oregon.
- 1910—C. H. Sproat, Hood River, Oregon.

All sprayed with Grasselli Arsenate of Lead.

Bear in mind that this material was used at three different points, and during three different seasons. Does this not demonstrate to your satisfaction the superiority of Grasselli Arsenate of Lead, both as to locality and climate in which it may be used?

If so, it will not be necessary to ask yourself the question, "What Arsenate of Lead shall I use this season?" You will order Grasselli Brand.

Do not buy Arsenate of Lead on arsenic contents alone. Bear in mind when buying this spray that lead should be given equal consideration with arsenic, because it increases the adhesive properties and reduces to a minimum foliage injury.

DISTRIBUTERS IN THE NORTHWEST:

- Inland Seed Co., Spokane, Washington
- Hardie Manufacturing Co., Portland, Oregon
- Samuel Loney & Co., Walla Walla, Washington
- Missoula Drug Co., Missoula, Montana
- Western Hardware & Implement Co., Lewiston, Idaho
- Salem Fruit Union, Salem, Oregon
- Hood River Apple Growers' Union, Hood River, Oregon
- C. J. Sinsel, Boise, Idaho
- Yakima County Horticulturists' Union, North Yakima, Washington
- Darrow Bros. Seed & Supply Co., Twin Falls, Idaho
- Rogue River Fruit and Produce Ass'n, Medford, Oregon

AND in all consuming districts.

WRITE THE ABOVE, OR

H. N. LYON, Northwestern Representative
505 Concord Building, Portland, Oregon,
for name of nearest distributor

THE GRASSELLI CHEMICAL CO.

Established 1839

Main Office, Cleveland, Ohio

- St. Paul, Minnesota.....172 and 174 East Fifth Street
- Chicago, Illinois.....2235 Union Court
- New York City.....60 Wall Street
- St. Louis, Missouri.....112 Ferry Street
- New Orleans, Louisiana.....Godchaux Building
- Cincinnati, Ohio.....Pearl and Eggleston Streets
- Birmingham, Alabama.....825 Woodward Building
- Detroit, Michigan.....Atwater and Randolph Streets

W. E. BIGALOW, President

Capital and Surplus \$75,000.00
Established 1883

H. J. BIGALOW, Secretary and Treasurer

REFERENCES:

- The First National Bank, Cleveland
- All Commercial Agencies
- The Produce Reporter Company
- Any reliable house in our line in the United States



Commission Merchants

Jobbers and Wholesalers

CLEVELAND, OHIO

Apples, Plums, Prunes, Pears, Oranges, Lemons

We have the largest and best trade in the Cleveland territory; our facilities are unsurpassed
We have had years of experience in handling box apples and fancy fruits

We solicit your correspondence and shipments

SOME OF OUR SHIPPERS—REFERENCES:

- The California Growers' Exchange, Los Angeles, Cal.
- The California Fruit Distributors.
- The Earl Fruit Company.
- The Pioneer Fruit Company.
- The Producers' Fruit Company, Sacramento, Cal.
- The Stewart Fruit Company, San Francisco, Cal.
- The Atwood Grape Fruit Company, Manavista, Fla.
- The Georgia Fruit Exchange, Atlanta, Ga.
- The Florida Citrus Exchange, Tampa, Fla.
- Crutchfield & Woolfolk, Pittsburg and Chicago.
- Redlands Golden Orange Association, Redlands, Cal.

Ogburn's Fruit Gathering Vessels

THIS VESSEL IS INDORSED BY HORTICULTURAL COLLEGES, FRUIT ASSOCIATIONS AND GROWERS.

You cannot afford to be without them. Each one will pay for itself many times in saving your crop. 1911 Vessels equipped with non-shrinkable canvas bottoms, improved fastenings and shoulder strap complete. Saves money by preventing bruising fruit in handling from tree to box. Saves time by being quick to operate and leaving both hands free to gather with. Money saved is money made. Especially designed for apples, pears, peaches, oranges, lemons and tomatoes. Can be used to great advantage in gathering cherries, plums, prunes and grapes. In handling small fruits, place a piece of wrapping paper in the bottom. The canvas bottom slides underneath the paper and delivers the fruit on your packing table without the slightest injury. This Vessel is an oblong metal pail, black japanned, larger at the bottom than top, equipped with canvas bottom which slides from underneath the fruit, simply laying it on the bottom of the box, or where desired, without disturbing the fruit, the bell-shaped pail lifting off without injuring the fruit in any way. The Vessel holds one-half bushel or half box of apples, and in emptying the second time the canvas bottom eases the fruit in the Vessel on that in the box without bruising or scratching, which is practically impossible with the wood or metal bottom pail. If your hardware dealer or association haven't this Vessel in stock, order direct from factory. Trade price list furnished merchants and agents by Wheeling Corrugating Company, Wheeling, W. Va., upon application. Address all orders to factory. All goods shipped direct from factory.

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The Old Way
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The New Way
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OLD WAY—25% BRUISED



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Manufactured and Distributed by
WHEELING CORRUGATING COMPANY
Wheeling, West Virginia

For J. H. OGBURN, Patentee, Wenatchee, Washington
Took first prize and gold medal at National Apple Show, Spokane, Washington, November 14 to 19, 1910.

Agents and Distributors:
Wells & Morris, distributors for Wenatchee, Washington, and vicinity; Larsen Hardware Co., distributors for North Yakima, Washington, and vicinity; Holly-Mason Hardware Co., Spokane, Washington; E. A. Franz, Hood River, Oregon; Medford Hardware Co., Medford, Oregon; Ogden Fruit Growers' Association, Ogden, Utah; Denny & Co., Payette, Idaho; Boise Fruit Growers' Association, Boise, Idaho; Grand Junction Fruit Growers' Association, Grand Junction, Colorado; North Fork Valley Fruit Association, Paonia, Colorado; Pajaro Valley Mercantile Co., Watsonville, California, and other dealers in every fruit section of the United States.

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Wheeling, West Virginia 1911

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-Ogburn Fruit Gathering Vessels at \$1.50 each, complete, BY MAIL OR EXPRESS PAID.
-Extra non-shinkable canvas bottoms with fastenings, 75 cents per set, by prepaid freight or express.

NO FREIGHT ORDER RECEIVED FOR LESS THAN ONE DOZEN VESSELS
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Write Name and Address Clearly

Name.....
P. O.....
State.....

Freight or Express point.....
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TERMS: \$125.00 first payment secures five acres; \$250.00 first payment secures ten acres; balance monthly. Eight years in which to pay for your orchard. Write for literature.

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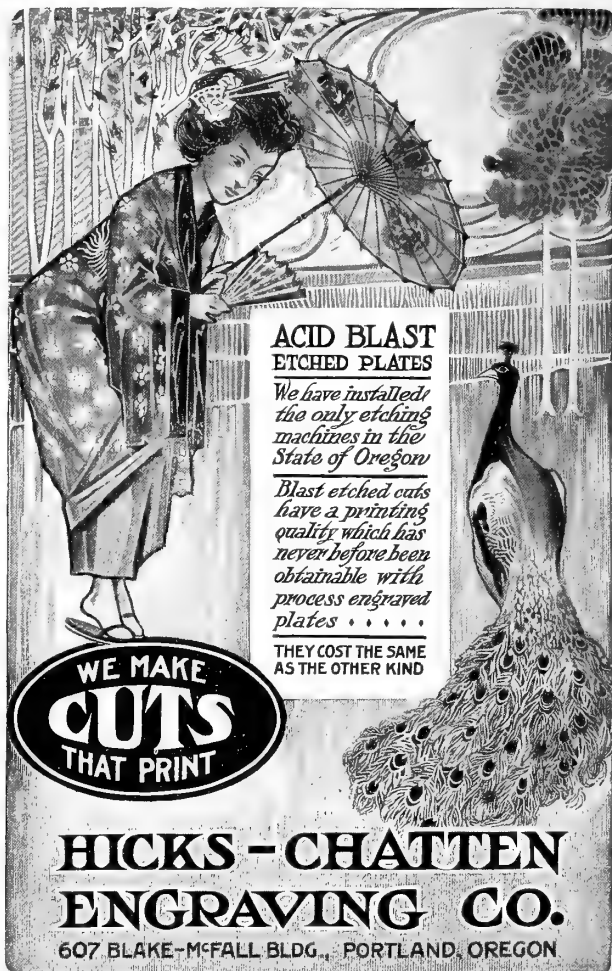
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CHARLES R. BONE

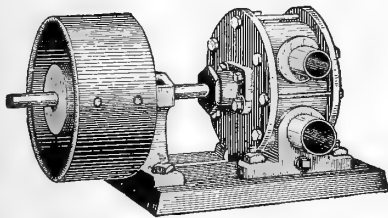
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Fruits and Produce

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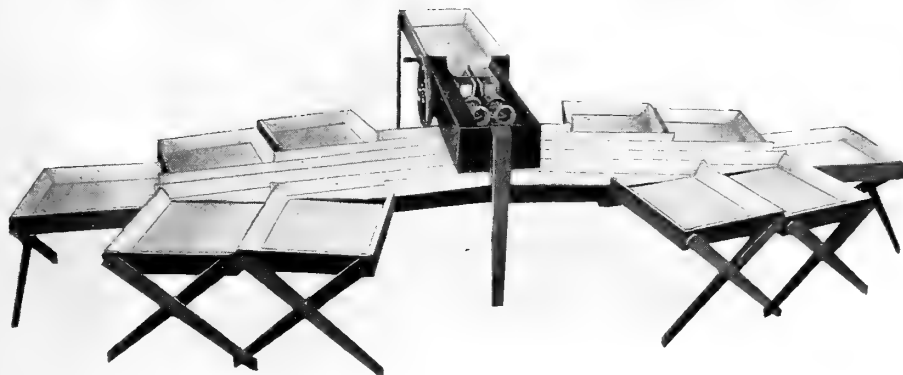
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CHAS. L. CASE, Manager

GRAND JUNCTION WHARVES, EAST BOSTON, MASSACHUSETTS

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The Schellenger Fruit Grading Machine

Marks the dawn of a new epoch in the fruit growing industry. It places the **TIER PACK** without its drawbacks within the reach of every fruit grower.

It is common knowledge that the slightest bruise spoils apples for storage purposes; so delicate are they, that even the most careful handling detracts materially from their appearance, storage life and market value. Even when experienced hand sorters are working under the **most competent supervision** they bruise the fruit; also hand grading is but **guess work** which results either in **loose ununiform packs**, or necessitates still more handling and consequently more bruising to regrade the fruit, etc. The object to be sought in packing apples is **NOT ONLY** to avoid every chance of bruising, but to adopt a system of getting the fruit graded accurately for both color and size with an absolute minimum of handling.

THE SCHELLENGER FRUIT GRADING MACHINE process does away completely with 75 of the handling required by hand sorting. This is not all, it grades the fruit with mechanical accuracy **ABSOLUTELY WITHOUT BRUISING** and delivers to the packer perfectly sorted fruit which insures him a uniform, tight, fancy market pack.

By an ingenious method, **one person does all the color and blemish sorting** without picking up an apple, after which each color grade is automatically sorted into the standard five size grades and carried out onto canvas screens in front of the packers. The

opportunity provided for inspection of the graded fruit is perfect; **there is triple assurance** against a blemished or off-color apple getting into a pack.

During the grading for size **the machine handles each apple separately**, it is impossible for them to touch one another. All wool, first quality soft felt, $\frac{3}{8}$ of an inch in thickness protects the fruit against the **slightest bruist**. Some idea of the gentleness with which this machine handles the fruit can be gained when it is realized that it will handle eggs and not so much as crack one.

Fruit **NEVER** sticks or clogs in the machine because the mechanical features are perfect and the mechanism is built upon honor. No expense has been spared in either the quality of material used in our machines, or the labor in constructing them, **THEREFORE, WE CAN, AND DO, FULLY GUARANTEE EVERY MACHINE.**

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Each grader is arranged to be operated either by power or hand as desired. Price of machine, f. o. b. Salt Lake City, \$100.00.

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The city is grading the streets in the business district preparatory to paving. Six miles of new macadam road is nearly completed. The municipal water system will soon be under way. Several business blocks are under construction, including an up-to-date opera house. New warehouses for storing fruit are being built along the railroad. Many fine new houses in the town and valley are under construction.

Hood River is a live district with something doing all the time. If you want to better yourself come here and we will tell you how to do it. We have good bargains in city and orchard property.

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THE RELIABLE DEALERS

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worth of ORCHARD PROPERTIES were sold by us in the past ninety days. Lots 1 to 43, inclusive, of

Mosier View Orchards

containing approximately 420 acres, have been sold, and the SECOND DEDICATION, embracing lots 44 to 74, inclusive, is now offered to the public at attractive prices and on easy payments. During the past THREE MONTHS we have sold

Mosier View Orchard Tracts

to some of the shrewdest buyers and most careful investors from New York, Massachusetts, North Dakota, Texas, Minnesota, Oregon, California, Montana, Washington, Missouri, Ohio and Alaska. Portland people alone purchased over \$50,000.00 worth of these ORCHARD PROPERTIES during this period. We plant to a commercial variety of apples these 5 and 10-acre tracts, and care for same in a scientific manner for a period of five years, without any cost to the purchaser except the purchase price, which is extremely low.

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trips to MOSIER VIEW ORCHARDS are becoming more popular every week. Call or write to us for our free booklet.

Hood River Orchard Land Company

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BETTER FRUIT

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

THE OFFSET SYSTEM—SCIENCE of PACKING APPLES

BY ROY C. BROCK, HOOD RIVER, OREGON

THIS article should be considered as a continuation of the one written for September issue of "Better Fruit" for 1910. The writer wishes to repeat one paragraph of the former article, namely, the definition of packing: "Packing is the classification of fruit in the proper sizes by placing fruit of the same size solidly into boxes in such a manner as to insure uniformity of appearance, neatness and protection from bruising. The purpose of careful packing is to make the box of fruit as attractive as possible to the purchaser and obtain thereby for it the highest possible price."

Generally speaking the diagonal system is considered more acceptable to the trade than the off-set system. However, there are several advantages to the grower who is a beginner in the business and wishes to get out the best possible pack with packers who are not experienced. With the diagonal system it is much easier to vary the size of the fruit used in each box from the bottom and center layers without materially spoiling the appearance on top. The inexperienced grower or foreman would, therefore, be led to believe from the surface appearance that the under layers had been packed as they should have been. The poor work, however, would undoubtedly be discovered on opening the box at its final destination, and complaint made by the parties inspecting it. With the off-set system a single apple of improper size will bring about a condition through the general pack and on the surface layer that cannot possibly be covered up. On the other hand, when both systems are properly used the diagonal is more to be desired for the reason that fewer of the apples come in sizes known as

straight packs, i. e., 45, 54, 63, 112, 128, 144. In the off-set packs the spaces show on the sides of the box, where they have a disagreeable effect upon the eye of the purchaser.

The off-set system used in the Northwest standard box (10½ inches by 11½ inches by 18 inches inside measurement) and Northwest special box (10x11x20

place an apple in each of the two crotches formed by the apple last placed and the sides of the box, and so continue until the last two apples have been firmly wedged against the end of the box away from the packer. Start the second layer by placing an apple in the pocket formed by the three first apples in the first layer at the end of the box nearest the packer and then follow with two apples, one in each of the center pockets formed by the two apples of the first layer, the one just placed in the second layer and the sides of the box. Continue this layer, ending with a single apple at the end of the box farthest from the packer in the same relative position as that of the first apple in the second layer of the box. The last layer will begin and end with two apples at each end and will really mean an apple in each of the four upper corners of the box. The 41 size of pack will always come on edge or cheek.

Size 45 in the standard, 64 and 63 in the special are considered among the straight packs and consists of three layers deep, three apples wide and vary nine apples each in contents. Occasionally one row of apples at end of each of the two layers in the 45 and 54 sizes require to be turned flat in order to keep the apples from being too high at the end and sufficiently snug in length. Further explanation of these packs is surely unnecessary.

Sizes 72 and 84 are the sizes in this system of packing from which the name "off-set" was taken. Start the first layer of these two sizes with three apples of the same size firmly together, cheek to cheek, with the stem or blossom toward the head of the box, with the first of the three in this row firmly against the left hand side of the box. Each of the other

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inside measurement) is made up of the following sizes: 41, 45, 54, 63, 72, 84, 96, 112, 128, 144, 160, 180, 200, 225. The sizes 41, 45, 54 and 63 are largely used for exhibition purposes, although a few boxes of these sizes are required to be packed for the larger growing varieties. In packing the size 41 start by placing the first two apples in the bottom corners of the end nearest the packer, placing a single apple in the crotch or pocket left between the two before placed. Now

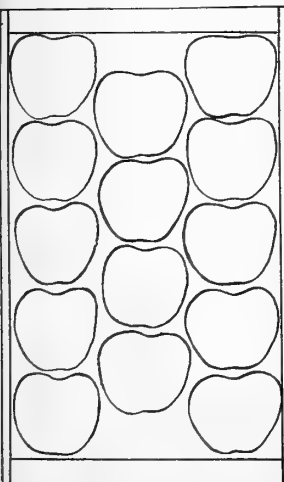


FIGURE 1. 41 APPLES Northwest Standard Box

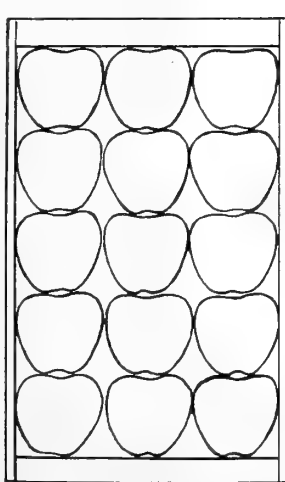


FIGURE 2. 45 APPLES Northwest Standard Box

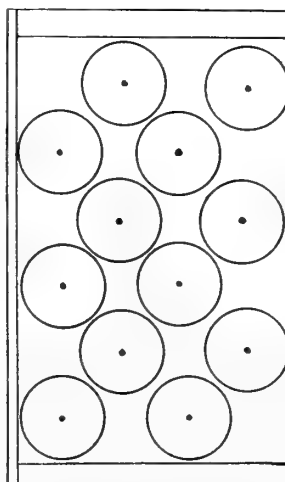


FIGURE 3. 48 APPLES Northwest Standard Box

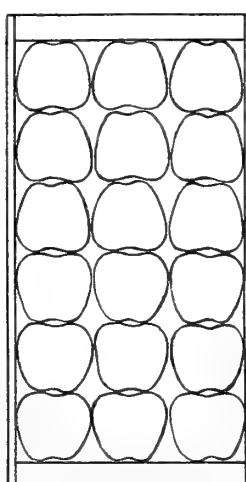


FIGURE 4. 54 APPLES Northwest Special Box

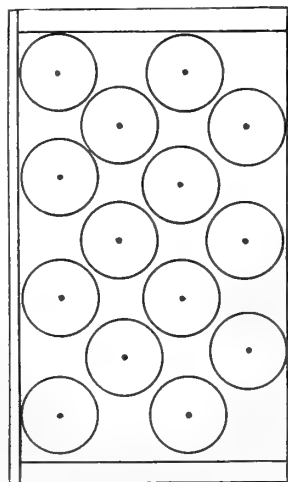


FIGURE 5. 56 APPLES Northwest Standard Box

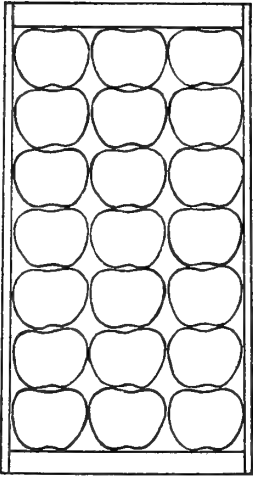


FIGURE 6. 63 APPLES Northwest Special Box

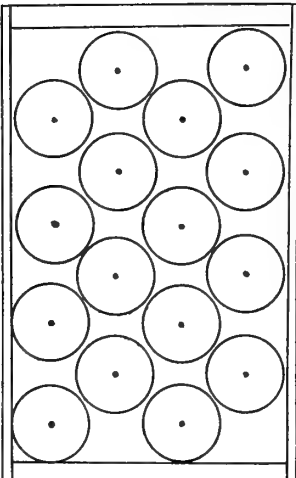


FIGURE 7. 64 APPLES Northwest Standard Box

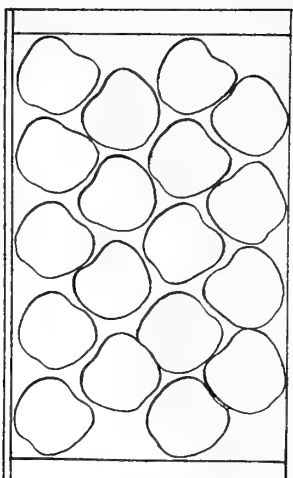


FIGURE 8. 72 APPLES Northwest Standard Box

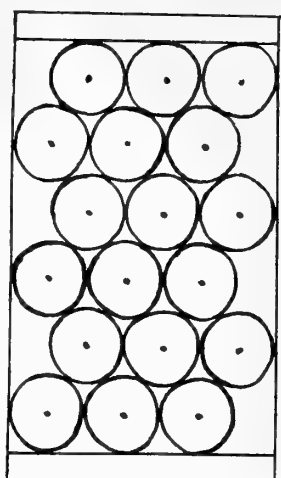


FIGURE 9. 72 APPLES Northwest Standard Box

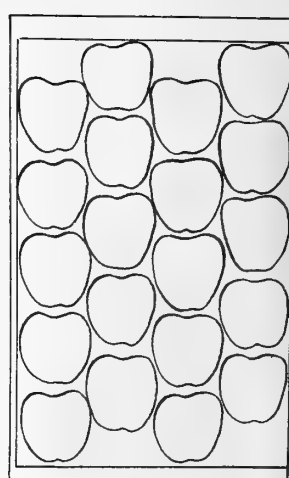


FIGURE 10. 80 APPLES Northwest Standard Box

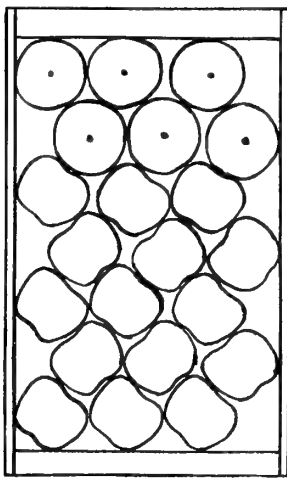


FIGURE 11. 84 APPLES Northwest Standard Box

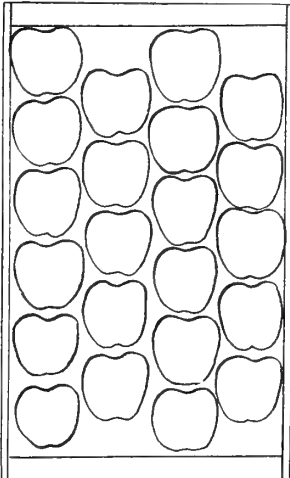


FIGURE 12. 88 APPLES Northwest Standard Box

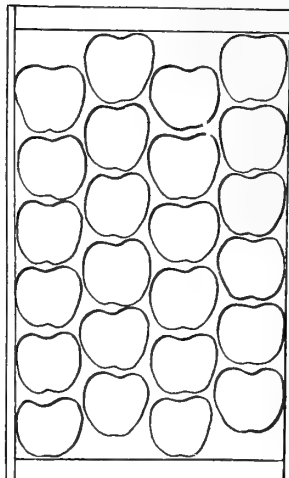


FIGURE 13. 96 APPLES Northwest Standard Box

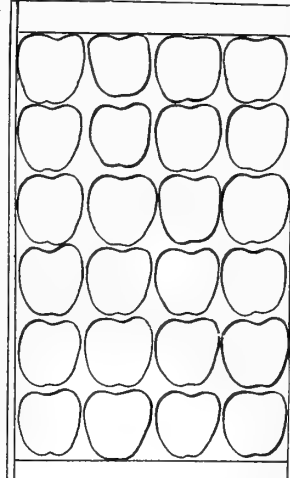


FIGURE 14. 96 APPLES Northwest Standard Box

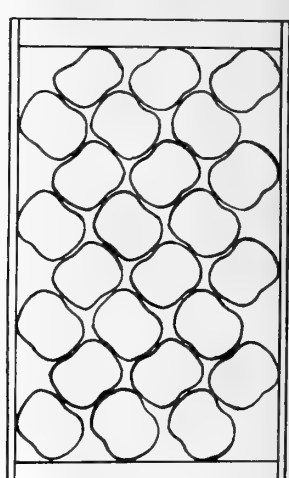


FIGURE 15. 96 APPLES Northwest Standard Box

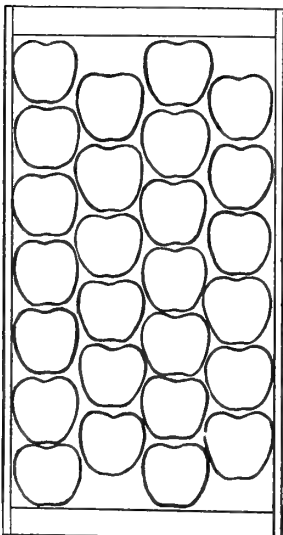


FIGURE 16. 104 APPLES Northwest Special Box

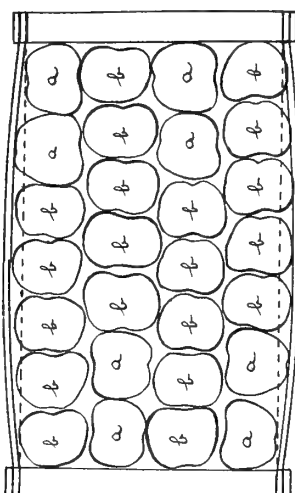


FIGURE 17. 112 APPLES Northwest Standard Box

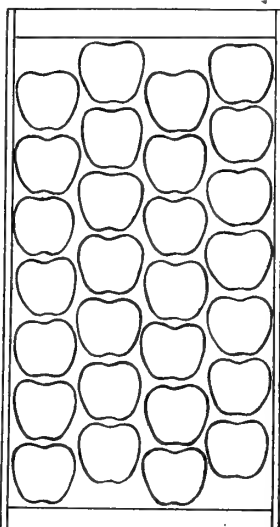


FIGURE 18. 112 APPLES Northwest Special Box

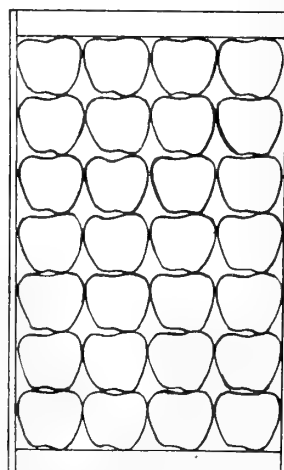


FIGURE 19. 112 APPLES Northwest Standard Box

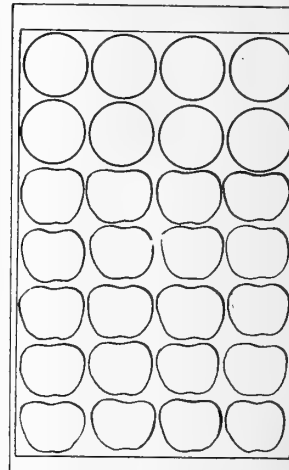


FIGURE 20. 112 APPLES Northwest Standard Box

apples in the row directly against the cheek of the one next in the same row, leaving all the space in the same row between the last of these apples and the right hand side of the box; in the pocket thus formed place the first apple of the three constituting the second row, leaving the alternate space on the left hand side of the box. Continue each of the

rows in the same manner, alternating the space first on the right hand side and then on the left hand side until the last row is forced into this relative position, sufficiently tight to key the whole layer. Start the second layer by placing the first apple of the first row in the pocket formed by the space in the first row of the first layer. Place the next

two apples of the first row of the second layer cheek to cheek against each of the others, leaving a space on the left hand side of the box, alternating each space and row from this first space and row in the second layer until the second layer is completed. Continue each of the two following layers in the same manner until the pack is finished. In

no case, in an off-set size, lay one apple directly over another; always place the apples so that they will come over the pockets or semi-pockets which are formed by two or three apples and possibly one side of the box.

The 72 size nearly always packs best for length and height flat, unless the apple is very flat, when it will more than likely pack as an 84, all on edge or cheek. The 84 usually packs on edge, except

with occasional one or two rows on one end of each layer, which may require to be turned to make length in the layer and proper height in the end. In turning these rows alternate, turning the last one or two rows in the first and third layers at the end farthest from the packer, and in the first one or two rows in the second and fourth layers at the end nearest to the packer. The 96 and 144 sizes, almost without exception, pack

on edge or cheek, are four apples wide, fitting the box snugly with absolutely no pocket or space next the side boards and none at the end. It is four layers deep and occasionally, with very flat apples, the 96 size is packed as an off-set pack all on cheek. The 112 size was pretty thoroughly discussed in the writer's former article, and on referring to it a full description may be had. Sizes 160 and 180 are off-set packs, and are

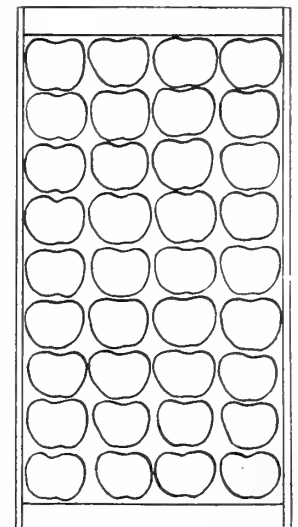
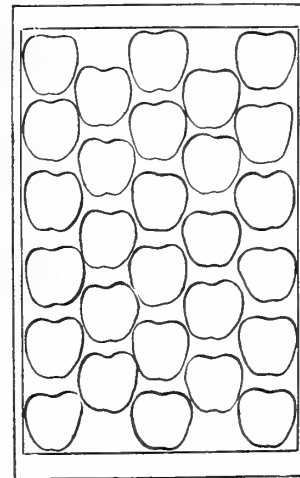
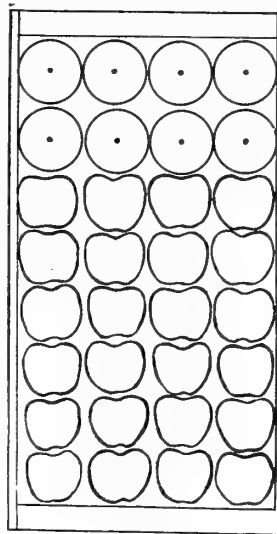
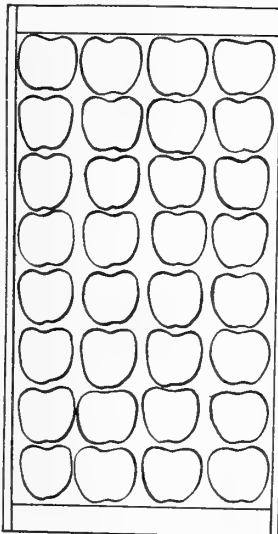
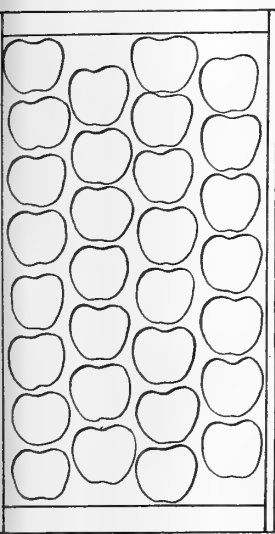


FIGURE 21. 120 APPLES Northwest Special Box

FIGURE 22. 128 APPLES Northwest Special Box

FIGURE 23. 128 APPLES Northwest Special Box

FIGURE 24. 138 APPLES Northwest Standard Box

FIGURE 25. 144 APPLES Northwest Special Box

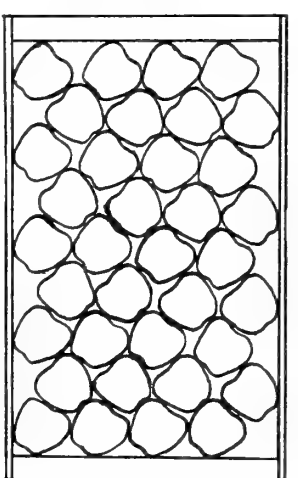
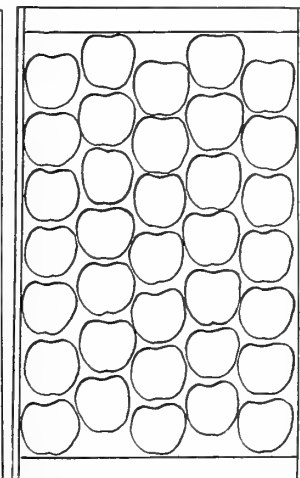
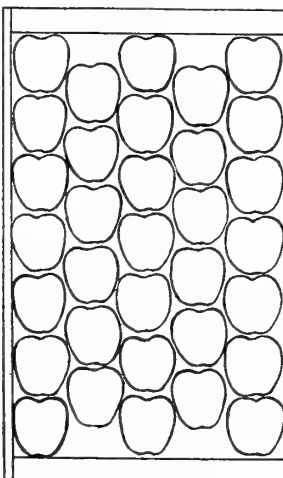
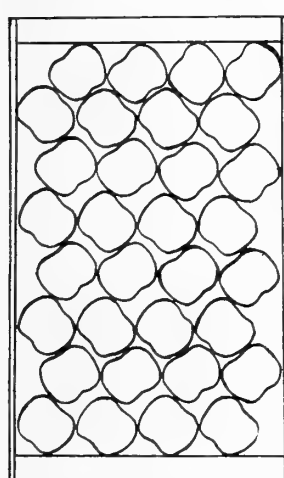
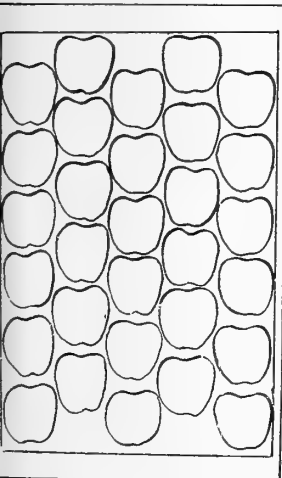


FIGURE 26. 150 APPLES Northwest Standard Box

FIGURE 27. 160 APPLES Northwest Standard Box

FIGURE 28. 165 APPLES Northwest Standard Box

FIGURE 29. 175 APPLES Northwest Standard Box

FIGURE 30. 180 APPLES Northwest Standard Box

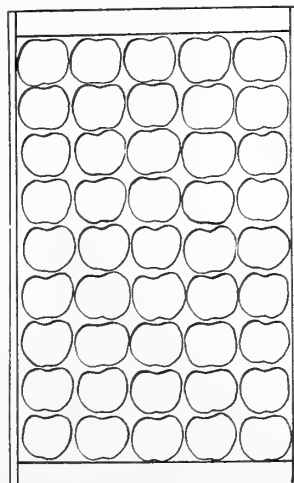
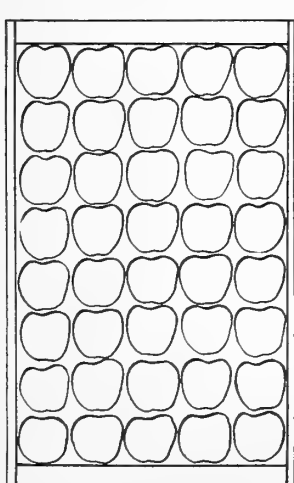
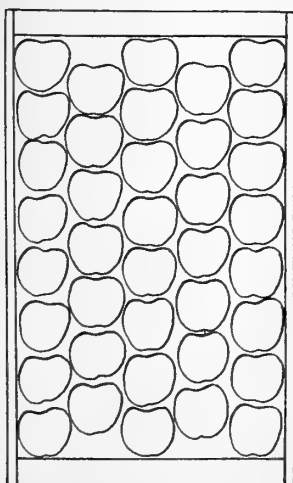
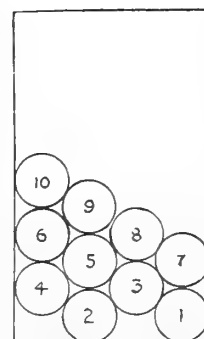


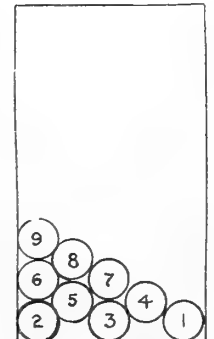
FIGURE 31. 190 APPLES Northwest Standard Box

FIGURE 32. 200 APPLES Northwest Standard Box

FIGURE 33. 225 APPLES Northwest Standard Box

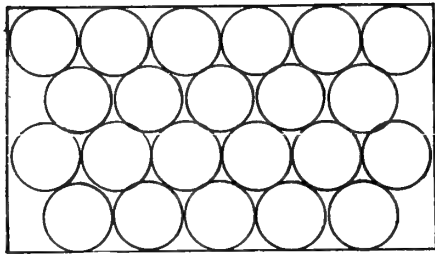


HOW TO START A 2-2 DIAGONAL PACK

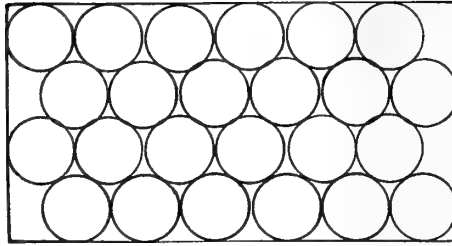


HOW TO START A 3-2 DIAGONAL PACK

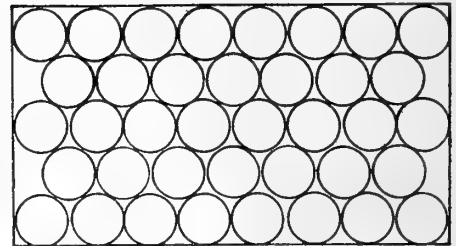
Northwest Special Box



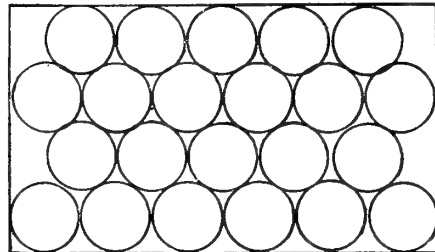
FIRST AND THIRD LAYERS



FIRST AND THIRD LAYERS

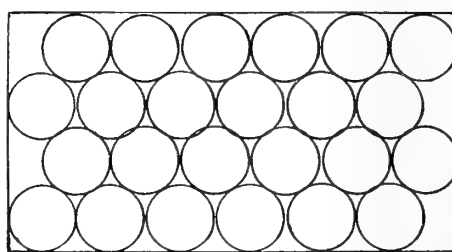


FIRST, THIRD AND FIFTH LAYERS



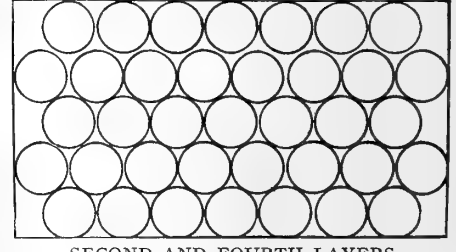
SECOND AND FOURTH LAYERS

Diagonal two-two pack, four layers,
eighty-eight apples
Northwest Special Box



SECOND AND FOURTH LAYERS

Showing diagonal two-two pack, four layers
ninety-six apples
Northwest Special Box



SECOND AND FOURTH LAYERS

Showing a three-two pack, four and a half tiers,
five layers, 188 apples. If layers are reversed
there will be 187 apples
Northwest Special Box

packed in the same manner as 72 and 84, except that there are four apples to each row and five layers to the box. Sizes 200 and 225 are straight packs, as 112, 128 and 144, and the same general plan is followed in their packing. Size 200 and 225 are five apples to each row and five layers deep.

The same general rules are given in the description of the diagonal pack in the article last season and should be studied, together with the diagrams and descriptions herein given. Sizes 41, 45, 72, 84, 96, 112, 160, 180, 200 and 225 are packed in Northwest standard boxes; sizes 54, 63, 128 and 144 are packed in Northwest special boxes.

[Editor's Note.—All of the illustrations, Figures 1 to 37 inclusive, were made by Roy C. Brock by hand, and are the best set of illustrations ever produced, illustrating every pack from 41 apples to the box to 225 apples to the box, with the exception of two five-layer packs which are not yet in general use.]

WE SHOULD MAINTAIN OUR COMMERCIAL PACK

BY C. C. VINCENT, ASSISTANT HORTICULTURIST UNIVERSITY OF IDAHO, MOSCOW, IDAHO

THERE is no subject of more importance to the fruit grower at this time of year than the proper picking, grading and packing of his fruit. With the rapidly increasing acreage of bearing orchards and the number of inexperienced men going into the business, extra precautions should be taken in order to maintain the reputation we have already established in the packing of our fruit. It will be well for the growers to pay particular attention to the following points regarding the small package: First, all fancy high priced apples should be shipped in boxes; second, only the best grades are preferred; third, the box is the only practical package in which apples can be transported with reasonable economy. It is the purpose of this article to present the methods of picking and packing as followed by the successful fruit growers in the Pacific Northwest.

The inexperienced grower will have some little difficulty at first in determining just when his fruit is ready to be harvested. This is especially true when several varieties are grown in the orchard. There is a tendency to allow some varieties to hang too long on the tree. The Jonathan falls under this class—the result is a water-cored apple. However, just as soon as the grower learns his varieties no difficulty should be experienced. The following points will aid the grower in determining the time to pick: The ease with which the fruit departs from the fruit spur; the color of the fruit, in case of the red

apple; when the seeds begin to turn brown around the edges; the flavor of the apple.

To secure competent labor will be one of the greatest difficulties experienced by the grower. Experienced pickers are usually hard to find. In case unskilled men are employed they should be placed under a competent foreman, whose duty it is to see that all have received the proper instructions before beginning the harvest.

Many types of ladders have found their way into our commercial orchards. A

large percentage of these possess special good points. However, for all practical purposes the writer has found that two styles are all a grower needs in his orchard. A small stepladder is quite essential for gathering the fruit from the lower branches. The three-legged pole ladder should also have a place in every grower's orchard, to be used in reaching the fruit from the upper branches. A lean-to ladder should never be allowed in the orchard. It is expensive at any price, for too many fruit spurs are knocked off and too many bruised limbs result.

The grower should see that he has a large supply of picking receptacles on hand. Several types, such as picking bags, pails, coal scuttles, etc., are used quite extensively. Personally I prefer an ordinary galvanized pail about ten inches in diameter. A pail of this sort has at least two points in its favor: First, there is no bruising of the fruit in passing up and down the ladder; second, on account of its size it can be lowered into the bottom of the box, thus reducing to a minimum the bruising of the fruit. Figure Z shows several types in general usage throughout the country.

Just before the harvest begins the orchard boxes are scattered along the rows; this avoids unnecessary delay in the operation. These boxes are just a little larger than the boxes in which the fruit is packed, and made of substantial material. Cleats are nailed on each end so the boxes can be piled one upon the other without bruising the fruit. (See



FIGURE R. SQUARE PACK



FIGURE P. PRACTICAL DEMONSTRATIONS IN APPLE PACKING ARE GIVEN AT FRUIT FAIRS BY THE UNIVERSITY OF IDAHO, IN ORDER TO PROPERLY INSTRUCT THE GROWERS HOW TO PACK FANCY FRUIT. THE ILLUSTRATION SHOWS HOW TO START THE DIFFERENT STYLE PACKS

Figure Y.) One of the best assets to a well kept orchard is a low-wheeled wagon. In transferring the fruit to the packing house a wagon having good springs and a low, broad body is essential to insure careful hauling. Figure X shows a good type of wagon.

A roomy packing house is needed for the storing of the fruit until it can be packed. A good substantial packing house is a necessity, and it should be the aim of every orchardist to build one. The grower should build one large enough to accommodate his entire crop. One of the best equipped and constructed packing houses that I know of belongs to the Fruit Growers' Association at Moscow, Idaho. This building has a section for packing, a section for wiping, a temporary storage room and a box-making room. The building is well ventilated, with the light for the packing room coming from windows above. Figure W represents the Moscow packing house.

Mr. B. F. Hurst of Boise has a very unique sorting table, and one that gives complete satisfaction. The table is four feet wide, eight feet long and two and one-half feet high. It is covered with



FIGURE Z. PICKING BUCKETS

burlap, similar to the packing table, and is large enough to accommodate four sorters, two on a side. The apples are placed on the table from both ends. Side projections extend out so as to hold enough boxes for the different grades. One box is for the extra fancy, another for the choice grade, a third box for the orchard run and the fourth is used for the culls. Sixteen girls can keep thirty packers busy. A good sorter will look over fifty to sixty boxes per day. Figure V shows the table used by Mr. Hurst.

Untrained women will have some little difficulty at first in learning to distin-

guish between three tier, three and one-half tier and four tier apple. To enable them to make the necessary classification, grading boards are used having holes of the following sizes: Grading board for special box— $2\frac{1}{2}$ -tier apple, four inches diameter; 3-tier apple, three and two-third inches diameter; $3\frac{1}{2}$ -tier apple, three and one-tenth inches diameter; 4-tier apple, two and three-quarter inches diameter; $4\frac{1}{2}$ -tier apple, two and one-half inches diameter; 5-tier apple, two and one-fifth inches diameter. Grading board for standard box— $2\frac{1}{2}$ -tier apple, four and three-tenth inches diameter; 3-tier apple, three and four-fifth inches diameter; $3\frac{1}{2}$ -tier apple, three and three-tenth inches diameter; 4-tier apple, two and seven-eighths inches diameter; $4\frac{1}{2}$ -tier apple, two and one-fifth inches diameter; 5-tier apple, two inches diameter. Figure U represents a good type of grading board.

The packing table shown in the illustration is a very convenient one for the packing of the fruit. It is about three feet high, three feet wide and three feet long. The uprights are made of two-by-four material; sides one by six. The legs, if they come through the table top, are beveled off so as to leave no sharp edges to bruise the fruit. The top is covered with canvas, which is allowed to sag inside rather loosely. To serve as a double protection to the fruit, rubber hose is nailed around the edge of the tray. A board projects from each end of the table to make a shelf on which to rest the box. Another board projects from the side of the table which also serves as a rest for the end of the box. Figure T shows the table in general usage in the Hood River Valley, Oregon. The Idaho table differs from this only in the kind of canvas used. Many of the Idaho growers cover their tables with coarse burlap, which lets the dirt and trash through to the floor.

A packing house is not complete without a nailing press. A man handy with



FIGURE T. PACKING TABLE



Courtesy of Horticultural Department, University of Idaho
FIGURE W. PACKING HOUSE, MOSCOW, IDAHO

the hammer can construct one for about five dollars. The body of the press is made like an ordinary table, except that there is a depression across the middle, over which the box of apples rests. Two stout arms are pivoted to pairs of uprights at each end of the table. The arms are hung on bolts so as to swing up and down. When no pressure is on them they are held up by strong spiral springs. The two arms are joined at their inner ends by a loose connection; a strong foot lever rests in this connection, and when the foot lever is depressed it brings the two arms down over the top of the box. For detailed description see Figure S.

It is quite essential to have a large supply of box material on hand. This usually comes "knocked down" to the grower in shooks. An expert can put up from two hundred to four hundred boxes per day at a cost to the grower of one and a half cents per box. Spruce is the best material if it can be secured. Cement-coated five-penny nails are used. Cleats are placed on the tops and bottoms. Two sizes of boxes have found their way into general usage in order to accommodate the different grades of apples, with inside measurements as follows: Standard, depth ten and one-half inches, width eleven and one-half inches, length eighteen inches. Special, depth ten inches, width eleven inches, length twenty inches. The end pieces should be three-fourth inch, sides three-eighths inch and tops and bottoms one-fourth inch thick.

In putting up a fancy pack of apples every apple in the box is wrapped; therefore, it is quite essential to be well supplied with paper. Duplex wrapping paper is preferred. This paper has one side which is glazed or calendered, the other rather rough, which is placed next the apple. The paper should have the following dimensions: Eight by ten inches for the four, four and one-half and five-tier apples; ten by ten inches for

the two and one-half, three, three and one-half-tier apples. Wrapping the apple has several advantages: It checks transpiration; the paper serves as a cushion for the fruit; it extends life of fruit beyond normal period; prevents the spread of decay from specimen to specimen; the fruit is maintained at a more even temperature, and it gives the fruit a more finished appearance. Lining paper is used to line the sides of the boxes. It is cut long enough to cover one-half the bottom and top of the box. The paper for the standard box should be seventeen and one-half by twenty-six inches; for the special nineteen and one-half by twenty-six inches. The advantage of the lining paper may be summed up as follows: The paper adds greatly to the appearance of the box and it is

more sanitary, for it excludes dust, dirt and germs. Layering paper (cardboard) is placed between each layer of apples. Some growers are beginning to discard the use of the layering paper for the diagonal packs. However, from our point of view the use of the paper presents several points in its favor: It holds the apples more firmly in place; the paper gives a smooth surface to start each layer; it takes up excess moisture; prevents initial pressure bruises, and stops spread of decay.

In building the pack apples of a uniform size are brought to the packing table, the box is placed on an incline before the packer and he proceeds at once to line the sides of the box with lining paper. The next operation is that of placing in the layering paper. (After the pack is completed a cardboard should be placed on top before the ends of the lining paper are folded over.) Next, having the paper in place, the packer will hook the "hod," which is a device shaped so as to hold the wrapping paper over the side of the box. Most packers have their own way of wrapping the apple. We prefer the following: One picks the paper up with the left hand, at the same time reaching with the right hand for the apple, which is placed in the center of the paper diagonal with the corners. The outer edges are pushed up over the apple, which is now turned, bringing the smooth surface up and the bunch of paper on the bottom. This serves as a cushion. The apple is now placed in the bottom of the box. This performance is repeated until the layer is finished. To aid the packers in picking up the paper, a rubber band is placed over the thumb or forefinger. An expert can wrap and pack from fifty to one hundred boxes per day. His ability, of course, will vary according to his practice and training in that line.

At the present time there are two styles of packs, known to the trade as the straight and diagonal. The straight



Courtesy of Horticultural Department, University of Idaho
FIGURE Y. A HARVESTING SCENE IN L. F. HENDERSON'S ORCHARD, MOSCOW, IDAHO
Note the distribution of the boxes, also style of ladder used

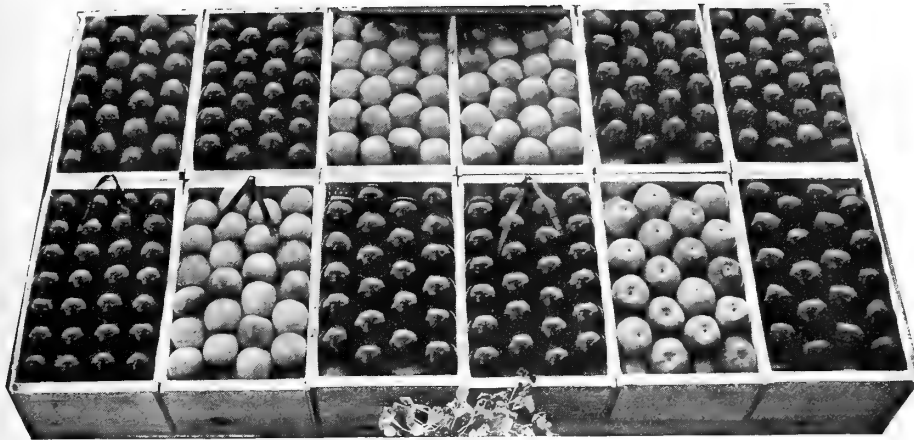


FIGURE Q. SHOWING SOME DIAGONAL PACKS

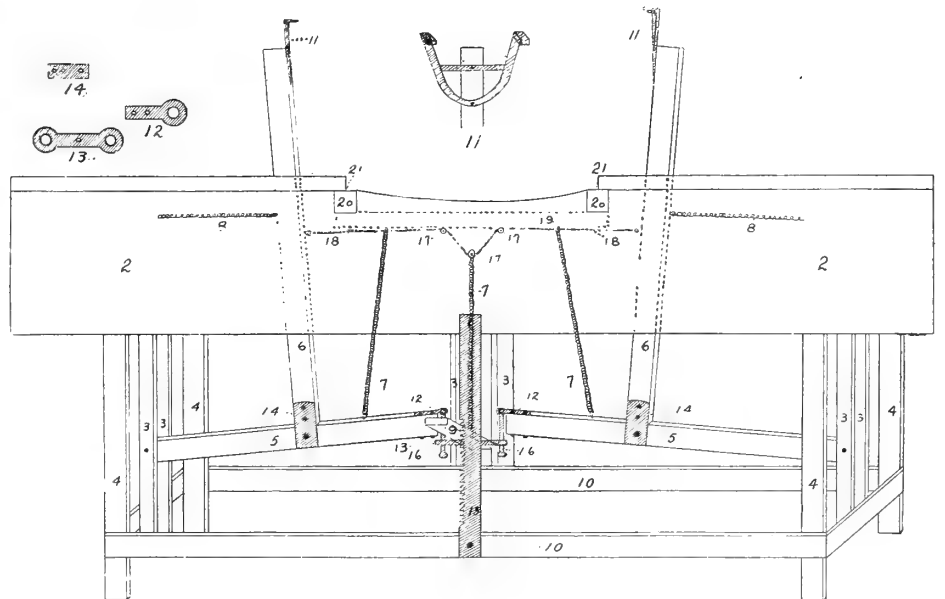
pack is so called because the rows run straight across the box (Figure R). This pack includes the three, four and five-tier apples. It is very neat in appearance, but rather severe, as each apple tends to be pressed against surrounding apples. The diagonal pack is so termed because the apples run diagonally with the edge of the box. Two advantages of this pack are: First, it accommodates sizes that do not adapt themselves to the straight pack; secondly, there is less danger of the apples bruising in transit as they adjust themselves more readily to the space in the box when pressure is brought to bear. All two and one-half, three and one-half and four and one-half-tier apples can be placed in the diagonal pack (Figure Q). Growers in almost all the prominent fruit sections are discouraging the use of the straight pack on account of the bruising of the apples. When the two sizes of boxes are used all apples may be packed diagonally. For instance, the apples that would pack straight in the special would pack diagonal in the standard. The number of apples that can be packed in each box, according to the tier labeling, is as follows: 3-tier apples in the standard, 45 to the box; 3-tier apples in the special, 54 63; 3½-tier apples in the standard, 64, 72, 80, 88; 3½-tier apples in the special, 96, 104, 112, 120; 4-tier apples in the standard, 96, 104, 112, 120; 4-tier apples in the special, 128, 144; 4½-tier apples in the standard, 150, 163, 175; 4½-tier apples in the special, 185, 200; 5-tier apples in the special, 200, 225. Unless the apples

have been properly graded beforehand no such system of classification can be obtained.

Very little trouble will be experienced in starting the straight packs if the apples have been graded properly. With the three-tier pack three apples are required to fill up the space across the bottom of the box. There are also three layers in depth. See the box designated

as Figure P in the illustration. This photograph shows the top layers of six boxes packed by the various methods herein outlined. The four-tier straight pack requires four rows in width and four layers in depth, while the five tier requires five rows in width and five layers in depth. The diagonal two-and-a-half-tier pack is started differently. The first apple is placed in the middle of the lower end of the box and two apples are pressed firmly in the places which are left, as shown in the illustration. In this style of pack there are two and a half rows in width and three layers in depth. This is not classed as a commercial pack, for it is only used to accommodate very large apples on special occasions. The three-and-a-half-tier pack is started by placing the first apple in the lower left hand corner of the box and another in the center. Two apples are then packed in the spaces which are left. The illustration shows the point very nicely. We have, in this pack, three and a half rows in width and four layers in depth. To start the four-and-a-half-tier pack the first apple is placed in the lower left hand corner of the box, another in the lower right hand corner and another in

A PRACTICAL PRESS FOR NAILING APPLE BOXES



1. Cover boards to table, extending about half over cross pieces (20) on each side. Length of table, 64 inches.
2. Side board to table. The part between the cross pieces (20) is cut down to allow a box with bulged bottom to slide off the press.
3. Uprights for attachment of levers (5 and 9).
4. Legs of table, 28½ inches long, 1½ inches square. (All the arms, legs and levers of the press may be made of 1½x1½-inch stuff.)
5. Levers, 24 inches long.
6. Upright arms, 30 inches long.
7. Steel springs, ¾ inch inside diameter. The two attached to the levers (5) are fastened at the upper end to spanner (19). The center spring is attached to the foot lever (9) and a pulley (17). All springs are shown relaxed.
8. Spring attached to upright arm (6) and support (3). These springs should be long and light, such as are often used on screen doors.
9. Foot lever, bolted to uprights (3) at back, and working with catch plate and ratchet in front. It is fastened to plate (13).
10. Brace for legs and lower support for uprights. Three inches from ground.
11. Horseshoe plate for gripping box cleats and cover. It is attached to arm (6) with flat-headed stove bolts, and must be made very true.
12. Iron plates bolted to levers (5), with large holes in projecting ends, allowing the bolts (16) to slide freely.

13. Lower plate under lever (9), to which it is bolted loosely, with large holes in each end for free play of bolts (16).
 14. Side plate joining lever (5) and arm (6). Two bolts to arm, and one, fitted loosely, to lever.
 15. Iron ratchet to engage plate on the front lever (9).
 16. Half-inch bolts, 2½ inches long, working loosely in the holes in the plates (12 and 13).
 17. Three small pulleys for rope attached to arms (6). Center pulley is attached to center spring (7). The other two pulleys are attached to spanner (19).
 18. Strong ¼-inch cord that will not stretch. Runs across from arm to arm (6), passing through the three pulleys (17).
 19. Spanner running parallel with side, back about 10 inches from front side and directly under center of box.
 20. Cross pieces (end view), providing support for box. Attached to it is spanner (19).
 21. Grooves for holding box in place. They are a trifle over 18 inches apart. To accommodate the special box, which is 20 inches long, strips may be nailed to the table top one inch back from the opening on either side.
- The top of the table must have slots cut in it to allow working of arms. Tables may be of any width desired, but arms should be conveniently near the front.



FIGURE X. LOW WHEEL ORCHARD WAGON



FIGURE V. SORTING TABLE OF B. F. HURST
BOISE, IDAHO

the center. Two apples are then placed firmly in the spaces that are left vacant. This pack has four and a half rows in width and five layers in depth.

Inexperienced packers will have some little difficulty in getting the proper bulge to the box. Practice, however, will obviate this. When the fruit is packed the apples at both ends should come up flush with the top. In the center they should extend a little higher. There is more or less of a graduation between one sized apple and another, as, for instance, between the three and three and a half tier apples. To obtain the proper bulge the packer selects apples that are a trifle smaller for the ends, working those that are a trifle larger to the center. In case the apples are of the same size, and are being packed on the cheek, in order to obtain the proper bulge the end apples are turned with the stem ends up. Every box should have from an inch to an inch and a half swell.

On the end of every box a neat, attractive lithograph should be placed.

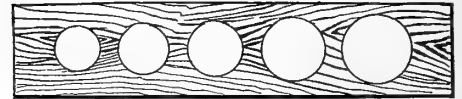


FIGURE U. GRADING BOARD

This adds very much to the appearance of the box and aids materially in selling the fruit. A cheap gaudy label detracts from rather than adds to the appearance. A lithograph should contain the grower's name, the name of the locality and the name of the state. The name of the state should stand out in bold relief, as it aids wonderfully in bringing before the people the possibilities of such section for the production of fruit. On the other end of the box should be stamped the number of apples, the packer's number and the variety. This facilitates matters considerably, for the consumer knows the exact number of apples.

THE NORTHWEST SYSTEM OF APPLE PACKING

WRITTEN ESPECIALLY FOR "BETTER FRUIT" BY HOLLAND ARCHIBALD, JUNCTION CITY, OREGON

THE different apple packs shown herewith were packed at Vernon, British Columbia, during the season of 1910, to show the different sizes of apple packs that can be had by carefully sorting and grading them. These were packed for display purposes, so the standard pack is the same, but with paper wrappers only. As apples vary in size and shape in different fruit districts, and even in orchards in the same districts, it would be impossible to use all of the different packs shown here, but the same style of packing can be used in packing into any size of box; the boxes shown here were the Canadian standard box. After several years of careful study and experiments the style of packing shown here was adopted by all expert growers and packers. Hood River, Oregon, being the first, and has been brought to such perfection that in the last year or so all progressive fruit unions and companies have given their new packers lessons in same before allowing them to pack. Even the British Columbia government gave demonstrations in all fruit districts last winter, employing expert packers.

Does it pay? Just ask any buyer or expert fruit grower and you will find that the better the pack the more easily can the grower sell his fruit. Poor packing and not marking boxes properly as to grade or tier will cause trouble, so any grower or packer who deliberately mismarks boxes is guilty of dishonesty. Before the grower's apples are ready to pick he should go to the company or fruit union to whom he intends to dispose of his fruit and learn just how they want his apples packed, what kind of wrapping and lining paper to use and if they want layer paper used. All managers or foremen will gladly give information, and some associations have packing foremen who will give growers information and furnish packers. If growers are unable to pack their fruit they should obtain the best packers to be had, employing a packing foreman should their orchards be large enough.

Having information as to paper, and having engaged his packers, he should buy his boxes, being careful to keep all box shooks clean and dry. In making up boxes be careful to turn all surfaced sides in so inside of box is smooth, rough sides of boxes being an advantage in that they do not slip so easily on fruit wagons or after being loaded in car.

If this is your first year in growing apples you will want good picking baskets that will hold about one-half box of loose apples. Lining them with burlap, or you can buy picking buckets; some of them are good. It always pays the growers to get good ladders that are strong and yet light enough for one man to carry. Apples should be handled as carefully as eggs, for if once bruised, if ever so little, they will not keep well even in cold storage, and should be put with the culls. Some growers use their packing boxes to gather their apples in, but that is bad practice, as the boxes get more or less dirty, and that will tend to spoil the looks of packed boxes. The best way is to have orchard boxes, not

filling them so fruit will bruise when boxes are stacked in packing house.

Sorting and grading come after picking and should be done with care, handling all apples one at a time, wiping all dust and spray off. Your sorting table should be long enough to hold at least ten boxes, and you will want a bucket to throw all rotten apples into if they have been in storage long. Taking one box for the culls you have nine left, and if you are to grade for extra fancy, fancy and choice, or number one, two and three, you have three boxes into which you can grade. Putting about three different sizes into each box will give you nine different sizes or nine sizes of extra fancy, fancy and choice. As fast as you fill the boxes stack each grade by themselves.

All growers should have good packing tables, and if you haven't any they can be built along the side of your packing house, where there is plenty of light, giving them about twenty-five per cent slant and putting a strip along to keep boxes from slipping off. Tables built





this way are preferable to canvas covered tables because it saves dumping apples and will avoid bruising. A good box press will be needed and only the kind that brings both ends of lid down at the same time should be used.

Stamps are necessary, as every box should be stamped before leaving the packing house, so growers should have all that they will need, including one with name and address.

If you have had no experience in packing you will no doubt be anxious to see your packers at work, and if you have been careful in your storing and grading you will be surprised how nice your apples will look after being packed, also at the number of sizes in the box you thought contained only three. But don't get discouraged if you have a good packer; he will explain to you how you should grade each size, one of the most important things in packing, also give you sample apples to grade to so you can soon learn to grade in a short time and tell the tier of a box of packed apples

at a glance. A good way is to learn the number of apples in each box, the most used being given here:

Three tier, 2-1 pack, 5 by 5, or 45 apples to box; 5 by 6, or 50 apples to box. The three tier 2-1 packs are broken packs and are better than the solid three tier pack, 3 by 6, or 54 apples to box. (See Figure 1.)

Three and one-half tier pack, 3 by 4, or 56 apples to box; 4 by 4, or 64 apples to box; 4 by 5, or 72 apples to box; 5 by 5, or 80 apples to box; 5 by 6, or 88 apples to box. All are the 2 by 2 pack. (See Figures 3 and 4.)

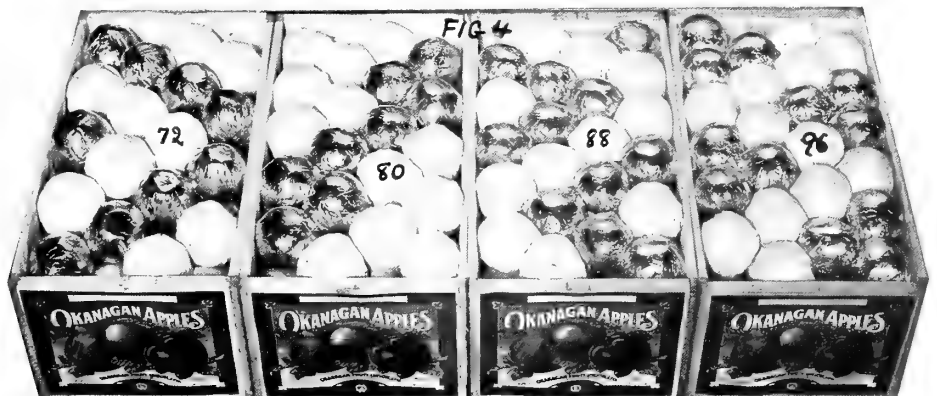
Four tier packs, 6 by 6, or 96 apples to box; 6 by 7, or 104 apples to box; 7 by 7, or 112 apples to box; 7 by 8, or 120 apples to box; 8 by 8, or 128 apples to box; 8 by 9, or 136 apples to box. The 8 by 9 is not very often used, and only in very flat apples. There is also a 3 by 2 pack that is often used that is a four tier and has five layers of apples in box. (See Figures 4, 5 and 6.)

Four and one-half tier packs, 5 by 6, or 136 apple to box; 6 by 6, or 150 apples to box; 6 by 7, or 163 apples to box; 7 by 7, or 175 apples to box. All four and one-half tier packs have five layers of apples in each box. (See Figures 6 and 7.)

Five tier packs, 7 by 8, or 188 apples to box; 8 by 8, or 200 apples to box; 8 by 9, or 213 apples to box; 9 by 9, or 225 apples to box. All five tier packs have five layers of apples in each box. (See Figures 7 and 8.) Still smaller can be packed, but in standard varieties it is not good practice, as they are too small and buyers do not want them.

Five tier packs of Lady Apples used for display, 9 by 10, or 238 apples to box; 10 by 10, or 250 apples to box. Lady Apples are not packed, as they are small and would take too long to handle them, so the box is lined and the box faced with one layer of even sized apples and then filled with loose apples full enough to keep them from moving after lid is on box. Crabapples are packed same way, just facing box, and care should be used in handling them, as they are one of the most tender of apples and will show the smallest bruises after a few hours.

After you have learned to sort and grade you will want to try packing, so you must learn the following things: To train your eyes so you can select the apple you want at a glance and not have to try a half dozen before you find the one you want, as every time you handle them it spoils their keeping qualities just that much. Boxes should not have any more than three-quarter inch swell on top and bottom after lid is on, and one and one-quarter inch on top and one-quarter inch on bottom looks bad after the lid is on, so keep them even. Keep the ends of your pack down low enough



so lid will not bruise or break skin of apples; and keeping ends of your pack down is not done by packing smaller ones in the ends, but by using all of the same size and turning your apples so they will drop lower into box at the ends, giving you necessary swell in center, and you should commence to keep ends down from first layer to top of box, which will require a little practice. All apples must be tight enough in box to keep them from rattling after they have shrunken in cold storage or in transit. When you start a four tier 2 by 2 pack, seven apples in each row in length, or 112 apples to box, don't try and put in apples that should pack 96 apples to box, or six apples in each row in length. A little time spent when you commence will pay you later on. Should you make a mistake stop and correct it; don't try putting in larger or smaller apples to even up your pack. Don't get discouraged after a few trials, as you cannot learn to pack if you do. It has taken years of work and study to bring the standard of packing to what it is in Hood River and other fruit districts.

Packed apples look better packed on side, stem end to or from you, but some sizes will not pack that way, and have to be packed stem or blossom end up to make them tight and even. Always keep your rows of apples in box straight from bottom of box to the top. If you don't it will spoil the appearance of what may have been a good pack. All apples should be wrapped with good paper, large enough to cover apple and fold, and in first layer in box the fold should be up so the box will be faced on bottom, also to keep the loose edges of paper from working out of edges of box. always wrap your apples smooth and



completely; don't leave part of apple out of wrapper. If you use your left hand to reach for paper and your right for selecting apples you will have to train your hand to involuntarily reach for paper while you are using your right to select apples to be packed; if you don't you will never be a fast packer. Holding paper over palm of left hand and picking up apple with right hand on opposite side from the way it goes into box you

throw from right to left hand, at same time closing your left hand on paper containing apple. You now have the apple half wrapped, and by taking hold of paper with right hand, giving your wrist a half turn, you have apple wrapped and paper folded. This will also require some practice, but is very easily learned.

After packing a box it should be stamped with good cushion stamps, being careful to put name of variety in upper left hand corner of box, quality or grade in center of the two upper corners on same end and tier or number of apples in right hand corner. Be careful to keep all lettering above where label should go. The grower should stamp his name and address on opposite end in center of box, and packer put his or her packing number over grower's name. If more than one packer is employed they should be given a packing number so all boxes found poorly packed can be traced to the packer who packed it. There are good opportunities for both young men and women to learn packing at any of the various packing schools or by actual experience, so if you become a competent packer you will find pleasant work at good wages.

Editor Better Fruit:

I take great pleasure in complying with your request for letters of comment on your July edition. No fruit grower, shipper or dealer should be without such an instructive and thorough number. It is certainly gratifying to know that there are some who think all fruit commission salesmen are not crooks and daylight robbers. This fact should be grasped and digested by fruit growers. I should like to take exception to some of the remarks with reference to European markets and trading. Europe is waiting and anxious to receive and consume a much larger proportion than at present exported of first grade fruit; some of the methods of distribution that are being advocated at present will tend rather to retard than expand this great and increasing market. Such an educative number as July "Better Fruit" makes one look forward with great interest to each succeeding number. Yours sincerely, H. S. Chirgwin, Stonesville, Montana.



ART OF CAREFUL COMMERCIAL APPLE PACKING

BY CHAS. A. COLE, OF THE LEWISTON LAND AND WATER COMPANY, LEWISTON, IDAHO

PACKING of a first class commercial pack really begins in the field, so I will mention some of the points that we must consider there. The field equipment will consist of some good, substantial, yet light, ladders. They must be rigid, so that the picker will be able to keep his mind on the work and not on whether or not he is going to tip over the next minute. Lightness is desirable, as the picker can move the ladder quickly and there will not be a tendency to allow it to fall into the tree instead of placing it in gently. Have on hand a good supply of field boxes with your trade mark stamped on one end. These boxes should be about 8x14x20. Have cleats nailed on the ends so that when stacking the boxes will not rest flat down on each other. This prevents bruising and also affords circulating of air over the fruit. Cut hand-holds through the ends so that the boxes may be handled easily. Use buckets for picking utensils—baskets or boxes are no good. You can't empty fruit out of them without bruising. The wagon for hauling the fruit to the packing house must be low and have a platform bed. This makes loading and unloading easy. The bed should be built so that the boxes will not slide off. A strip nailed around the edge is very satisfactory. It is also very necessary that the wagon be provided with bolster springs. This prevents any jarring and bruising of the fruit while hauling.

No matter how perfect the picking equipment, good results cannot be obtained unless the fruit is handled very carefully. An owner of a large fruit ranch once remarked to me that a big percentage of the damages from broken skins took place before the fruit reaches the packing shed. This is due, of course, to allowing anybody and everybody who is able to climb a ladder in the picking crew. We train our packers and depend upon "hobo" labor for the picking. In this case the field boss is everything. He must see that the fruit is taken from the tree without breaking off the fruit spur; that the apples are carefully placed in the field box, not dumped in, and that the fruit is not heaped above the top of the boxes. Breaking off the fruit spur not only reduces the yield for the next three or four years, but if placed in the box the spur is apt to puncture two or three fruits during the packing process. It is also very important that the field boxes be placed so that they will not be subjected to the direct rays of the sun. Allowing the fruit to become heated greatly decreases its keeping qualities.

A good packing house and equipment is very important to good packing. The requisites of a good house are: An abundance of light, ability to thoroughly air the room, just the right amount of room, handy arrangement and cleanliness. The value of light cannot be over-estimated, as no packer, no matter how expert, can do high grade work in a poorly lighted room. He needs light to

aid in selecting fruit, both as to perfectness and size. If you are contemplating constructing a packing house plan it large enough to accommodate your maximum crop. It is also just about as inconvenient to have a house too large as too small. Have a portion set aside for packing tables, another for the fruit before packing, a place for the packed product and a good loft for storing packing material. If you are in a very dry section you should have a basement for storing packing paper to prevent it drying out.

In equipping the house put in enough packing tables to accommodate your crew. There are several kinds of tables on the market. Some are built for only two packers (Figure 1), while others will accommodate several. The first mentioned table is constructed with a canvas or burlap top of 3x4 feet in dimensions. All sharp corners are removed so there will be no danger of bruising the fruit. The height of the table will depend on the height of the packer using it. The second mentioned table is simply a series of the first mentioned. They are built solidly together to economize space. If the tables are built solidly to the floor they must be placed to give the packer the fullest value of light. The best position is so that the packer has his back to a window. In some houses I have seen the tables built up against the wall, but this is a very poor plan, as it is inconvenient for the helper to supply fruit and remove packed boxes. Be sure and have convenient places for packing paper.

Get a good nailing press (jack). There are many kinds on the market. In mak-

ing a selection be sure that it is of the best. The clamps should catch the lids on the ends. This prevents bruising the fruit, and also holds the lids and cleats firmly against the ends of the box while nailing.

Order your packing material early. In doing this you will be more apt to get first class stuff. Insist on getting what you order. All box material must be first class, that is, free from knots, cracks and mildew. The ends should be as near three-fourths of an inch in thickness as it is possible to make them, the sides three-eighths and the top and bottom boards not thicker than one-fourth inch. The sides must be made in one piece, and the top and bottom in two pieces each. Sides of two pieces are too weak to protect the fruit. If the tops and bottoms are made of one piece each they are so stiff that a bulge cannot be put on the box without crushing the fruit.

Heretofore the best results in packing have been obtained when two different shaped boxes were used. This plan was adopted after many years of experimenting to find out how so many different shaped and sizes of apples could be packed in a bushel box and yet make a good shipping parcel. The dimensions of these two boxes are Northwest standard 10½x11½x18 inches inside measurement and the special 10x11x20 inches inside measurement. The cubic contents of these boxes, without bulge, are 2,176 cubic inches for the first and 2,200 for the second. These boxes come knocked down, and you will have to put them together. A simple apparatus or box form for aiding in working up your





material can be made as follows: Put a box of desired size together and nail cover boards on each side of the ends. Now nail the box to the top of your work bench, leaving a space in front of it the width of an apple box. In making boxes slide the end pieces into the slots formed by the boards and nail on the bottom. The bottom is put on with a cleat at each end. The box is now pulled out and turned so that a side is brought up, and so on, until it is completed. Four nails are required for each end of a side or bottom.

The packing paper consists of a layer paper of a spongy nature—don't get glazed or semi-glazed paper—lining paper and a soft tough paper for wrapping. If you are using two sizes of boxes you will have the paper cut accordingly. It is a good plan to have more than one size wrapping paper. Paper 9x10 and 10x10 will do for most sizes; however, the three tiers and large three and one-half tiers require a larger paper than either of these. Many of our fruit growers' associations furnish paper at a nominal cost. Part of the wrapping paper is stamped with the name of the association. This paper is used on the top layers so that when a package is opened and displayed every passerby knows just what section this particular box of fruit is from, even though the label on the end is not visible. If you have to depend upon yourself for the purchasing of paper and desire to use a printed wrapper on part of your fruit work up a design of such a size that when a medium sized fruit is wrapped there will be enough of the white paper showing to form a setting for the trade mark. Don't buy cheap paper. You never save anything by doing so. Cheap

paper will break or tear when wrapping, so that the loss in time, let alone the appearance of the pack, will more than offset the difference in price of first and second class material. A tray for holding the wrapping paper will complete your equipment. This tray is made so that it can be stuck on the side of the packing box. You can have them made at local tinsmiths, or if they are wanted at once just take a board of some light

material and saw off pieces a little larger than your packing paper and nail strips on three sides. Nail a three cornered block on the under side so that it comes out even with the open edge of the tray. This forms a bracket or brace for supporting the tray when in position on the box. Now take two long nails, drive them into the side of the tray with the opening, leaving about one-third of their length out. Cut the heads off and bend down over a piece of hardwood or iron a trifle thicker than the side of the box. This will form hooks for fastening the tray onto the packing box.

The first step in actual packing is grading and sizing of the fruit. In fact packing is simply grading and sizing, then placing the fruit in its proper box so that it fits snugly. If you cannot learn to size an apple properly you will never make a packer. In grading remove all culls, that is, fruit with broken skins or other bad blemishes, at the same time grade as to color and shape. The marketable apples are usually divided up into about three classes, that is, perfect, near perfect and culls. They are sold under "extra fancy," "fancy," etc. Grade the fruit as to size, placing the three and one-half tiers in one box, the fours in another and the four and one-halves and smaller in yet another. This will aid very materially in not only rapid packing, but will also go a long ways toward eliminating the tendency to bruise fruit on the packing table by fingering them over looking for the right size or grade.

There are only two styles of packs used by the modern packers, that is, the straight pack and the diagonal packs. The straight pack is not used where it is possible to use the other. What we mean by straight pack is where the apples are placed so that they are in straight rows, both lengthwise and



across the box, as is illustrated in Figure 14, 17 and 20. We use both styles of boxes in putting up this pack. In the Northwestern standard, such numbers as 96, 112, 200 and 225 are packed, while in the special 128 and 144 size will pack to the best advantage. All of these sizes are also known as four tiers, except the 200 and 225, which are fives (Figure 3).

In packing a straight pack we select a box suitable for the size of fruit on the table. Place the box on the rack and prepare for packing by lining it. This is done by taking two pieces of the right sized paper, place both sheets on one side of the box so that the lower edges extend over the crack in the center about an inch. Then, while holding these edges firmly in place, crease down the paper along the crack at the side of the box; now run the hand along the top edge, bending the paper over. Take out one sheet, turn it around and place in the other side. This gives both sheets exactly the same creases. Now place a cardboard in the bottom and you are ready for the apples. First, however, fill up your paper tray with the proper sized wrapping paper. This paper has a rough and smooth side. Turn the rough side down. Size up your table of apples and begin on the ones that there are the most of. If that be a 112 size you will begin the pack as follows: You have noticed that your box rack is so constructed that the end of the box toward you is much lower than the other. This is to prevent the apples rolling. Begin the pack by placing an apple in the lower left hand corner and continue until you have a row across that end. Continue this layer until the other end of the box is reached. When the last apple is put in place each row in the layer must fit snugly across the box as well as lengthwise. In packing some of the varieties you will find that when placing the fruit on its side the seven apples lengthwise do not completely fill out the row, also when turned flat, that is, on the stem or blossom end, seven cannot be gotten in. This defect is remedied by turning one or two rows flat (Figure 17). Don't try to flat the first rows of the bottom layer, but wait until you reach the other end, as you

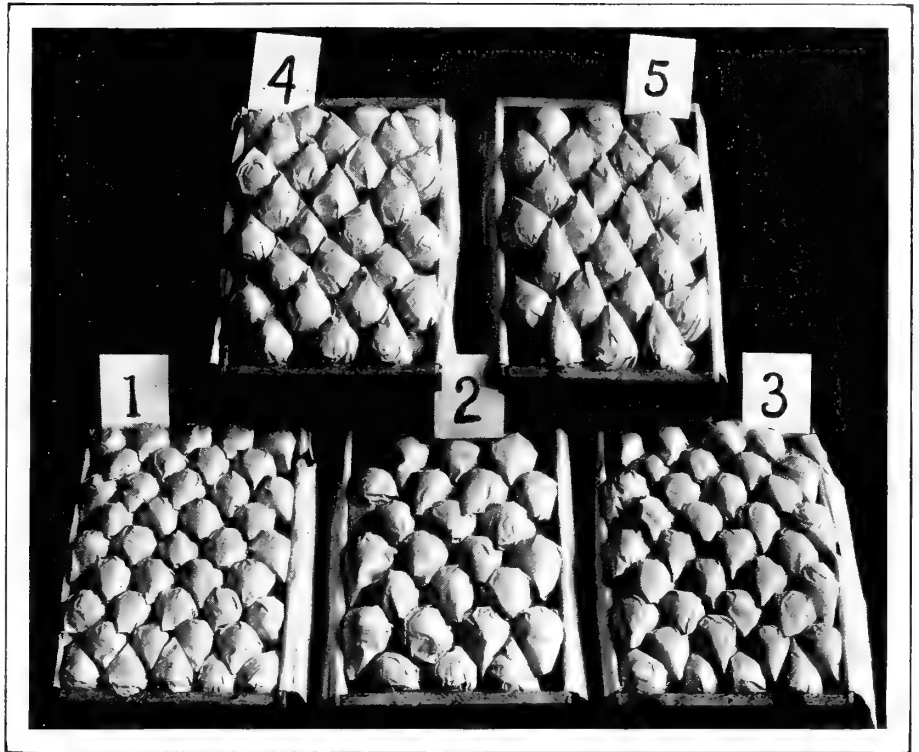


Photo by T. Gagnon, Wenatchee, Washington
PACKED FOR THE LONGVIEW ORCHARD COMPANY, WENATCHEE, WASHINGTON
Box 1, 200 pears; Box 2, 120 pears; Box 3, 180 pears; Box 4, 140 pears; Box 5, 96 pears.

can't always tell just how many rows will have to be turned in order to make a snug fit. Don't try to improve your pack by turning one row on each end of every layer. It won't work, for besides making the ends too low the abrupt break from flat to edged apples will be so great that all the pressure of the boards will come on the first of the edged fruit, thus running a big risk in bruising them. The second layer is begun by flattening the first two rows, or the same number as in the first layer, and packing the remainder on the side. The pack in the center of Figure 2 illustrates this pack. If you will turn to this figure you will see that the alternating of a-a not only makes a good even crown on the pack, but also brings the apples at the ends just even with the top of the box. You cannot pack the ends above the edge, as there is no give

to this pack, and as a result these apples will be crushed. You have noticed that the 96 pack in Figure 2 has none of the rows turned on end, and have no doubt wondered as to just how the packer gets a bulge or crown on this box. This was accomplished by making use of the slight irregularities of the apples. No apple is perfectly round even in cross section. By placing the apples at the ends so that the greater diameter extends across the box and turning the ones across the center so that the greater diameter will be from top to bottom a good bulge will result. This also results in a slightly larger apple being in the center.

The most important style of pack, and the one that ships best, is the diagonal. This style is also called the three and one-half tier and 2-2, or four and one-half tier and 3-2, depending, of course, on the size of the fruit. The term three and one-half tier means that it takes approximately three and one-half apples to reach across the box; 2-2 means that each layer is begun with two apples and two spaces; 3-2 that the first layer begins with three and the next with two and third with three, etc., and four and one-half that four and one-half apples will make a row across the box. The term "diagonal" comes from the fact that the rows do not run straight across the box, but go at an angle. (See illustrations of all diagonal packs elsewhere in this edition.) Both the special and standard boxes are used in this style of pack. The larger three and one-half tier apples, such as 41, 48, 56, 64, 72, 80 and 88, are packed in the standard. Then we jump to the four and one-half and pack 150, 163 and 175 in this box. The special box accommodates to the best advantage 96, 104, 112 and 120 in the three and one-half tiers.



EXHIBIT OF APPLES GROWN IN THE TOUCHET VALLEY, WASHINGTON

In beginning the 2-2 or three and one-half tier pack (Figure 4) place one apple in the lower left hand corner and another in the center of the space between the cheek of the first apple and the right hand corner. This will leave the two spaces of an exact size. Into these spaces place two other apples. You will find that these two apples only go part of the way down, thus leaving two spaces without anything in them. There are also two pockets just above the two first apples. Continue the pack by placing two apples in these pockets. Press these apples down firmly. If they are of the proper size they will completely fill up the pockets. If you are packing a 104 size fruit the first and third rows will end up against the top end of the box and there will be vacant spaces at the ends of rows two and four. Don't let these holes worry you. I have had students try to fill them with little apples. They have a purpose, as you will see later. If you are using cardboard between the fruit place a piece on top of this layer and proceed with the pack, except that you begin in the opposite lower corner from the one used in the preceding layer. This throws the first two apples of this layer exactly over the pockets. This also causes the other apples to fit in over the point where the apples touch rather than press one directly on the other as in a straight pack. In packing this and all other layers give the apple a firm pull downward and toward you, thus keeping the pack solid. When you reach the upper end of the box the last two apples will fit into the spaces at the end of rows two and four. These apples must fit snugly or the pack will be slack, and a slack pack will not ship.

The four and one-half or 3-2 pack, as illustrated in Figure 5, is begun by placing an apple in each lower corner of the box and one in the center. This will leave two spaces, one on either side of the center apple. The pack is continued by placing two apples in these spaces. This leaves three spaces and three apples go in next, and so on through the pack. Be sure and keep the pack solid, so that when the last apples are put in place the layer will not fall out even if the box is tipped up at an acute angle. The second layer is begun by placing two apples over the two spaces at the lower end of the box, and also must end over the spaces at the farther end. I have seen beginners get confused with these spaces. They seem to think that each layer should end with exactly the same number. Of course, this is impossible. Take the 150 pack, for example (Figure 26), and we have three spaces at the farther end of the box. As we must end up the second layer with an apple over each one of these spaces we will naturally have only two spaces at this end and three at the end next the packer in the second layer. Also the fact that each pack, as 150, 163, etc., do not end up with the same number of fruits seems to cause some confusion. The 163 pack is composed of smaller apples than the 150, and as a result we get three more fruits in the first layer of this pack than is in



ANJOU PEARS

that of the latter. Of course, this ends the layer with three apples and two spaces instead of two apples and three spaces, as in the 150.

Next to getting all the apples in a pack to fit snug the most difficult feature of packing for the beginner is to get a proper bulge or crown on the completed package. There are several points that we take advantage of in order to accomplish this. I have already mentioned the straight pack, but some of the points I will mention here will apply to that also.

In packing the diagonal pack we are aided somewhat in securing a bulge by the small spaces left at each end of each layer. However, we cannot depend on these for a complete bulge. We must take advantage of the small irregularities of our fruit. No lot of fruit, no matter how well graded, will be exactly of the same size. We make use of the slightly smaller specimens at the ends and the larger through the center. Of course, the difference in size must not be so great as to attract attention. We must begin this bulge with the first layer of fruit and work each layer with that end in view. No packer can hope to get a good pack by putting this important factor off until the last one or two layers.

My experience with packing schools has been that on finding a pack too flat it was of no use to tell the packer to work over the top layer. I have never seen one yet who could make the bulge and general appearance of the pack right by doing so. The trouble is usually at the bottom of the pack. There are many opinions as to the right height of crown. Packers who pack both pears and apples have a tendency to pack the latter too high. This, of course, comes from the big bulge used on pears. The bulge that gives the best all around results is one of one-half inch on both the bottom and the top of the box. Taken together, we would have one inch bulge to the box. This is a slightly higher bulge than can be put on the straight packs; three-quarter inch to the box, both sides taken

together, is sufficient for this style of pack. While the apples at the ends of the straight pack must not come above the ends of the box, just high enough so that the boards will touch the fruit, that of the diagonal pack can come slightly above, so when the cover is nailed on there is enough give to prevent the end apples being bruised.

When you have finished the box see to it that the bulge forms an unbroken arch. When the cover board is put on and pressed down the pressure will be on all of the fruit. Don't have a "hog-back bulge;" that is, high in the center and dropping off to the sides of the box. The fruit along the sides must come up even with the center rows or they will not be held in place by the cover.

When you have completed the pack place a piece of cardboard over the top and then fold over the lining paper. By pinching up a tuck in the center of the lining paper it will fit more snugly over the crown and not stick out from under the lids when they are nailed on.

Place the box on the nailing jack and nail the lid on with a cleat at each end. Use four cement-coated or barbed nails to each cleat. If the cleats have a tendency to split soak in water before using. After nailing, stack the boxes on the side, never on the bulge, as you will crush the fruit.

It is impossible to describe the process of wrapping an apple. Every person has a little way of his own. I use a rubber cot on my left thumb, pick up the paper with this hand so that one corner points directly toward me, throw the apple into the center of the paper and push the lower corner up over the fruit with my thumb and forefinger, at the same time bringing the left and right corners up over the top and turning the apple over with the same hand. The fruit must be fully covered and the paper smooth. Where it is possible wrap so that the corners of the paper fold over the stem end, and thus forms a cushion over the stem and prevents it coming through the paper and puncturing its neighbors.

The reader has perhaps gotten the idea from looking at show packs that each apple in the pack must have the same relative position as that of its neighbors. The commercial pack differs from the show pack in that it is perfectly permissible to turn an apple in the former in order to make the pack solid. I have already mentioned that one or two rows in the 112 and 128 packs are turned differently from the others. There is one thing, however, that should not be done, and that is turning the stem or blossom end to the side of the box. Whether or not the apple is packed on the end or side depends on which position will make the best package.

[Editor's Note.—The figures in this article refer to the illustrated drawings of different packs appearing in connection with Roy C. Brock's article.]

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Editor Better Fruit:

Yours of the 24th instant at hand, and in answer to same beg to say that the way you handled our cuts and matter in your July issue is certainly very satisfactory. We wish to compliment you one this issue of "Better Fruit." It is a splendid effort. Yours truly, Boston Terminal Refrigerating Co., Charles L. Case, Manager.

THE PICKING, PACKING AND MARKETING OF APPLES

BY A. L. ROBERTS, PAONIA, COLORADO

GROWING of commercial apples in Colorado has become a leading state industry. Hundreds of families are supported by it, and no one who has made commercial apple-growing in Colorado his business under right conditions has ever failed. Nor need he ever fail in the future where conditions of growing are anything like right and a fair amount of intelligence is used in the work. That is to say, that there will always be a demand for Colorado apples in the markets of the country, and in the valleys of the state suited to the growth of apples a grower should always succeed. There are different grades of success, however, and as the degree of happiness in many homes of fruit growers depends upon the grade of success the grower has it becomes at once important that the greatest possible success is attained. And as to methods that may be pursued there is a great range of possibilities, almost limitless in extent. Therefore, my problem will be to select what I think is the best method to be followed in the light of the experience I have had.

A commercial apple in Colorado may be said to be almost any variety. In our country the North Fork Fruit Growers' Association, of which I am a member, has some years shipped as many as a hundred different varieties of apples. This year we shipped fifty-five. Some of these varieties were very good and some were bad, and yet I do not recall a single year when a single variety has not been sold at a profit. There is a vast difference, however, as to the amount of profit; and, therefore, where it is possible to do so it is important to grow the best varieties. And I want to say in this connection that every apple grower in Colorado, unless he is extremely wealthy to begin with, in fact has all the money he wants or ever expects to want, should grow apples for money, and for that reason alone. This may seem so self-evident to many that you will wonder why I speak of it. But if it is self-evident that we should grow apples for money, it is also self-evident that many are now failing to make the most of their opportunities. Therefore, the main effort of this article will be to point out what I believe to be the best way to make money out of the growing of commercial apples.

I believe I will be advocating nothing new when I say that the Jonathan has proven itself to be the best apple grown in Colorado today as a money-maker. Next the Rome Beauty. Colorado beats the world on Jonathan and Rome Beauty. Next the Stayman Winesap and the Grimes Golden. Then comes what we might call the second grade, the Gano, the Black Ben Davis, the Pearmain, Geniton, Missouri Pippin, and so forth. If I should plant another orchard for myself I should not go outside of the first four varieties mentioned, Jonathan, Rome Beauty, Stayman Winesap and Grimes Golden. But if I had grown trees of a number of the varieties that

might be called second-graders I should probably not graft them (unless there was some other special reason) because I doubt if it would pay. Money that comes in right now is often worth more than the chance that more might come in in five or six years. Some varieties, however, when in standard locations and not too old, undoubtedly do pay to graft, as no one wants very poor varieties if stock and location warrant grafting to better sorts. Of the newer varieties, such as Winter Banana or Delicious, I have had no experience. Neither do I know how the Spitzenberg and the Newtown Pippin of the Northwest would pay in this country, but I should have to have considerable proof of their adaptability before I would want to try any new variety on a large scale.

My subject includes picking, packing and marketing. I do not consider either picking or packing to be very complicated, or very difficult of proper accomplishment for commercial success. Nevertheless both must be done with great care. For picking I use the ordinary picking sacks, and believe that they are sufficient for the proper success if enough care is taken. I know that many apple growers will not agree with me in this, believing that too many apples

are bruised when sacks are used, hence they prefer to use buckets or baskets that are rigid. They are much slower, however, and, therefore, more expensive to use. I have also found that any ordinary crew of apple pickers can be induced to be careful in using the sacks if enough pains is used in giving the pickers minute instructions and dwelling upon the importance of not bruising a single apple. It must be remembered that usually more apples are bruised putting the apples into the sacks than in emptying into the boxes or in hitting the sacks of apples on ladders or limbs. I always insist that my pickers put their hands clear down into the sacks until the apples can be placed carefully upon the other apples already in the sacks. But care must be taken in all points, and after your crew is properly instructed it is absolutely necessary to insist that these instructions are carried out to the letter at all times. This can be done, and success can be had in this manner.

I believe in the Colorado box, the one adopted at the Fruit Growers' convention held in Grand Junction last spring. I believe in the Colorado diamond pack and the three grades, extra fancy, extra choice and standard, adopted at the same meeting. We have used them and found them satisfactory, only we are now selling our apples under copyrighted brands. Our extras are sold as the Columbine brand, our extra choice as the Paonia brand and our standards as the Robin brand. These brands have proven to be an advantage in selling.

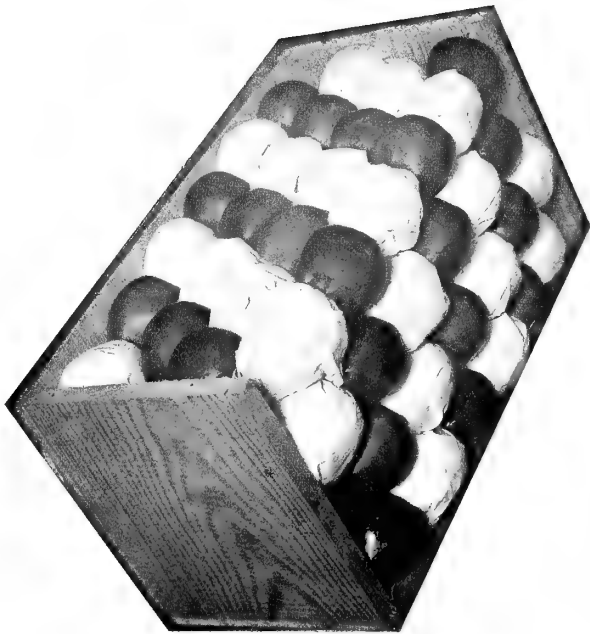
Until this season we have always employed exclusively the usual method of packing from the apples direct as they came from the orchard and were put upon the packing table without the use of sorters. This method is entirely feasible, and a good commercial pack can be secured in this way if care enough is taken with the packers. In fact, in the case of both pickers and packers, patience, pains and vigilant watching are necessary for success. And my experience is that it pays to take pains to explain to help why the rules are made, as well as to insist that they be followed.

This year our manager has been experimenting some in assorting apples before they go to the packing tables. He reports some degree of success, and seems to be of the opinion that in a few years the plan may be able to be worked out sufficiently for adoption as part of the regular method of packing used by the association. It is certain it would be less difficult for the packers to pack properly if all the apples were assorted and graded beforehand. It also may be presumed that a sorter, having only one thing to perform, might be able to do it better than a packer will do, having to pack the apples at the same time. But the main question is the expense and whether it will pay or not, and my experience is not sufficient to answer as yet. I do not believe, however, that it will



POTATO TROPHY

To be awarded for best exhibit of white potatoes at the New York Land Show next November. Value \$1,000



BOX OF WHITE WINTER PEARMAN
96 apples to the box, with top, side and some of
the wrappers, showing method of packing
by Hollan Archibald



ASHLAND, OREGON, EXHIBIT AT SOUTHERN
OREGON DISTRICT FAIR

ever pay us to adopt the complicated system of assorting to sizes used in the Northwest.

This brings me to the most vital subject, marketing. There are many important things to be done and left undone to be successful with a commercial orchard. But the most important of all is marketing, or getting the money out of a crop. There are also more failures in this than in any other branch of the business. For the benefit of the fruit industry in Colorado I would urge that as growers we take a broad view of the marketing problem. In the first place, it has been clearly demonstrated, I think, that a fruit grower's business does not cease when the fruit is grown; it only ceases when money for the crop is safely in the bank, and then only to begin again in the preparation for a new crop. And this thing of turning one's crop over to some outside commission house to sell, although sometimes coming up to expectations, has nevertheless so frequently ended in financial disaster to the growers concerned that enlightened communities have long since evolved a better plan—the plan of marketing through associations of growers. By this method a sufficient quantity of fruit is brought together to enable the association to employ its own manager or managers, sales manager or salesmen. These men are interested only in getting as much for the growers as possible. The largest and most notable example of this in the United States or the world, perhaps, is the California Fruit Growers' Exchange, which has its agents in every large market in the United States and Canada, and a representative in Europe. Then there are fruit growers' associations in Florida and Texas, in Washington and Oregon, Utah, Idaho and in Colorado.

Now, taking into consideration the returns to the growers from associations the country over and comparing them with the returns from all private shippers the country over. I believe the returns from the associations will be found to be much the best. This is not saying that a few individual shippers may not have an advantageous connection with some market in which they obtain just as good results as associations do, but it is not the rule. Then, too, associations are a great benefit to a community in many other ways than simply selling fruit. A good association

will sell any product the growers have to dispose of in any large quantity; it will supply its growers with the best packing material, the best spray material, the best spraying machinery, and so forth, at reasonable prices, usually lower than private stores will do. It will also be a bureau of information for the growers at all times, and its officers will be constantly watching for knowledge that will be of benefit to its shippers. There are different plans upon which associations can be run. Some associations take entire charge of the packing as well as shipping the fruit of their growers, and others simply market the packed product as it is delivered to them. I believe, however, that all associations exercise some jurisdiction in formulating rules for grading and packing. The best way, I believe, is to have all fruit packed directly by the associations. Undoubtedly in this manner a greater uniformity in grading and packing can be secured. And this will be found to be a big advantage in marketing, as all buyers desire at all times uniformity in pack and package. Most associations also pro rate their returns. All should do so. In this way each grower receives the same for like grade and variety. And in doing this it can easily be seen that it is much fairer to each grower if the greatest possible uniformity has been attained in grading and packing, and this can only be done when all packing is in direct charge of the association management. Also, this pro rating feature, peculiar only to associations, is a most estimable feature. A grower can hardly afford to be without this provision if he is located near any good association which uses it. It is like an insurance policy on his crop. If a car or two of his fruit is smashed in a wreck or goes wrong in any way he does not have to lose all or



CLAMP TRUCK, INVENTED BY
HOLLAN ARCHIBALD



FRUIT AND PRODUCE STORE OF LAUX & APPEL, 211 POYDRAS STREET, NEW ORLEANS

fight out a claim for damages with the railroad company. He gets what all his neighbors get, and what all the association's shippers get for the same thing. He can hardly afford to take the risk and chance of getting very much less for the chance that he might get just as much.

Our own association, the North Fork Fruit Growers' Association of Paonia, is, I believe, an example of a successful association—one which has been a tremendous benefit to Paonia growers. Since it has been running our shippers have received a great deal more money for their fruit than they were receiving before, and they have been getting their money much quicker. Land values have been advanced and the increase has been maintained largely upon the prices obtained by the association. In this association all fruit is packed under direct charge of the association management and all fruit is pro rated, with like grade and variety. We have a board of five directors, a manager and, in season, a foreman for each packing station. We have three regular packing and shipping houses on the railroad, and have packing stations at a number of other places at a distance from the railroad. For the last two years we have also maintained boarding and lodging tents for packers and help. In this way a large responsibility in harvesting is removed from the growers, and it really makes their troubles very much less. At the same time a single management can handle the situation more advantageously and more economically than individual growers can do for themselves. Personally I find it a great deal of comfort to know that all will be taken care of at the packing house, that all I have to do is to deliver my fruit to the packing house and spend my money. Nevertheless it is something of an education to learn to be a good association member, as well as something to learn to know how to run one just right. A number of our growers who have shipped with our

association are not shipping with us today. Their reasons for not doing so are, in my opinion, usually trivial. They are not good reasons. They are not such reasons as ought to influence a prudent man to change a convenient and safe system of marketing for something untried and experimental. Personal pique or personal dislike of some official is not a good reason for allowing one's self to lose perhaps several hundred dollars a year. One should be willing to ship with his worst enemy if his returns were made greater thereby. I do not recall a single instance in which a grower has quit shipping with our association and tried some other way and has not lost money by so doing. Usually they have gotten a good deal less money for a like quantity and grade of fruit, and have had to wait for a much longer time for what they did get.

I have already said that we should grow fruit for money. We need to make money in our business. The welfare of ourselves and our families requires it, and the development of our country is enhanced by it. And I say it is foolish to let some little, trivial reason stand in the way of our own progress. I believe in the association idea. In an organization of fruit growers for themselves. And, then, if a grower has a suspicion that something is not being run right in his association let him make an honest investigation. It may convince him that he is mistaken. If, on the other hand, he becomes sure that there is a wrong he should be able to convince the majority of the fault and secure their aid in having it righted. I have spoken freely of our association, the North Fork Fruit Growers' Association of Paonia, not, indeed, with any wish to advertise it or to lower any competitor in the estimation of the grower, but because it is the one I have had experience with, and because my experience has led me to believe that this is the best method of marketing fruit. What has been true of our association

also has and will be true, I believe, of other real associations. And that brings out the point that not all so-called associations are real associations. I would define a real association as one that does not handle fruit except for growers, that is, it does not buy and sell produce for itself, and which pro rates its returns. It is sometimes an advantage for several associations to unite in selling, that is, to have the same sales manager. Mr. W. H. Garvin of Delta has been for several years the sales manager for several associations. This last year, I believe, he was selling for an association in Montezuma, for one in Montrose, three in Delta County (including our own), and, if I mistake not, for one in Rifle. I believe Mr. Moore of Grand Junction also was sales manager for a number of associations in Mesa County and Utah. This uniting of associations in selling enables them to offer sufficient quantity to induce the best talent to undertake its sale, and is a point which should not be lost sight of by the different boards of associations. It also to a large extent prevents our fruit from coming into hurtful competition with itself. For this reason, mainly, there has been some talk of attempting to form a mammoth association in Colorado which shall undertake the buying and selling for what would be practically all present associations formed into one. Whether this would not be too large and unwieldy to operate successfully I can hardly form an opinion. There are some ways, of course, in which it might be an advantage. Of this I am certain, however, that the association method of marketing has proven the best, the safest and the most reliable, and it will probably always be an advantage to any new associations which may be formed to make its quantity big enough by uniting with other associations, if necessary, to enable it to take advantage of the best talent in marketing.



LADDERS MANUFACTURED AND USED BY HOLLAN ARCHIBALD

HARVESTING AND PACKING OF THE APPLE CROP

ADDRESS BY E. H. SHEPARD, EDITOR "BETTER FRUIT," AT INTERNATIONAL APPLE SHIPPERS' ASSOCIATION, NIAGARA FALLS, AUGUST 6, 1910

NOT only is it a compliment, but a great honor, indeed, to be asked to address the International Apple Shippers' Association, an association composed of the ablest, cleverest and biggest men in the world, engaged in selling apples. While I have no apology to offer, still I must say it is with no little embarrassment that I stand before you today. If I were an orator it would be another matter, but I am just a plain apple grower from Hood River, Oregon, 3,000 miles from home, among strangers, appearing for the first time before a large public audience to talk on one of the great industries of this country, the apple business. You, gentlemen, have been engaged in selling apples many years. Many of you have devoted a lifetime to the work, and I shall not assume to tell you what you should do or how it should be done. It will be my purpose, as suggested by your worthy president, to relate in plain language how an apple crop is handled in the Northwest, and how it should be handled. Most of my talk will be confined to harvesting and packing the apple crop, but with the permission of the chair I shall make a few general remarks, which I trust will be of benefit to those interested in the apple business. If some of the suggestions meet with approval I shall feel well repaid for the long journey.

I want you people to know that I am not talking theory, and to understand my remarks are not based on a smattering knowledge of the apple business picked up in a superficial way. I must ask you to permit me a few remarks of a personal nature. My father was a large orchardist in California, where I was born, and he followed the business until I was grown. I attended college, graduating in 1880, and, by the way, surprising as it may seem to you, we have a University Club in Hood River composed of 135 college men, 117 of whom are engaged in the apple business. This indicates progressiveness in the apple growing industry of the future. If I seem as enthusiastic as I feel I can find no better words to express my optimism than the following excerpt about Hood River in a recent issue of *The Outlook*: "The spectator has lingered on the commercial side of this apple raising country, as it is that side which has attracted capitalists, professional men and college graduates to try their hand at fruit culture and country living, but aside from the perfect apples, which have given the valley its fame, there are scenic attractions which would cause one to linger here. But he who lingers is lost, and straightway buys an orchard and devotes himself to the raising of apples. He cannot help it; the very air is charged with apples; the theme of all conversation is apples; the apple orchard is ever before one's vision, and it is a strong man who can resist the call." And I would add that the spirit of enthusiasm indicated in this article exists in every fruit section throughout

the Northwest. It is the Northwestern spirit. This means enthusiasm, aggressiveness, energy and ability, and these words spell "success." The success of the Northwest is proved by the quality of fruit it ships.

For twenty years I was engaged in the wholesale molding and stationery business. Seven years ago I went to Hood River, Oregon, bought forty acres of land, practically all of which I have set to orchard myself. For six years I was manager of the Hood River Fruit Growers' Union, and from 1904 to 1906 I was manager of the Hood River Apple Growers' Union. The two unions are now consolidated, and I am vice-president, treasurer and director. I know and feel quite well acquainted with many of the apple dealers who are members of your association, because I have personally met a great many and have done business with a great many more through our association. In addition to this experience, I am editor and publisher of "Better Fruit," which, I believe, is the only paper published in America that is absolutely and exclusively devoted to fruit, and I want to say that it is my pride to make "Better Fruit"

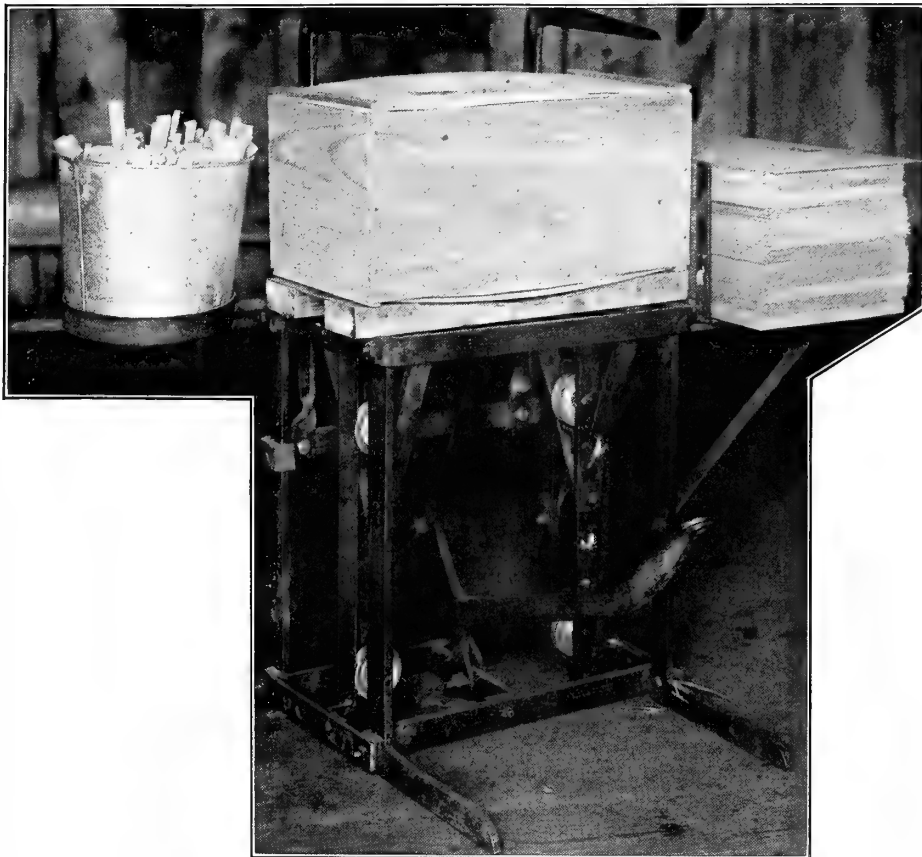
the best and most influential fruit growers' paper in America. "Better Fruit" is not owned or controlled by any section, or state, or class, or business. "Better Fruit" is trying to cover a field attempted by no other publication I know of; it is its aim to be as fair to the apple dealer and buyer as it is to the grower. Now, with the experience and opportunities afforded me it is only natural that I should have absorbed some information, which I trust will be of some value to at least a few, if not all of you. Your business, our business and all kinds of business for that matter is evolutionary. At the end of the first year the average apple grower thinks he knows it all, at the end of the second year his opinion is that he knows less, and at the end of the third year his conclusion is that he knows but little. As an apple grower I have reached the third degree.

As this is my first appearance before the International Apple Shippers' Association, it has been difficult for me to anticipate what would most likely interest you, and I realize that many subjects will be omitted, about which you may want information, therefore, if there are any questions that the members would like to ask at the close of this address it will be my pleasure to answer them conscientiously and to the best of my ability. I am on the program to talk about apple packing and grading. While this subject will take up most of the time allowed me, I come to you with a mission. This mission involved is more than the mechanical part of packing and grading. My main object in appearing before you today is to bring about a better feeling between the apple dealer and the apple grower, to be instrumental in creating confidence and harmony, to bring the apple dealer and the apple grower closer together. I think you will concede that if two men want to do business honesty and frankness will close the transaction quicker and more satisfactorily than bluffing, exaggeration and misrepresentation. In order that I may not be misunderstood by this remark, I will be more explicit. Too frequently an apple dealer, when he goes to the orchardist, shipper or association commences by stating in the most forcible manner possible: "The apple crop is going to be immense all over the whole country." His next statement often is, "Every dealer lost money in the apple business last year," and the final clincher is, when he brings his fist down on the table, sometimes with cuss words, "Prices are going to be low this year." Now, the grower is just as bad. He tells you "the crop is going to be light, the quality is the best in the history of the business, and this year," he will tell you, "there is no crop between New York and the Pacific ocean;" and too often, I must admit, his final statement is, "Prices will be high and the buyer must pay." It will be evident to you that I admit the apple grower has faults as well as the dealer.



BARLEY TROPHY

For best exhibit of barley at the New York Land Show next November. Donated by Col. Gustav Pabst, Milwaukee



BOX PRESS, INVENTED AND MANUFACTURED BY HOLLAN ARCHIBALD. ADJUSTABLE TO ANY BOX, AND IS ALSO ROLLER-BEARING

My honest opinion is that both frequently do wrong. If the dealer and the grower will cut out all exaggeration, misrepresentation and skirmishing at long distance and get squarely down to actual conditions, being frank with each other, offering and asking a reasonable price in accordance with the market conditions each year, governed by the laws of supply and demand, business can be done a great deal quicker and more satisfactory to both.

A great many might wonder why I, a Northwest apple grower, am so earnest in my desire to see the pack and grade of apples improved generally throughout the country. I believe the better the grade and pack of every section the better it will be for every other fruit district. The explanation is simple. All business, including the apple industry, is subject to the inevitable law of political economy, supply and demand. To illustrate this: Assume there is a demand at a fair price of 40,000,000 barrels of apples this year and that 50,000,000 barrels of apples are grown. The growers must do one of two things; take a lower price on account of the excess ten million barrels or grade and pack their apples so as to cut out this excess of twenty per cent. Gentlemen, if there is one thing that I want to urge more than another today it is to put up quality apples. Leave the culls at home. Now, this is not advice, it is common business sense, and you apple dealers know that at best culls hardly pay the freight. To ship them means an unnecessary increase in supply, which pays no profit. It means also that the grade will be lower, and this means

lower prices, less profit for you and less profit for the grower. I believe I am justified in making the statement that at least twenty per cent of the average crop of apples ought to be made into vinegar. In some localities this percentage will be less and others greater, and I say to the growers, don't be ashamed of your account with the vinegar factory, for the vinegar factory is one of the best friends the apple grower has in the world, if he only knew it and used it more.

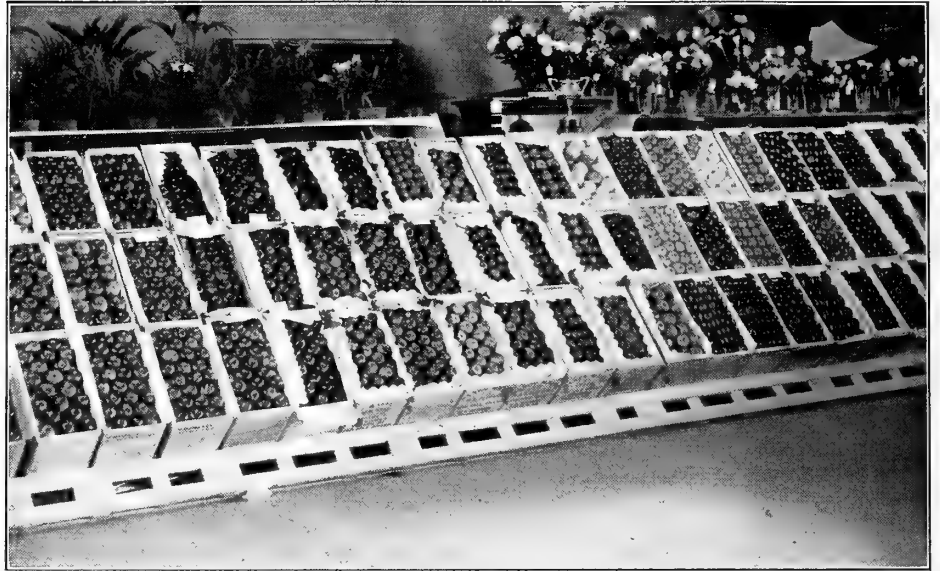
It is human nature to want fruit, and to buy fruit when we visit the fruit stand if the fruit is fresh and in perfect condition. This means increased consumption. On the other hand, it is equally true that if the fruit is bruised, decayed or unattractive it is human nature not to buy. This stops consumption. What we want is consumption, increased consumption, and the way to create it and build it up is for the grower and the dealer to pack, ship and sell only fruit that is of good quality. Therefore, I say let the slogan of the fruit grower and the fruit dealer be, "Quality first, quality last and quality all the time." It seems proper to cover the field briefly and endeavor to show what is necessary in order to obtain this quality. I believe I can illustrate plainly by telling you just how we do things in the Hood River Apple Growers' Union, because I am familiar with every detail of our methods. I might add that I believe the methods of grade and pack of the Hood River Apple Growers' Union are surpassed nowhere in the apple-growing world. There are many good fruit districts in the Northwest, among which may be mentioned Colorado, Utah, Montana, Idaho. In the State of Washington Spokane, Walla Walla, Wenatchee and Yakima; in the State of Oregon Grande Ronde Valley, Hood River, Southern Oregon and the Willamette Valley. I have mentioned these districts at random and have not named them in their relative order as to either quantity or quality. As manager of the Hood River Apple Growers' Union I wrote the original rules on grading and packing in 1904, which we have improved every year since, and these rules on packing and grading are being closely followed, being improved each year by practically every one of the Northwest apple producing sections. Now, if you please, I will carry you briefly through the principal features of handling the apple crop. I am going to tell you about them, because through you what I say here



CALIFORNIA PEARS IN WAREHOUSE OF MESSRS. GARCIA JACOBS & COMPANY, LONDON

today may reach the grower. It is the fruit grower that you must educate if you want to get better quality. Better quality means better prices, and better prices mean better profits to you and better results for the fruit grower.

Picking.—That's easy. Any man, woman or child can pick apples, but just this ignorance in a large measure accounts for the serious loss that results from off condition on arrival or in storage. Picking is a science and it is impossible for me to describe in words exactly how and when every variety of apple should be picked in all the different localities. The best I can do is to give a few general words of advice and caution. As a rule the apple is ready to pick when the seeds turn brown and the stem separates with comparative ease from the spur, but this general rule is not definite. A man must know from the general appearance of the apple when it is ready to pick, and this he can only learn from experience. In a way the color is the best guide. The color should be a matured color. An apple is generally ready to pick when it is "hard ripe." This means the apple is matured, not ripe enough to eat, but ripe enough to ship, stand up, and ripe enough to have the proper taste. To pick apples at this stage is very important. As all apples on the tree do not mature at the same time, it is generally advisable to make two or three pickings. With red apples there is a growing tendency on the part of the grower, on account of the desirability of a good red color, to allow apples to hang too long on the tree. The apple that is allowed to hang too long on the tree is beautiful in color, and as far as casual observation goes in perfect condition; this is what fools the average grower. I want to say emphatically that if the apple is allowed to hang too long on the tree it is neither in condition to carry in long transit or hold up in cold storage; inability to judge the proper maturity for picking brings back many reports of off



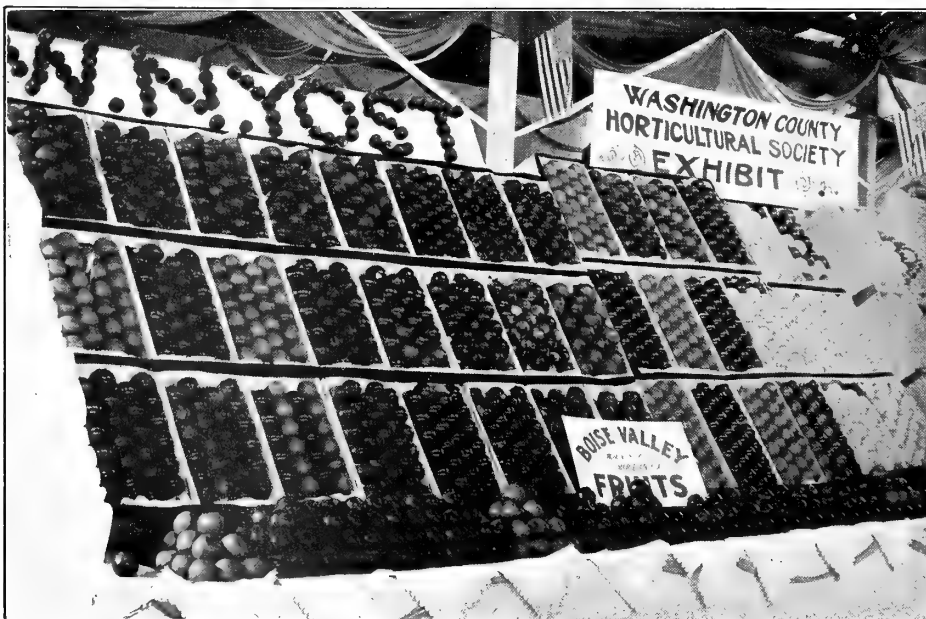
PART OF THE EXHIBIT OF BOXED APPLES AT THE MEETING OF THE MAINE POMOLOGICAL SOCIETY, HELD AT AUBURN, MAINE, NOVEMBER 8-9, 1910

condition and falling down in storage; it means poor returns for the grower and a cussing from the grower for the dealer; an apple has just so much keep under perfect conditions, and when improperly handled the condition will be off, the keep shortened and the returns low. The same exactness should apply in picking yellow apples as the red, but as a rule the grower is not apt to allow them to hang so long. A grower must know each of his varieties and understand them thoroughly. I find a great many do not know that the Yellow Newtown Pippin should be picked green. The reason is that the English trade demand the Newtown green, and they demand it green because they know when it is green it will have keep and stand up in cold storage. Apples should be carefully hand picked in a basket or bucket, and should be emptied carefully or placed by hand into the field box. The main object is to prevent bruising,

as bruising shortens the keep, attractiveness and salableness of apples.

Speaking of ladders, a great many growers think any old barn ladder that you can lean up against the tree fills the bill, but the fruit grower now-a-days must be up-to-date and adopt modern ways and equipment. Light ladders should be used, convenient to carry and so compact that they can be easily placed between the limbs instead of against them. They should be strong, so they will last. Avoid ladders that lean up against the tree because they not only break the limbs but the bark, and wherever the limb or the bark of a tree is broken an opening is made where some of the many diseases now prevalent will have a chance to enter.

Every grower should be provided with orchard boxes. The only way the grower can deliver you a clean box is by using orchard boxes. I know you gentlemen realize the importance of clean boxes, and I dare say that where I have seen one soiled box you have handled them to your sorrow by thousands. I say to you the only way to get clean boxes is to insist in your contract that the boxes shall be clean, and the only way for the grower to give you clean boxes is to use orchard boxes to pick in. The orchard box used in Hood River is made of heavy lumber with cleats on the top so the boxes can be piled one on top of the other without bruising the apples. These will last a great many years. The box we use is large enough to pack out a Northwest standard box. We are here for friendly discussion and a better understanding, and not to quarrel. Don't go up in the air when I say our box contains a bushel, a Winchester bushel, the only one recognized by the United States Department of Weights and Measures. I trust you will pardon me for mentioning this subject. I intended to refrain entirely, but the chair has agreed to protect me, and the chair wrote me I had license to say anything I wanted to providing I did not offend the chair; to which I replied that I would endeavor not to offend the



AN EXCELLENT COMMERCIALY PACKED BOX, APPLE EXHIBIT OF W. N. YOST, BOISE VALLEY, AS WELL AS WASHINGTON COUNTY, IDAHO



POYDRAS STREET, NEW ORLEANS. THE GREAT WHOLESALE FRUIT AND PRODUCE SECTION

chair, but if I did and the chair got too indignant either the chair or myself would probably go out of the window.

In days gone by, before our friend, the codling moth made its appearance, it was not necessary to wipe apples. If it were not for the codling moth and some other diseases we might grow more apples than the trade would consume. It is the difficulty in growing apples that prevents over-production. To produce clean apples now it is necessary to spray. Apples covered with spray are certainly unattractive to the consumer, and, therefore, I think and believe all apples should be wiped. When wiping the apples should be graded, and I believe the subject of grading is one in which you gentlemen are vitally interested. I believe that ordinarily two grades are sufficient, a first and second, or call it, if you will, "extra fancy" and "choice." Ordinarily it will not pay to pack more than two grades, as every time an extra grade is introduced it adds about five cents extra per box to the cost of packing. I believe the grading rules of the Hood River Apple Growers' Union cover the specifications sufficiently for any intelligent apple dealer and grower who wants to do what is right, and I believe they are clear enough so that any experienced apple dealer or grower can carry them out without inconvenience or extra expense. I believe if they are followed the grade will be satisfactory, and better prices will be the result, both for the dealer and the grower. I quote you the grade rules of the Hood River Apple Growers' Union: Fancy Grade consists of perfect apples only. The apples must be free from worm holes, stings, scale, fungus, scab, rust or any other diseases, and free from all insect pests, decay or injury. They must be free from bruises and limb-rubs, and the skin around the stem must not be broken. All apples must be clean, fully matured, not deformed, and must

have a healthy color. Spitzenbergs must have seventy per cent or more of good red color. All red apples must be of good color. Choice grade consists of apples a little below fancy, and includes such apples as are not perfect. These must be good apples, not culls. No apples with worm holes or broken skin will be accepted. Limb-rubs must not be larger than a ten cent piece. Only two stings will be allowed, and no sting is permitted where the skin of the apple is broken. No apples will be accepted if affected with San Jose scale, dry rot, or which show an open or black bruise. Apples showing fungus will not be permitted where the spot is larger than one-half inch in diameter.

It seems to me that grade and size are not one and the same thing, and that no single classification can be used in marking the package, the box or barrel, which would indicate both. Some apples are of very high class quality, but do not run large in size, and I do not believe any marking should be used to

convey the impression that they were of inferior grade. A diamond may be very small but very high grade, while on the other hand, a diamond may be very large and of inferior grade, therefore, gentlemen, some term like "grade A," "grade B," "grade C," or "extra fancy," "fancy," "choice," or such other expression as may seem advisable ought to be used to indicate the grade, and mean the grade only, and I think each box ought to be marked with the number of apples the box contains to indicate the size of the apples. In a word, I believe each package should be marked with two terms, one to indicate quality and one to indicate size.

Every orchardist should be provided with suitable packing tables. I believe that every package of fruit should be lined with paper, and I am satisfied, beyond any reasonable doubt in the world, that when apples are wrapped they carry better, bruise less and arrive in better condition and keep better in cold storage. Boxes and barrels should all be made of good lumber, well put together, and when loaded in car for shipment every box or barrel should be absolutely clean. Boxes should be piled on the sides; this prevents bruising. The side of the box is made of heavier lumber, which does not give like the swell on the top and bottom. Boxes should be well made, clear stock, securely nailed with nails that won't pull out. I know of no better nail to use than the Pearson cement-coated nail.

The grower should be required to stamp on the end of every box or barrel his name, postoffice address, the variety of apples and the size and grade. Now, a word more about the importance of the grower putting his name and post-offices address on the end of every package. It may seem unnecessary trouble, but I consider it a very important requirement on the part of the buyer and apple dealer. The apple grower of today, particularly of the Northwest, is a man who is proud of his calling and proud of his finished product, and let me say to you emphatically that since we have made this requirement a state law in Oregon, Washington and Idaho the pack is far superior to the pack



COMMERCIALY PACKED APPLE EXHIBIT FROM THE ROGUE RIVER VALLEY, OREGON, AT THE LAND AND IRRIGATION EXPOSITION, CHICAGO

before this state law became effective. Why? Because if a box of poor fruit could not be traced back to the grower by the association the grower's responsibility would cease after the box was accepted by the union. If you gentlemen will insist on this requirement in your contract with the different apple growers, apple shippers and associations I feel justified in assuring you that you will secure a far better pack.

A wagon is a wagon, but when it comes to hauling apples to the depot a dead axle must be a thing of the past. As a matter of protection to you and for the benefit of the grower permit me to suggest that you require all apples be hauled to the depot from the orchard in spring wagons. The wagon should be covered so as to keep off either the dust or rain. Many a grower, through carelessness or ignorance, hauls apples to market on a dead axle. I know what this means. It means the apples are bruised before they leave the district where they are grown, the condition is affected and the keep shortened. The grower, through his own carelessness and ignorance, damages the crop that he has worked a year to grow, and then blames you when he gets his returns for what is his own fault.

A packing house is essential when a grower wants to put up fancy apples. It should be well lighted, of sufficient size and conveniently arranged for carrying on this important part of the apple industry. In order to put apples up in the most perfect condition it is necessary after picking to get them quickly into a cool place, where they will be protected from the sun. Where the grower packs in the orchard the apples absorb heat from the sun. The less heat there is in an apple when it is shipped the better it will carry and the longer it



ONE OF THE MANY DOCKS ON WATER FRONT, SEATTLE (PUGET SOUND). A GREAT EXPORT PLACE FOR FRUITS AND PRODUCE FOR ALASKA POINTS

will keep. I believe the district provided with apple packing houses will be the district that will put its fruit in your hands in the finest condition and get the highest price. In Hood River many of the growers have comfortable packing houses, costing from \$2,000 to \$7,000. Some growers may not be able to erect suitable packing houses, but I believe they can be cared for by community packing houses located in the different districts under a superintendent of the association. I do not hesitate to say whenever you find a district well pro-

vided with suitable packing houses you can have additional guarantee of securing apples put up in proper condition.

Of all the features I have mentioned being responsible for the off condition that you so frequently have to contend with I don't believe there is one that is as equally responsible for so much loss or damage as allowing the apples to remain unpacked from one to three weeks. The quicker the apple is packed after it is picked the better the condition will be when it reaches your hands. The longer the wait after being picked before being packed and shipped the poorer the condition will be on arrival. I would suggest that you require in your contracts with the shipper or association that the apples be packed promptly after being picked, and the quicker the better. Mr. G. Harold Powell of the Department of Agriculture, one of the ablest men in his line of work that I have met, was sent by the United States government to California to investigate and ascertain the cause of the serious losses in orange shipments to the East. He has visited Hood River twice, spending two or three days each time. In reply to my question, "What are the greatest causes for fruit arriving in off condition or failing to keep in cold storage?" he said "the two greatest reasons for fruit going down either in transit or in storage is careless handling by the grower and too long a wait after the fruit is picked before it is shipped."

I believe in associations. It is my opinion that associations are of equal value to the fruit grower and the fruit dealer. Where associations are organized on the right lines and properly conducted by an able manager, my experience and observation is that the grower does better work. I believe associations are as much benefit to the apple dealer and buyer as they are to the grower.



Photo by Colville, North Yakima, Washington
PACKING PEACHES, THOMPSON FRUIT COMPANY



GRAPES AS THEY GROW IN THE ROGUE RIVER VALLEY

My reasons for these statements are that the associations organize and systematize the business, and raise the standard and put up a uniform grade. In Hood River the grower does not pack his own apples; the apples are packed by the association packers, and each packer is registered, and before being registered he must be able to put up a good pack. In addition to this the association protects you by the inspection that is made when the apples are being packed and after they are packed before being shipped, and it is my positive opinion that you can get a better and more uniform pack through an association than you can from a lot of individual growers who are packing according to their own ideas of standard requirements and quality, which necessarily are different. Not only for this reason is the association a benefit to you and a protection, but for the further reason that after purchasing and paying your money, if you deal with an association, you are dealing with a business firm or corporation of such standing in the fruit world that it must not only guarantee the pack, but it must make that guarantee good. If the individual puts up an off-condition pack and gets his money for it the fact is seldom known by anybody except the grower and the dealer. If you get stung the grower feels that he is evening up for some past experience when he has been stung by someone else; he is not hurt or his market affected, because he can ship to some other firm next year. I believe there are about as many apple growers ready to do the commission men as there are commission men ready to do the apple growers, but the association cannot afford to feel this way, and it would be suicidal for it to act in this manner. If an association puts up an off grade or poor pack it is a matter of public news to the trade, the reputation of the union is impaired, and that affects the standing and the pocket book of

every grower in the district, therefore, gentlemen, it must be evident to you that the association's aim must be to give you a square deal, to guarantee its pack and back up its guarantee.

I think I have covered as many important features of the subject assigned to me as time will permit, with one exception, and that one exception is the actual method or manner of packing a box of apples. To go into this subject is a matter of detail, and to describe how to pack a box of apples would be uninteresting to many of you, and would be more than you would care to hear on an occasion of this kind. It is almost impossible for anyone to tell you in words how to pack a box of apples. It is just as impossible to tell how to pack a box of apples as it is to tell a man how to ride a horse or how to swim. It is something that must be learned by actual practice. It is a trade, and if a man develops into a successful packer after one year's experience he has done well.

I believe if every fruit dealer, in his contract with the grower, shipper or association, will embody the main points that I have mentioned it will go a long way toward making the business between the fruit grower and the fruit dealer pleasanter, more satisfactory and more profitable. I am sure that it will result in giving you better apples, better grading and better quality on arrival. On the other hand, I believe by demanding these requirements that you will be doing the fruit grower a favor, because I am satisfied beyond all doubt that by adopting these suggestions you will get a better pack and a better grade, and be able to return the fruit grower better money. When you get right down to brass tacks it is results that count, and it must be quality, quality, quality, if you people are going to get results. The fruit growers of the Northwest know

that I am their friend. I want you to know that I am your friend. I cannot help the dealer without helping the grower; I cannot help the grower without helping the dealer; therefore, the sincerity of this mutual friendship must be evident to you.

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FRUIT GROWERS or any other users of insecticides or fungicides will be interested in circular No. 65 just issued by the Agricultural Experiment Station of the University of California, upon the California insecticide law. This law, which has just gone into effect, requires all manufacturers or dealers to properly label and guarantee the purity of all such substances, providing severe penalties for its violation and prohibits the sale of such goods until the dealer shall have complied with the requirements of the law. Any user of insecticides or fungicides can now have the material they buy examined by the university upon the payment of a nominal fee, and thus learn whether it conforms to the guarantee of the dealer. Hundreds of thousands of dollars are spent each year in this state for the control of insects and fungi, and the efficiency of the treatments depends in great measure upon the quality of the chemicals used. The present law will go far toward insuring that only honest preparations will find sale in this state. The insecticide laboratory will subsequently issue bulletins explaining to the growers the grades of insecticides upon the market and their relative values. The present circular is intended primarily for the information of the manufacturers and dealers. It will be of interest, however, to every one concerned in the control of insects or fungi. A copy of this circular can be had on application to the director of the Agricultural Experiment Station, Berkeley, California.

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ONE of the new courses of study offered by the Missouri College of Agriculture is a four years' course for women, leading to the degree of bachelor of science in agriculture. This course is intended to give women not only a knowledge of home economics, but a thorough training in those farm practices in which women are particularly interested. The course includes farm crops and soils, dairying, botany, gardening, care of flowering plants and fruit culture, besides the usual studies that have heretofore been included in the regular home economics course. It is expected that this course will prove popular with a large class of young women who intend to spend their lives on farms or in teaching in connection with agricultural schools. It is a well balanced course, affording a wide range of studies from which students may select work outside of the agricultural and home economics departments.

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Editor Better Fruit:

"Better Fruit" is certainly the best fruit grower's paper I have ever read, and you deserve every success in your efforts. The July number I consider an excellent production, and will no doubt do much in bringing grower and dealer closer together. Wishing you every success, I remain yours faithfully, F. Strong, Yorkton, Saskatchewan, Canada.

TIME FOR PICKING AND PACKING AND PACKAGES

BY F. E. THOMPSON, NORTH YAKIMA, WASHINGTON

MY experience as a fruit grower in the Yakima Valley dates back to the year 1889, when the shipment of fruits would not total ten cars from the entire Yakima district. Having passed through the constructive days of fruit growing and shipping, being the first shipper to route a straight car of fruit to a point east of the Missouri River, experience and observation have been my teacher, and I might add that some of my experience has been financially very disastrous at times.

The production of good fruit begins with the early spring. Care and intelligent consideration must be given the trees during all the stages of cultivation, but as my line of thought is based on fruit ready to pick I will not discuss the operations of fruit raising. Picking of fruit sounds easy—it is easy for some people—but with the general fruit growing public it is a hard job. The difficulty arises by not knowing the proper time to remove the fruit from the trees; this applies especially to peaches. A peach picked too green will arrive at its destination in a withered condition, a dead, sickly green color, and absolutely unfit for consumption, while on the other hand, one picked too ripe will be just as worthless when subjected to a railway haul lasting over a period of ten or twelve days. For me to explain orally the exact time to harvest peaches for shipment would be impossible, and the only way this information could be imparted would be with the actual specimens of fruit before me. This would apply in a measure to all other kinds of fruit save apples and pears. With apples, when the color has thoroughly developed characteristic to the variety they are generally ready for harvesting. The average fruit grower leaves his apples on the trees entirely too long; when this is done they lose their keeping qualities to a very great extent. Last fall the leaders in this valley had trouble galore in making deliveries of apples to the Eastern buyers on account of them being too ripe, and this excessive ripeness arose from too late picking. Bartlett and other summer pears are ready to pick as soon as they have attained the diameter of two and one-half inches. Shippers of pears experience great trouble in late deliveries by the growers; pears must not be allowed to hang on the trees till they take on the yellow cast, as that will mean disaster to someone.

Presuming the fruit grower knows the exact stage to pick his fruit, the question of equipment arises. He needs ladders, buckets or baskets, a wagon equipped with good springs and a first class foreman to take charge of picking gang. The shifting of fruit from picking buckets to lug boxes is bad practice; the bucket in which fruit is picked should and ought to go direct to the packing house and be packed direct from these picking buckets. If the fruit is graded ahead of the packers then let it be graded directly from the picking buckets.

Stay away from innumerable handling; don't pour fruit from picking buckets to orchard boxes. Every time fruit is transferred great damage results from the operation; you will have skin punctured and bruised fruit, and to pack a specimen of fruit with a broken skin means rotten fruit within a very few days. Before an extra quality of fruit can be packed the element of grading enters into the game to a very great degree. In peaches my suggestion would be not over two grades be made, a "fancy" and a "choice," and quoting in part from grades and rules adopted by the Yakima Valley Fruit Growers' Association we have the following packing and grading rules:

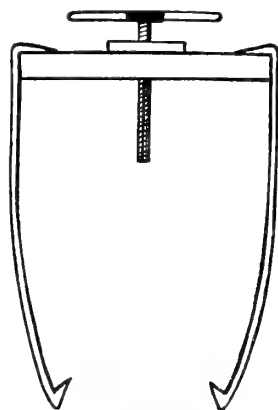
Peaches: Fancy—All fruit shall be free from worms, scale, disease, blemishes, split pits and picking bruises. Sound, firm, smooth, true to name and well colored according to variety. Choice—All fruit in this grade shall be in as perfect condition as the fancy grade, with the exception of color. Each grade and count shall be a uniform size; each peach neatly wrapped in paper and boxes tightly and carefully packed, suitable for long distance shipping. Use diagonal pack, sides to be solid. The number of peaches, variety and grade shall be plainly stamped on the end of each box by grower. No Elberta peaches of greater count than eighty to the box will be received, and no variety of more than ninety to the box shall be accepted except Alexanders and Hales for nearby express shipments. Suggestion -- Use Washington standard boxes of appropriate size; in making use six four-penny

cement-coated nails to each side, twelve three-penny cement-coated nails for bottom and eight four-penny cement-coated nails for top, nailing through cleats only. Use no cleats on bottom. Be careful in nailing that no points protrude.

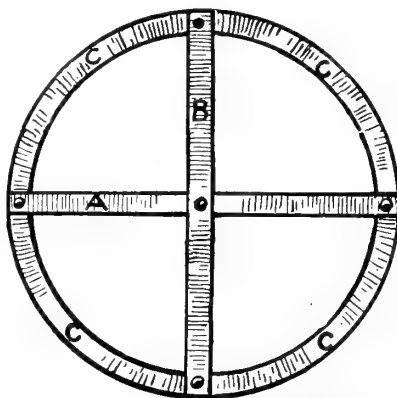
Prunes and plums should be packed in four basket crates, three tiers to each basket. Fruit must be sound, firm and free from all scale or other insect pests, scab or rough, stems intact as near possible, and no fruit packed smaller than 6x6 in each tier. This means thirty-six specimens of fruit to the layer, and the packed crates should weigh not less than twenty-seven pounds gross. By all means use the diamond system of packing. The packing rules for apricots, in a very great measure, are the same as for prunes and plums.

In packing pears two grades should be made, a "fancy" and "choice." Quoting again from the Yakima Valley Fruit Shippers' Association grades and rules we have the following: Fancy—Bartlett, Buerre, d'Anjou, Flemish Beauty, Clapp's Favorite, Comice, Buerre Clairgeau, Fall Butter and kindred varieties shall be no smaller than two and one-half inches in diameter. Winter Nelis must be no smaller than one and three-quarter inches in diameter. All pears must be packed in Washington standard boxes, not to weigh less than fifty-two pounds per box gross. All fruit must be free from worms, worm stings, scale, picking bruises and blemishes; free from evidence of rough handling, scab or deformity of any character. Choice—All fruit shall be sound, free of worms, worm stings, scale and disease. Slightly misshapen pears, or those having limb-rub or other slight defects may be included. No fruit less than two and one-half inches shall be accepted. In fact stock in this grade must be only a little below fancy. Name of variety, grade and tier shall be plainly stamped on end of each box by grower, variety in upper left hand and tier in upper right hand corner close to top. Suggestion—In making boxes use eight five-penny cement-coated nails on each side, eight six-penny on bottom and top, nailing through cleats only. A special pack of pears could probably be made for the New York and other Eastern markets, known as "extra fancy." In this pack nothing but the very finest fruit should be used, and my experience as a shipper has been that it pays to pack this grade, and more especially the Bartlett and d'Anjou varieties.

We will now discuss the important subject of packing apples. Every grower, as before suggested, should be provided with buckets, lug boxes or other receptacles for the proper handling of the fruit while undergoing the process of picking, but do not in any event use the boxes that the apples are to be packed in for picking purposes. A soiled box hurts the sale of good fruit. All packages should go on the market in clean condition. Regarding the wiping of apples there has been more or less discussion. Since the advent of the codling



SCREW PRESS FRAME



IRON CIRCLE PRESS HEAD



WAREHOUSE AND FRUIT SHIPPING PLATFORM OWNED BY J. C. SINSELL, BOISE, IDAHO

moth it has made spraying imperative, and during the process of spraying a deposit of lime is found on the fruit, but I question seriously the advisability of wiping. Nature has placed a bloom on this fruit for a purpose, and this bloom no doubt aids the apple in keeping quality. On the other hand, packers of fancy fruit can show good logic and offer reasons why all spraying effects should be removed, and we must all admit that an apple after being wiped presents a better appearance than one that has not been thus treated.

The sorting of apples ahead of the packer seems to be the most important of all, and three grades are quite sufficient. Quoting for the last time from grades and rules adopted by the Yakima Valley Fruit Shippers' Association we have the following: Extra Fancy Export—Fruit shall be no smaller than two and one-half inches in diameter, of good, natural, matured color, free from discolorations, and shall be absolutely free of worms, worm stings, scale, scab, limb-rub, water core, sun damage, picking bruises or any defects whatever. Stemless fruit, skin punctures or any evidence of rough handling shall be considered defects; all spraying effects must be removed. Red varieties must be red all over, of good shape and form, characteristic of the variety. Fancy—All fruit of this grade shall be free of worms, scale, scab, stings, bruises, water core or any evidence of rough handling, with stems intact, and characteristic of the variety; shall be smooth and firm. Varieties in this grade, with the exception of Winesaps and Missouri Pippins, shall be no smaller than four and one-half tier, and no box shall contain more than 165 apples; Winesaps, Missouri Pippins, Genitons and Jonathans will be accepted as small as five tier if red all over. Each specimen of Winesap, Jonathan or Arkansas Black, Gano, Lawver or Delaware Red must represent seventy-five per cent true color. The following varieties, Ben Davis, Rome Beauty, Baldwin, Wagner, York Imperial, Northern Spy,

Waldbridge, Geniton, Mammoth Black Twig, Blue Pearmain, Hubbardston, Hydes King, King of Tompkins, Rambo, Ruby, Senator, Snow or other red varieties will be accepted fifty per cent red. Red Cheeked Pippins must show a red cheek. Choice—All fruit in this grade shall be free of worms, scale, scab and bruises, sound and true to name. No smaller than four and one-half tier pack will be accepted, except that Winesaps, Missouri Pippins, Genitons and Jonathans may be accepted as small as five tier. Name of variety, grade and tier of each box of apples shall be plainly stamped on end by grower; variety in upper left hand and tier in upper right hand corner close to top. All export and fancy varieties to be wrapped in duplex paper unless otherwise specified. Bulge of boxes should not be more than one and one-half inches or less than one inch, including both top and bottom. Suggestion—Use Washington standard apple box. In the making use eight five-penny cement-coated nails on each side, eight six-penny for the top and same number on the bottom. Use four cleats to each box and nail through cleats only. These grading rules adopted by the Yakima Valley do not disagree mate-

rially with the grading rules adopted by Hood River and Wenatchee, and it resolves itself into two words, namely: Perfect fruit.

I want to take exception to the light and frivolous manner in which the growers of the Yakima Valley treat the words "extra fancy." During the last season thousands of boxes of apples of different varieties come into our warehouse marked extra fancy, and in a majority of cases they were straight orchard run packed. In varieties like Ben Davis, Baldwins, Mammoth Black Twigs and other kindred varieties we would find apples with the red cheek not larger than a fifty-cent piece, but the grower did not overlook his "extra fancy." He had the idea that the words Yakima and extra fancy were all that was necessary. Without wishing the apple growers any ill luck, my wish is this: That every grower of apples would be compelled to change his occupation to that of a dealer for a period of two years, and the chances are that from that time he would thereafter be a better grower. The growers of the Yakima Valley are falling behind our neighbors of Hood River and Wenatchee in the matter of packing apples. This is an admission that I dislike to make, but it is a fact nevertheless. We have the fruit, but we are shy of growers who know and have a conviction to put up a first class pack. Regarding the different sizes, they should be confined to three, namely: Three and one-half, four and four and one-half tier, with a possible exception of one or two varieties which could pack five tier. In a three and one-half tier pack we have four different counts, in the four tier six different counts and the four and one-half tier three separate counts.

The planting of apple orchards is going on at a very rapid rate, and it behooves the Northwestern apple grower to lay a proper foundation for quality, intrench himself in the markets of the world, fortify himself against competition, and when competition does come he will have established himself so thoroughly that his position will be unique, but the words "Yakima" and "extra fancy" on his box will not be sufficient; he must have perfect fruit and well packed. Our present style of fruit package seems to be all that it is desired,



ELBERTA PEACHES

By Hollan Archibald



FANCY PACKED BARRELS

but the time has come when the apple growers of the Northwestern states must resort to barrels. This question is an economic one. It is not a matter whether we want to or not, we are going to be forced into it. Good authorities agree that the output of apples for the State of Washington for the year of 1920 will be 80,000 cars, that of Oregon 30,000 cars, Idaho 30,000 cars and Montana 10,000 cars, making a grand total of 150,000 cars for these four states. Reducing this estimate to boxes, we will have the grand total of 94,500,000, and taking the estimate of twenty-two and one-half cents per box for packing, it will cost the enormous sum of over \$20,000,000 to place this fruit in boxes, not including the cost of picking and grading. Remember, nearly all of this grand expenditure must be made within sixty days, and I firmly believe a lot of expense and time can be saved by resorting to barrels. Figuring upon the basis of twenty-two and one-half cents per box for packing apples after they have been picked and graded it requires three and a quarter boxes to make one standard barrel; this equals seventy-three cents. Now, taking the cost of a coopered barrel of thirty cents, add to this two and one-half cents for placing the first layer in the barrel and two and one-half cents for putting in the head, makes the package cost thirty-five cents. The difference between this and the same amount of apples packed in boxes is thirty-eight cents, or in other words, a grower can pack 140 pounds of apples just thirty-eight cents cheaper in barrels than he could in boxes. We estimate that the Yakima Valley will have in the year 1920 40,000 cars of apples; reducing this to boxes we have 25,200,000, and there could be a saving made of over \$3,000,000 by packing these apples in barrels instead of boxes.

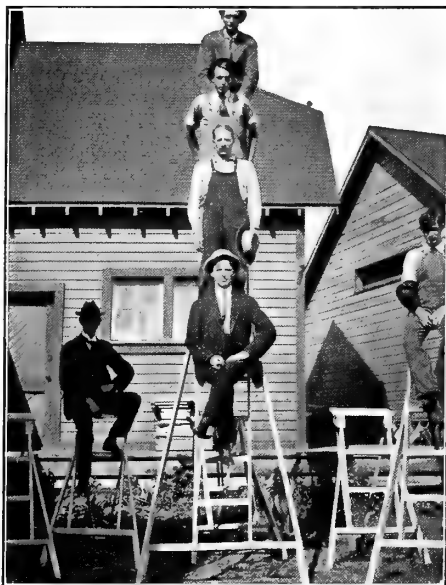
Allow me to qualify some of the above assertions. Not by any manner of means would it be advisable to pack all of our apples in barrels. The Western box has come to stay; it is known in the market of the world, it has a place there and it will not be displaced, but the bulk of this fruit, or at least seventy-five per cent of it, must go into barrels. The labor problem, if nothing else, will put it there. Anyone conversant with Eastern apple markets will agree with me that the price on Eastern barreled apples has been as high as a like variety from the West packed in boxes, not including some of our extra fancy packs of high grade apples. Allow me to quote part of a letter received from Mr. Rankin of Minneapolis, who bought sixty cars of Yakima apples the past season: "Among

the Yakima apples that we bought there were 134 boxes of King of Tompkins which met with slow sale, and I could not get the dealers interested. I went out and secured barrels and repacked those apples in them. It took three and one-fifth boxes to make one barrel, but after barreling them we had no trouble in selling immediately at \$5.50 per barrel."



AN EVERY-DAY SCENE ALONG SOUTH WATER STREET, CHICAGO. ONE OF THE BUSIEST FRUIT AND PRODUCE STREETS IN THE WORLD

Our apple market in the future must come from the middle classes, and the cheaper we can lay down good fruit the greater the consumption. If we can make a saving in the harvesting expenses, the grower can get the market price for the fruit in bulk, the consumer pays this price plus the cost of the barrel, the freight charges and the middleman's profit. I have been advised by New York dealers that it is not uncommon



LADDER MANUFACTURED AND USED BY HOLLAN ARCHIBALD

to see apples hanging on the trees in the morning and at night loaded in cars and on the way to the market, but with our present box system apples sit around in boxes awaiting packers, consequently losing to a very great extent the keeping qualities apples should have. It is fair to presume that the Panama canal will be completed in the year 1914, and when this is a reality we will undoubtedly be able to ship a box of apples to Europe for the sum of thirty-five cents, a barrel for about a dollar. With the enormous producing ability that our apple orchards have, the superior fruit that the trees produce, and being contiguous to sea coast, places the Northwestern states in a position to absolutely defy the world, and my prediction is that good apple orchards well located, and of good varieties, will enhance in value as the years roll by.

THE Washington Nursery, Toppenish, Washington, is one of the great big nurseries in the Northwest and the testimonials published in the July edition of "Better Fruit" indicate that they have a satisfied list of customers. We note that they do an immense volume of business, and so far as we have heard, at least, are the first to engage in growing seedlings. This will be of great interest to the nurserymen who have had to send a long way for their seedlings, and sometimes suffer delay and other troubles more or less numerous. The Washington Nursery Company are preparing to grow seedlings in an extensive way and everything that can be produced or grown at home means more employment for more people, and that is what we want to help build up the country.

FAIR DATES OF THE NORTHWEST

- Oregon State Fair, Salem, September 11-16.
- Pendleton, Oregon, September 11-16.
- Walla Walla, Washington, September 18-23.
- Montana State Fair, Helena, Montana, September 25.
- Four-State Fair, Ogden, Utah, September 25.
- Washington State Fair, North Yakima, September 25-30.
- Nelson, B. C., September 25-30.
- Dayton, Washington, September 25-30.
- Annual Douglas County Fair, Roseburg, Oregon, September 26-30.
- New Westminster, B. C., October 2-7.
- Interstate Fair, Spokane, Washington, October 2-7.
- Wendell, Idaho, October 3-5.
- Annual Fair Valley Fair Association, Puyallup, Washington, October 3-7.
- Lewiston, Idaho, October 9-14.
- Lewiston-Clarkston Fair, Lewiston, Idaho, October 9.
- Inter-Mountain Fair, Boise, Idaho, October 9.
- Boise, Idaho, October 9-14.
- Annual meeting Oregon Wool Growers' Association, Baker, November 14-15.
- Fat Stock Show, Lewiston, Idaho, December 12-14.
- Land Show, St. Paul, December 12-23.

Editor Better Fruit:

I have before me the July issue of "Better Fruit," which just came to hand this morning, and to my mind it is the finest and most artistically gotten up fruit trade journal that I have ever seen. Your efforts have certainly been rewarded, and you are to be congratulated. It all goes to confirm an opinion that I have long had of you, and that is: You stand alone in your line. I have shown this paper to several of my friends in the trade here and they are all of the same opinion that I am. I would like to have about one dozen copies of this issue to send to some of my largest representatives in the South and Southwest. I think they will prove interesting to them. The pictures all through this issue are the most interesting I have ever seen, and the articles so well written. Hoping to see you in Detroit at the convention, I am yours very truly, J. B. Cancelmo, Philadelphia, Pennsylvania.

WAY FRUIT SHOULD BE HANDLED FOR EXPORTING

BY CHAS. E. NOSLER, OF WALLA WALLA, AT WASHINGTON STATE HORTICULTURAL MEETING, WALLA WALLA, WASHINGTON

MY subject, "The Way Fruit Should Be Handled and Packed for Export," probably calls for a display of fruit here on the platform and a practical demonstration of the way it should be placed in boxes for shipment, but I am going to disappoint you in this. I am going to attempt to hold your attention for a few moments by an endeavor to bring before you the desirability—the absolute necessity of an application of the old-fashioned rule of honesty in the preparation of your fruit for sale in the outside markets; honesty to your state, honesty to your district, honesty to yourself and to your home orchard. Gentlemen, it is not so much a question of whether your apples are put up in the "square" or "diamond" pack; whether your prunes are packed "flat" or "slanting" in the baskets;

Will you insist that those under you do their work right? Will you be glad instead of sorry to see the pile of culls grow if it be for the betterment of your output? Will you be proud to have your name plainly printed on the end of every box going out of your orchard, or are you just as well pleased to turn the printed ends of your boxes "in" when preparing them for use. In many sections there has been an honest effort made to better the output by taking especial care in its preparation, but in all too many sections the grower seems to think that disposing of his fruit to the middleman or buyer is marketing. It is not! Your fruit is not properly marketed until the consumer away off in the Middle West, in Chicago, Cincinnati or New York has sampled the last apple in your box and pronounced the benediction of "well done." It is the consumer and not the buyer who gives your fruit its reputation.

Do not think that because I am now a resident of Walla Walla I am aiming this paper at the heads of local growers only. I spent the four years before coming here with one of the largest commission houses in Seattle, and while there handled fruit from every part of the state. The error is common. It seems to be natural to try and get the cull pile into the boxes for shipment. I venture to say that a majority of the fruit growers either sanction or encourage the packers in this common crime of packing of inferior fruit—especially if that fruit be sold in the orchard. I have had men during the past season, men who are members of this association, stand over my packers (where we have sent our own packers into the orchard) and insist upon fruit going into the pack which should have gone to the hogs. This is not true of every grower or of every section, for, I am glad to say, that fruit growers as a whole are beginning to work along broader and better lines. We are told that in one of the celebrated fruit growing sections nearby, where a certain neighbor did not spray, a band of his friends—his friends and friends of the district in which he lived—went to his place in a body and cut down his trees and burned them up. In another section the neighbors took a shipper's fruit from the station after it had been prepared for shipment and destroyed it because it was

of a grade that would bring discredit upon the whole district; rather drastic measures, but fully justified by the rule of "the greatest good to the greatest number."

As the country grows older the importance of the safeguarding of the reputation of the district is more appreciated. In Southern California, where citrus fruits and climate is all they have, you will find such care taken with the fruit they ship as to seem almost ridiculous to our Washington friends. An Eastern buyer who was returning from that locality was telling me the other day of an incident which illustrates this care very nicely: He was being shown through a great lemon packing house by the superintendent. From a case of splendid fruit he picked up three lemons and after looking them over laid them back in the box. The superintendent picked them up and threw them into the waste. The buyer expressed surprise. "No," said the superintendent, "they cannot now be packed as fancy stock. Those



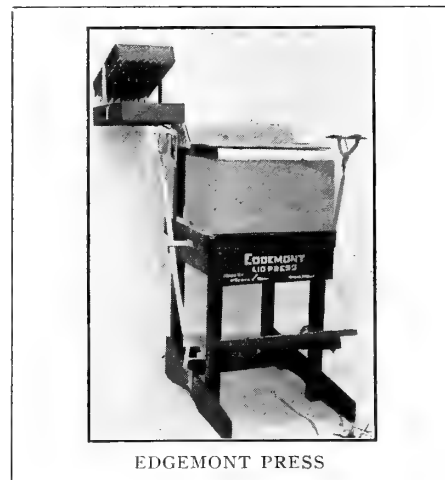
THIS BAG OF GOLD

To Be Awarded For Best Wheat Grown Anywhere In the Two Americas and Exhibited at American Land and Irrigation Exposition, New York City, Nov. 3 to 12. Donated by Sir Thomas G. Shaughnessy, President Canadian Pacific Railway.

whether your cherries are packed in three straight layers or "faced and filled;" but it is a question of importance, which will go far toward establishing the reputation of the fruit of your section, whether you have been absolutely honest with your pack, be it diamond or square, slanted or flat, solid or filled.

I am here representing two distinct branches of this great business of fruit raising. I am the representative of the Blalock Fruit Co., which has established a name and reputation both as growers and shippers. Today, however, I want to talk to you as a shipper of the fruits and produce of our state. During the past season we have bought and shipped fruit from all parts of Eastern Washington and on down into the neighboring State of Oregon, and our experience has been that one of the most important lessons to be taught the grower today is that of honesty of pack.

I do not propose to insult the intelligent grower in attendance here by attempting to tell him how to pack his fruit. He already knows how—you all know how it should be done. The question is: Will you do it as you should?



EDGEMONT PRESS

hands of yours are the first naked hands that have ever touched those lemons. They were picked and handled by operatives working in gloves. The least scratch of a finger-nail makes them unfit to be packed as our best." Contrast this with the man who "stove-pipes" his potatoes; who coaxes our packers to be more lax in culling his fruit while it is being packed; who turns the worm holes "down" when packing his apples, and then drives away from the warehouse of the buyer chuckling and congratulating himself that he "stuck" that buyer, and got one hundred dollars more for his fruit than he would have received had he used reasonable care and pride in his pack. He did not "stick" that buyer, friends, he "stuck" himself, and you, and the district, and the state; because that shipment of fruit will tell its own story in the homes of hundreds of customers throughout the locality to which it is shipped. He probably did not hurt the buyer at all, for he knew about what to expect, and when he bought that fruit he did so at a price which would enable him to sell it in Dakota at Dakota prices. You say, "that's it, you buyers only pay



SPLENDID TYPE OF LADDERS USED IN SOUTHERN OREGON FOR PICKING PEARS

Dakota prices for everything," but this is not true. I am a buyer and have sat in the councils of the buyers through many and many a session, and I know that it is much more agreeable business for us to be able to buy fancy fruit at fancy prices and sell at fancy prices. True, there are not as pleasant relations existing between grower and middleman as there should be, and I do not doubt but that Mr. Paulhamus or some of the rest of the prominent fruit men of the state could tell cruel stories of the hog-gishness of the commission man; but there are honest commission men, and the way to make more of them and less of the apparently crooked ones is for the grower to treat them honestly. You think we ask a big margin for handling fruit, and under the existing relations with the grower it is probably true. Do you know why? Listen to a sample of messages received from houses to whom we have shipped this season, and ours is the experience of every dealer. Here is a letter from a leading firm from a leading city in Texas: "Car 1908 in yards and examined. Fruit not up to representation. Cannot accept unless reduced fifty cents per box." As we were billing the car out at the really fancy margin of twenty-five cents per box we stood to take and did take a loss. This car was packed and loaded away down between Pendleton and Hood River—now, don't let your back hair begin to pull, my Hood River friend, for this car did not come from shouting distance of Hood River—it was some little ways this side. Another message from a firm in Dakota to whom we had shipped three cars of apples from some distance north of Walla Walla: "One car your apples at —, one at —, and one here subject to your order. Will not pay over seventy-five cents. Only fit for peddlers." These apples had been sold to that firm at a dollar ten per box and had cost very near the dollar mark. That fellow did not expect very good apples for a dollar and ten cents, but he undoubtedly had a kick coming on the stock furnished us by that grower up north; anyway we finally had to take the six bits and make another red entry in our ledgers. Another car, loaded by some of my friends who are proud of the display they have here today, was shipped to some of our usually square old "Canuck" friends across the border. The message read: "Car in. Not satisfactory. Can handle only for your account." Well, it was at the end of the line and we had to let that fellow handle it. The invoice called for a total of \$660, but his check, when finally received, read for just \$400.30. Do you wonder that the buyer has to play reasonably safe? Do you not see that if fruit were brought to us and sold for what it is, either good, bad or indifferent in quality, that we, as middlemen or forwarding agents, would be able to do business along safe lines and on closer margins?

This digression is a side issue, but it is a matter which should be taken into consideration by the grower. I only spoke of the buyer to show you how short-sighted it is to try to beat him.

You may get the best of him on one car, but he necessarily has to work himself out even by the close of the year. As a matter of fact the grower should look above and beyond the local buyer. He should aim higher and better. The motto of each and every grower should be and is, "Success," and to attain success you must put up a grade of fruit for export which will cause the housewife to go down in the cellar or out into the woodshed and "hunt for the name on the box" before ordering again from her grocer; and the grocer, in turn, to demand not only an apple from the Northwest, but one from Washington; from the Yakima, Wenatchee, Walla Walla or some other particular district; and, best of all, an apple from the orchard of Mr. Honest Fruitgrower, whose name appeared on that box out in the woodshed of that Eastern home, and who by putting up a careful and honest pack did more to favorably advertise our state as a fruit growing section, and did more toward assisting us all in reaching that goal of "success" than all the speech-making and all the printer's ink that has ever been spread.

LINCOLN COUNTY proposes to hold one of the most up-to-date and progressive county fairs on October 3, 4 and 5, at Wendell, that has ever been held in the State of Idaho. Judging from present indications there will be a large attendance from every precinct in the county, and a splendid display of products assured. The county has set itself to the task of capturing the county sweepstakes at the Inter-Mountain Fair at Boise with samples taken from the display here. Wendell is the heart of the great Twin Falls country, one of the largest sections of irrigated land in the world, and its possibilities in agriculture and horticulture lines are unlimited.

THE Northern Pacific passenger department has just issued its 1911 folder entitled, "Seeing Yellowstone Park Through Gardiner Gateway." This is a publication describing the complete park tour with every point of information which the sight-seer naturally wants. It is profusely illustrated, containing a topographical map of the park, with a convenient table of the geysers and other phenomena, a table of distances and altitudes, a schedule of the stage service, description of the hotels and points of interest, with full information as to cost. Copies may be had by addressing the general passenger agent at St. Paul.

Editor Better Fruit:

I am in receipt of copy of "Better Fruit" for July. It seems to me that the only thing that could be more enjoyable than seeing the attractive illustrations and reading the interesting articles in "Better Fruit," would be the eating of some of the most luscious and beautifully colored productions of Oregon soil. I very much appreciate your kindness in publishing Mr. Dickey's article on "See America First," in "Better Fruit." We expect to make the convention a national affair and one of the greatest things that has been pulled off in this country, and we hope that you will honor Baltimore with your presence on that occasion. Tom Richardson spent several weeks with us at the time of starting the Greater Baltimore movement, and it is possible that he instilled a little of his enthusiasm in us. At any rate we have a big committee of big men who are hustling

as they never hustled before to spread the fame of Baltimore and the State of Maryland and greatly develop them commercially, industrially and agriculturally. Very truly yours, Mandel Sener, Baltimore, Maryland.

Editor Better Fruit:

I note with interest your letter of the third that you expect to come to Boston again this year. I look forward to making your acquaintance, and am confident we can exchange ideas that will be profitable to each of us. I cannot help but appreciate the spirit of caution you use in whatever you publish. This idea meets with my endorsement. My list of shippers is gradually increasing, and truly I know of not one who is dissatisfied. Possibly a little later in the season conditions will be such that I may further use your advertising space. Very truly yours, O. E. Spooner, Boston, Massachusetts.

Editor Better Fruit:

We have received the two copies of "Better Fruit" this month, which is certainly one of the finest editions you have gotten out and is very interesting to the commission men in general. We also appreciate the nice work that you have done on the photograph that we sent you. We all read the paper with interest upon its arrival each month and we congratulate you on the appearance as well as the contents of your magazine, which is of value to the grower, the shipper and also the receiver of fruits. Wishing you much success, we remain, yours very truly, O. W. Butts, Omaha, Nebraska.



A. E. STILLWELL

President K. C., M. & O. Railway, who donates a \$1,000-cup for best potatoes exhibited at New York Land Show next November

Editor Better Fruit:

I had the pleasure last evening of looking through a copy of your July number. I found it at our Commercial Club rooms. In my opinion it was a splendid publication and one in every sense worth while. "Better Fruit" is edited with enterprise and sanity; more than that, its utterances have the true ring of honesty and intelligence. In this age of wild promotion, get-rich-quick schemes and bombast I like such publications as "Better Fruit," that stick to the truth. More power to your publication. Yours truly, Up-to-the Times Magazine, R. C. MacLeod, Editor and Manager, Walla Walla, Washington.

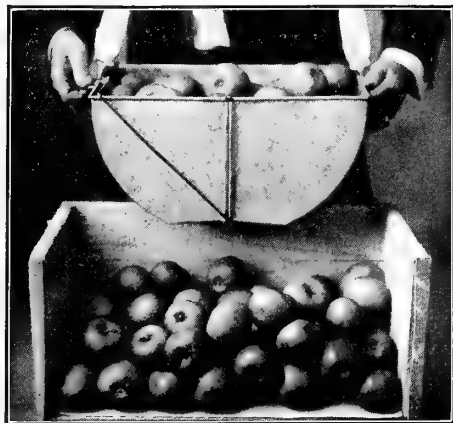
Editor Better Fruit:

The July number is very fine, and I believe the subject could stand more than one special number. Yours is the best fruit paper, and I wish to congratulate you for your brilliant success. Could you send me a few sample copies that I may exhibit them at our fair, and if possible take subscriptions for you? The fruit idea is spreading in this section also, and I would like to introduce your paper here. Write me your terms. Yours very truly, D. E. Sivamarc, Chatham, New York.

Editor Better Fruit:

While in Bitter Root Valley, Montana, this summer I was asking some of the fellows to tell me which they considered the best paper on fruit in the West. They seemed to be almost unanimous on "Better Fruit." Please send me a couple of copies and place me on your mailing list. I will remit for one year upon receipt of statement. Yours truly, George R. Baker, Tomahawk, Wisconsin, August 21.

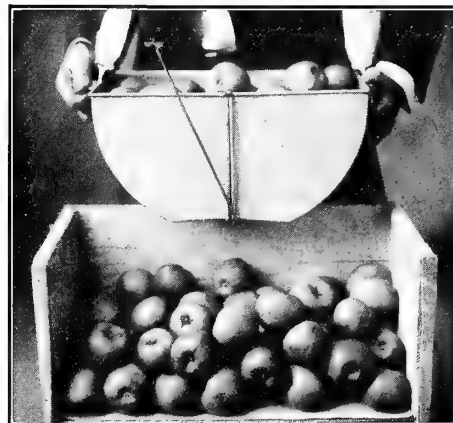
THE SUCCESSFUL PALMER BUCKET IN OPERATION



RELEASE

Durable

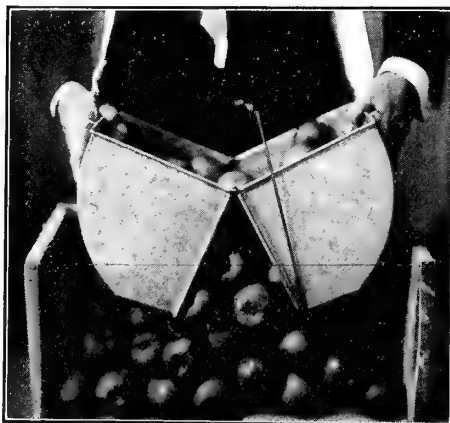
easily operated
Cannot pick up
twigs, spurs or
stems. No can-
vas or strings.



RELEASED

Complete

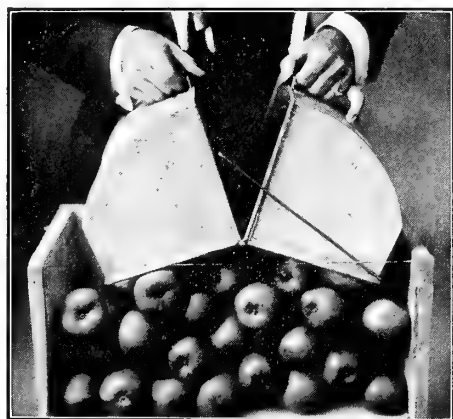
all the time. Noth-
ing to get out of
order, or break.
No repairs or buy-
ing of new parts.
Useful for years.



THE START

Practical

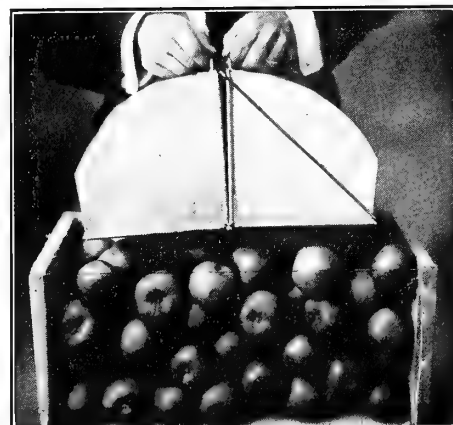
for apples, pears,
peaches, plums,
prunes, cherries,
tomatoes, and all
other tree fruits or
bush vegetables.



PARTLY OPENED

Send \$1.50

to the Palmer
Bucket Com-
pany, of Hood
River, Oregon,
for trial bucket.
Your money is
returned if you
are not satisfied



EMPTIED

Palmer Bucket Co., Hood River, Oregon

FOR LIST OF AGENTS SEE PAGE 60

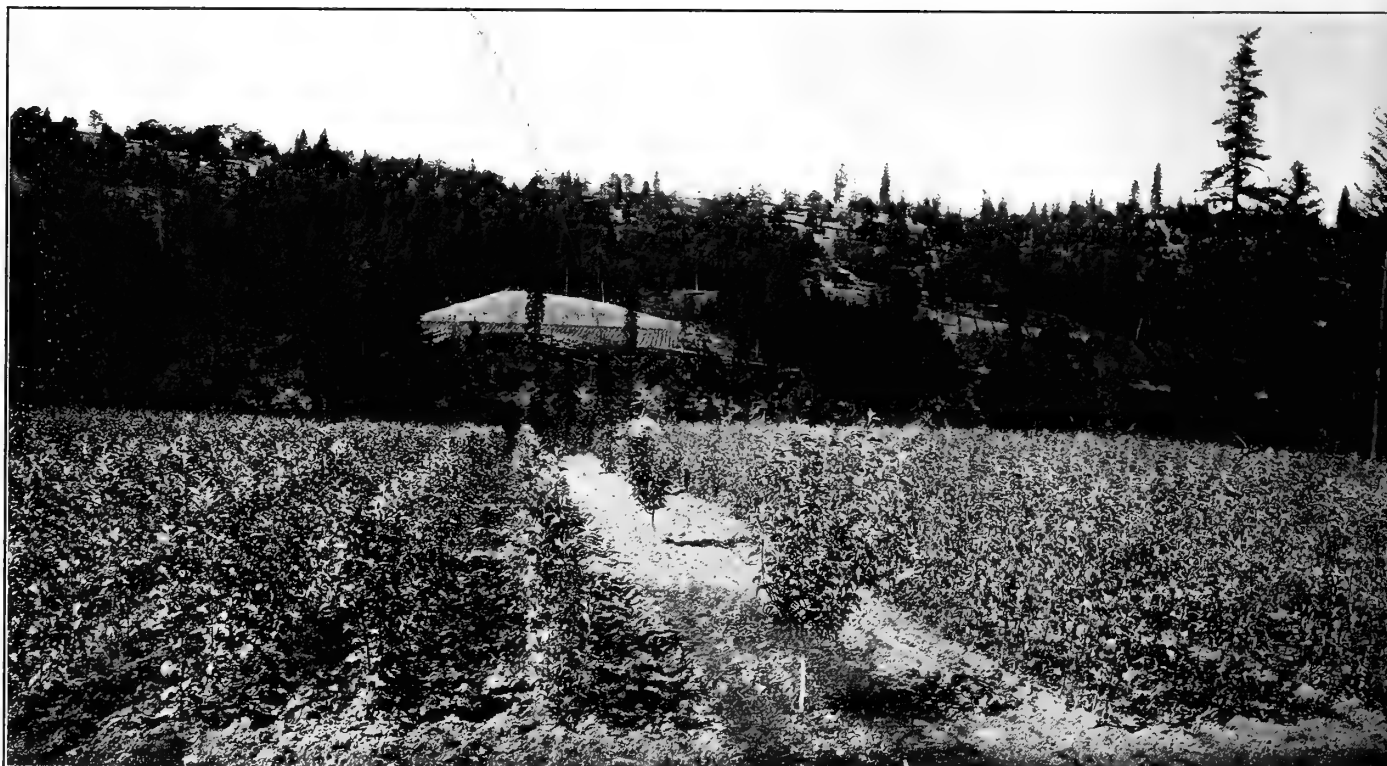
As "Sterling"

IS TO SILVER

A Pedigree

IS TO FRUIT TREES

HOOD RIVER
Sterling
NURSERY



The trees from which this nursery stock was propagated won the Grand Sweepstakes and many other important prizes last year. We have a life history of every tree from which our nursery stock is propagated, thereby insuring to the young trees the best qualities of the old

YOUR SUCCESS OR FAILURE

with an orchard depends on the trees you plant. Don't forget for a moment that the whole future of your venture depends on this point. Unless the foundation is right the bearing trees cannot be successful. Not only must the trees be good trees—healthy, vigorous, disease-resistant trees—but you must have all the assurance possible that they will be heavy and annual bearers, for it is the history of all human endeavor that success is attained through the production of **BEST QUALITY** in **GREATEST QUANTITY** at **LOWEST COST**. The greater the production of your orchard of best quality—the lower the cost of production and the greater the profits.

PEDIGREED FRUIT TREES

In no other way can the art of the nurseryman insure these qualities to you than by breeding or propagating his stock from trees that have thoroughly proven all of these qualities. From the highest-earning trees of the world famous Hood River Valley, trees whose ancestry can be traced back generation after generation of high production, vigorous, sturdy, early-maturing trees are all of the stock of **THE HOOD RIVER STANDARD NURSERY COMPANY** grown. They are **THOROUGHbred, PEDIGREED** fruit trees. They are trees of a **KNOWN QUALITY**.

**WILL YOU
SUCCEED UP TO
THE POINT OF
FAILURE?**

**NOT WITH
UNKNOWN
PEDIGREED
TREES**

EASTERN OFFICE
BALTIMORE, MARYLAND
No. 401 Continental Building

HOOD RIVER STANDARD

**STANDARD
ING
COMPANY**

QUALITY

COUPLED WITH

QUANTITY

will determine the successful
orchards of the future



A block of budded yearling apple trees in our nursery on August 1, 1911. Note their healthy, vigorous, THOROUGHbred appearance. The man is showing the strong, four-months' growth of a PEDIGREED orchard tree in its second year of growth

**D MEAS-
MARKETS**

**TREES OF
TY—
TREES**



FALL PLANTING

The great horticultural authorities are now all advising it—providing your local conditions will permit. It allows the earth to become firm and compact around the roots and the roots to start feeders all during the winter—thereby insuring an earlier start in the spring and a more vigorous growth. At all events **ORDER YOUR TREES THIS FALL**—you will get the pick of the nursery and avoid the experience of the past few years when it was practically impossible to get good trees in the spring.

A WARNING

Do that now. Don't be obliged to plant an inferior grade next spring. In the past few years our stocks have been practically all sold out before the spring planting started. **ACT NOW!** get out of that "tomorrow class" and get into that "right-at-this-minute class." Drop us a postal for our handsome illustrated catalogue—a book of helpful information and some startling facts. It is free. Sit down right now—write us what you want to plant—and we will give you our latest wholesale prices.

NURSERY COMPANY HOOD RIVER, OREGON

PHONE, ODELL 8X2

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

E. H. SHEPARD

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IN ADVANCE, IN UNITED STATES AND CANADA

FOREIGN SUBSCRIPTIONS, *Including Postage*, \$1.50

ADVERTISING RATES ON APPLICATION

Entered as second-class matter December 27, 1906,
at the Post Office at Hood River, Oregon,
under Act of Congress of March 3, 1879.

We reprint below the first editorial as it appeared in Volume 1, No. 1 of "Better Fruit":

FELLOW FRUIT GROWERS: In presenting this, the first number of "Better Fruit" to you for your inspection and criticism, we take this opportunity to explain the field the publishers are expecting to cover with "Better Fruit." Fruit growers everywhere see the necessity of producing better fruit, and also the necessity of adopting better methods in packing and placing their fruit on the market. It is the aim of the publishers to cover every part of the fruit industry in all its branches from the growing of the nursery stock to the placing of the fruit in the hands of the retailer, thoroughly, with articles written by men who are successful in their respective lines, and right here we wish to say that "Better Fruit" is open to any contributor who wants to use its columns for articles that are for the betterment in any branch of the growing and marketing of fruit. We would also be glad to receive suggestions in what way "Better Fruit" could be improved, so as to be able to serve its readers to the greatest satisfaction.

In order to make articles more instructive, we will run beautiful half-tones throughout the magazine. "Better Fruit" will be a work of art, printed on calendered paper, instructive to fruit growers, an attraction on every library table and its beautiful illustrations and interesting articles of what is being done

in the marvelous West will make it an interesting magazine to send to your friends and relatives in the East.

[Editor's Note.—We have never deviated from our original aim. Continued success, increasing from month to month and from year to year, is positive evidence that "Better Fruit" was not only founded on the right kind of a basis, but that it has been conducted in a way that has met with unusual appreciation, and today we do not hesitate to make this bold statement without fear of contradiction: "Better Fruit" is the best, the handsomest and the most practical fruit growers' paper published in the world.]

◆ ◆ ◆

TO ADVERTISERS.—"Better Fruit" is now in its sixth year, having published sixty-three monthly editions. In looking over the first copy of "Better Fruit" ever published we find it contained fifty-five advertisers; nine of these have gone out of business or sold out, which leaves forty-four of these firms still in business. There are twenty-six of the firms who advertised in the first issue of "Better Fruit" who have advertised in every edition since the start. In other words, over fifty-nine per cent of

BIG SHOWS FOR OCTOBER, NOVEMBER, DECEMBER

WATSONVILLE APPLE ANNUAL will be another surprise for the year 1911, and the advance notices state that this show will be a "Corker." The dates of this show are October 9-14 at Watsonville, California. There will probably be an exhibition at this show of some fifteen to twenty carloads. California is noted for making original and attractive displays of its fruits. For further particulars and prize list address the Watsonville Apple Annual, Watsonville, California.

THE SIXTH INTERNATIONAL DRY FARMING CONGRESS and International Exposition of Dry Farmed Products will be held in Colorado Springs October 16 to 20. The "Official Call" includes this remark: "Better agriculture is the hope of the world and a necessity for every individual farmer," and it will be the object of this congress to assist everybody in every way possible who engage in dry farming. For further particulars write John T. Burns, P. O. Box 1098, Colorado Springs, Colorado.

THE AMERICAN LAND AND IRRIGATION EXPOSITION of New York, after hearing of all the other expositions throughout the country, has finally decided to come through and hold an American Land and Irrigation Exposition in Madison Square Garden, New York City, November 3 to 12. Some idea of the wonderful show. New York, the metropolis of the United States, will hold, can be formed in advance by some of the trophies, which are already announced. Howard Elliott, president of the Northern Pacific Railroad, offers \$500 in \$20 gold pieces for the best display of apples; President Earling of the Chicago, Milwaukee, St. Paul & Puget Sound Railway, has donated a \$1,000 cup for the

the firms who advertised in the first edition of "Better Fruit" have advertised in every edition since, or for sixty-three consecutive issues. We consider this a remarkable illustration of the stability of "Better Fruit" advertisers, and a very convincing proof of "Better Fruit" as an advertising medium. The significance of this will impress itself upon the readers when we make this statement: A few weeks ago one of the largest publications in America, with a circulation of some 600,000 copies, came out in a full page ad with the statement that one advertiser had continued in every issue of their paper for sixty consecutive monthly editions.

◆ ◆ ◆

OUR GROWTH.—The first edition of "Better Fruit" contained twenty-four pages and 4,000 copies were printed, making a total of 96,000 pages issued. This current edition consists of 14,500 copies of one hundred pages each, making a total of 1,450,000 pages in this edition. In other words, the present edition of "Better Fruit" prints fifteen times as many pages as the first edition. Quite a growth, which is a pretty good substantial growth in five years.

best display of oats; James J. Hill and Louis W. Hill, of the Great Northern, have donated a \$1,000 wheat trophy; Col. Robert M. Thompson donated a \$1,000 cotton trophy; Sir Thomas G. Shaughnessy, president of the Canadian Pacific, is a donor of a \$1,000 wheat trophy. Undoubtedly this will be one of the most wonderful exhibitions ever held in the United States. Further information can be obtained by addressing the American Land and Irrigation Exposition, 26th floor Singer Building, New York City.

THE INDIANA APPLE SHOW.—The Hoosier State is coming through and going to do a stunt in the apple business, also, by holding the Indiana Apple Show at Indianapolis, Indiana, November 6 to 11. An unusually large list of attractive premiums is being offered and further particulars can be obtained from H. E. Barnard, superintendent of the Indiana Apple Show, Indianapolis, Indiana.

THE AMERICAN APPLE EXPOSITION will be held in Denver November 12-18. This will be another one of the big shows in the country for this year. A fine list of prizes is being offered, and every inducement is being made to encourage the apple growers throughout the country to exhibit. Further particulars can be secured from C. L. Oliver, secretary, 201 Chamber of Commerce Building, Denver, Colorado.

THE OREGON STATE HORTICULTURAL SOCIETY will hold its twenty-sixth annual meeting in Portland November 15-17, and in connection with this meeting they intend to pull off the biggest apple show which has ever

Continued on page 55

The Fruit Marketing Question Solved

Numerous articles have been published recently covering the matter of a suitable solution of the important question of properly marketing the rapidly increasing fruit crop. Many ideas have been advanced which theoretically appeared feasible, but practical demonstration has proven that the real solution of this problem is to place the fruit in the hands of thoroughly equipped marketing experts who make a specialty of this feature of the fruit industry.

We have conducted a car lot distributing business for the past number of years, and by honest dealing, coupled with good judgment, have made a success. This season we are even better equipped, having added to our staff several fruit salesmen whose ability cannot be questioned, and we are now in position to offer to growers and shippers a fruit marketing agency second to none.

One of the largest new accounts which we have obtained this year is that of the Grand Junction Fruit Growers' Association, of Grand Junction, Colorado. This association is the most successful growers' organization in the country today, and they have been doing their own marketing for the past fifteen years, but they realized that better results were possible by turning this part of the business to a reliable marketing agency, thus giving their management opportunity to confine their efforts to the matter of grading, packing, loading and shipping the fruit. It was natural that they should select the very best agency doing business today, and a contract was signed with Denney & Co. of Chicago.

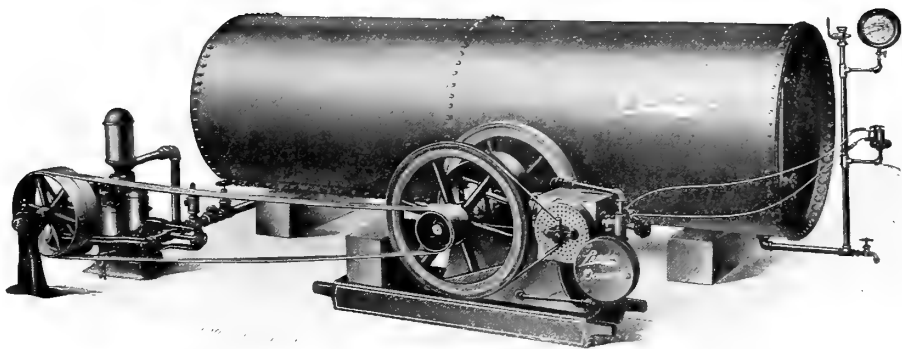
We will have a thoroughly equipped office located in Omaha, Nebraska, in charge of Mr. H. G. Fletcher, ex-assistant manager and general Eastern agent of the Grand Junction Fruit Growers' Association, covering the territory west of the Mississippi River and the South. Our general office, located in Chicago, in charge of Mr. John Denney, whose ability as a fruit distributor is well known, together with competent representatives located in all of the principal markets, giving us the opportunity of taking advantage of the very best markets at all times, we are in position to offer shippers and growers the very best service that marketing science can produce. We invite investigation as to our ability and integrity and solicit correspondence as to our manner of doing business and terms.

DENNEY & CO.

193 South Water Street

CHICAGO, ILLINOIS

Water Supply
Troubles
Unknown to
the Owner
of a



Leader Water System

You can enjoy, through the ownership of a LEADER WATER SYSTEM, the same water supply conveniences which are so much appreciated by city folks. And you may have them to even a greater extent, since there are no restrictions to bother the owner of a LEADER SYSTEM. You can have your bath, your sanitary toilets, all the water you want for domestic and sprinkling purposes. A LEADER WATER SYSTEM of suitable size will supply you with all the water you want under almost any pressure you want. Leader Tanks are tested to a pressure of 125 pounds. It is the system which is sanitary, satisfactory and sure. It costs little to operate and is practically troubleless. Write for our book, "THE QUESTION OF WATER," and folder showing homes in which the Leader Water System is furnishing satisfactory water service and opinions of users. Mention "Better Fruit."

FULL LINE OF

Pumps, Gasoline Engines, Wind Mills
Implements and Vehicles

Mitchell
LEWIS & STAVELAND CO.

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Respectfully requests each and every person interested in Hood River, or who may have friends interested, to request their individual grocers or fruit handlers to have on sale during the apple season the famous *Spitzenbergs*, *Yellow Newtowns*, *Ortleys* and *Jonathans* grown at Hood River. We request this because we want you to help us get the apples before a discriminating public so as to convince them of their superiority by a practical test. You are further requested to do this at once so as to insure your grocer placing his order in time to secure a supply in advance before they are all sold, so that he will have Hood River apples on hand when you want them.

Hood River Commercial Club



Secretary.



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For Entry Blanks, Information, Space, etc., Address JNO. W. PACE, Secretary, North Yakima, Washington

Continued from page 52

been given in the State of Oregon. A fine list of prizes will be given and further information may be secured from Frank W. Power, secretary, 308 Spalding Building, Portland, Oregon.

THE UNITED STATES LAND AND IRRIGATION EXPOSITION.—This exposition was founded in the year 1909 by The Chicago Tribune. Exhibitions were made from nearly all sections of the United States. The Oregon-Washington Railroad & Navigation Company, the Great Northern, Northern Pacific, Southern Pacific, the Union Pacific, Missouri Pacific & Iron Mountain Railroad, Santa Fe, etc., all spent large sums of money in making immense

exhibits of the products and resources of the country tributary to their lines. In addition to this, there were many state and district exhibits from all over the country. The third annual show will be held at the Coliseum, Chicago, Illinois, November 18 to December 9. It goes without saying that this will be a wonderful exhibition of the resources of the entire United States. We regret that in this issue our space is somewhat limited, and for this reason we are unable to give more complete details. However, these may be obtained by addressing R. P. Cross, 407 Commercial National Bank Building, Chicago, Illinois.

THE NATIONAL APPLE SHOW AT SPOKANE.—The directors have given the matter of location for the Fourth Annual National Apple Show very serious consideration. After having taken a large part of the Third National Apple Show to Chicago for exhibition last year it was decided to hold the Fourth Annual National Apple Show at Spokane this year as usual. Most of the fruit growers of the Northwest are familiar with the wonderful show Spokane has pulled off, and it goes without saying that the Fourth National Apple Show of Spokane will again be a success, as it has been every year in the past. The dates of the show are November 23 to 30, and, briefly, the objects for which this show is held can be stated as follows: To encourage the growing of high class commercial apples; to advertise the apple as the most healthful food;

to give annual competitive exhibitions; to extend the apple trade in domestic and foreign markets. We are glad to hear that Spokane will again hold the show as usual and wish this show every success.

NORTHWESTERN LAND PRODUCTS SHOW will be held in St. Paul December 12 to 23 inclusive, in the St. Paul Auditorium. This will be a grand exposition and of interest to the great Northwestern territory from Minnesota to the Pacific ocean. Further particulars can be secured by addressing Will A. Campbell, secretary, St. Paul, Minnesota.

THE NINETEENTH NATIONAL IRRIGATION CONGRESS will be held in Chicago December 5-9. Real important matters will come up for discussion at this meeting. Further particulars may be obtained by addressing the secretary, 214 Hotel La Salle, Chicago, Illinois.

Editor Better Fruit:

The July edition has just arrived. I cannot speak too highly for same. You deserve great credit for this edition as a whole. Yours truly, O. E. Spooner, Boston, Massachusetts.

Editor Better Fruit:

We have just received the July edition of "Better Fruit," and in our humble opinion it is one of the best numbers you have yet issued. We feel assured that the information relative to various commission houses will be appreciated by those commission houses that subscribe to the paper. We shall certainly use our best efforts in recommending it to our commission friends. Yours very truly, Minnesota Fruit Co., A. W. Worley, Manager, Duluth, Minnesota.

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AUCTIONING OF APPLES—DESCRIBED BY EXPERT

From the Fruit Trade Journal and Produce Record

THE diversity of opinion prevailing among fruit dealers as to the part which auction sales play in the marketing of apples and their influence upon the Northwestern industry lend additional interest to the address delivered by John Denney of Chicago at the recent convention of the International Apple Shippers' Association in Detroit. Mr. Denney's subject was "The Auction for Apples." What he said follows:

"I suppose this subject has been assigned to me for the reason that we have sold considerable quantities of box apples by this method, and possibly I may be expected to defend this method of handling fruit. I will only attempt to give you some of the points in its favor, and also some to the contrary. I do not pretend to try to convince you that this is a panacea for all the evils to which the apple man is heir, any more than I would recommend paregoric for all the human ailments, both of which are undoubtedly very good in their way, when used in the proper doses and with proper judgment.

"Disposing of box apples by the auction method is comparatively new. It is probably used on the Chicago market more than on any other. The most of you are undoubtedly aware of the manner in which fruit is sold at auction, but to those of you who have not attended auction sales of this kind a word of explanation might be in order.

"The fruit is unloaded in a large, display room, where several cars of other fruits are shown at the same time. Each variety, mark and grade is assorted separately, placed under a separate lot number, and a memorandum catalogue furnished to every prospective buyer, stating the number of boxes, variety and grade under each of the various lot numbers. When examining the fruit, the buyer marks on this catalogue his inspection of the quality, color, packing, grading and the value in his opinion of every lot in the car in which he expects to purchase, and all cars in the entire sale are marked in the same manner by the buyer.

"No representation is made or guarantee as to the quality, condition or grade of the fruit, every buyer having the privilege of examining as many packages as he may desire, and it is sold strictly as it is; no rebate or allowance is given or expected by any buyer should the lot or lots that he purchased turn out differently than he expected. The buyers, after thoroughly examining the offerings, take their memorandum catalogues and go to the auction room. Sales usually start about 9 a. m., fruit being open for display from 4 a. m.

"The auctioneer then asks for bids for the choice of any line in the particular car that is being sold, and when the bid is knocked down to the buyer he has the privilege of selecting any line or lines offered or every line in the car. After the buyer who has secured the first choice takes the line or lines he desires, the auctioneer again asks for bids for the choice of what remains of the car, and so

on until the entire car has been sold, unless it is a car of the same variety and mark. It is rarely that the second or third choice brings as much as the first, as naturally the buyer selects what he considers the best mark in the car.

"Theoretically, we know of no better way by which the full value of an article can be secured than by selling at auction, where selling in this manner has already been established and where the auction is attended by a large number of buyers of the particular fruit offered, as no one who desires to buy fruit will allow his neighbor to purchase it for less than he considers its value.

"Western box apples are a comparatively new fruit, and when they first came on the markets nearly all of them were of extremely high grade, very desirable varieties, and brought extreme prices, and were received in limited quantities. Only the very highest class of trade were able to handle them, and the quantity offered was not sufficient to supply the demand, and for a long time the medium class of trade considered that box apples were out of their reach and would rarely ever inquire the price.

"I have occasionally seen times when there was an oversupply of box apples of certain varieties, and these apples were repacked in barrels and sold for more money in a barrel than they would bring in a box, simply for the reason that it was almost impossible to convince the medium class trade that they could afford to buy box apples.

"In some of the Northwestern districts, where the growers were not fully familiar with the requirements of the box apple trade, varieties of apples were set out that were not suitable to box trade, and were of such varieties that when these points began making shipments their cars would contain almost every known variety of apples grown anywhere in the country, and almost of every grade handled. We found it nearly impossible to sell cars of this kind and secure their value.

"Nearly every fruit house, wholesaler or retailer, must specialize on some grade in order to hold his trade, some houses catering to the very highest, some to the medium, and some to the cheaper class of trade; and cars that contained the requirements of each of these three were very hard to dispose of to advantage, and it was principally for this reason that we followed this manner of disposing of some of our receipts.

"Unfortunately, many growers and shippers do not have full confidence in the integrity of houses which handle fruit on consignment basis, and they are most apt to question the integrity if the consignment happens to sell at any extremely low price at private sale. I am glad to say at this time that this suspicion is, in my opinion, entirely unfounded with regard to any reliable or legitimate dealer. As the auction company furnishes an official price realized catalogue to be sent to the shipper, this

of course eliminates any complaint from this score or for this reason when sold at auction.

"When box apples were first offered at auction, only very limited quantities were placed on sale. Some buyers in attendance on these sales had handled them for a long time, while others had never sold them. They bought a few at a time, found that they could sell them to advantage, and gradually increased their purchases, and as their purchases increased they of course necessarily had to find new outlets, and a larger number of concerns were pushing the sale of box apples, which tended to increase their popularity.

"As the Northwestern crop increased, it has been necessary to proportionately increase the demand, and we know of no means that has been used that has operated in this way to a greater extent than the auction method. A customer who once starts to use box apples rarely discontinues the handling of them. For one reason, the deceptive packing of box apples is practically unknown. By that we mean that you never find a box of apples with a nice face and after you get down into it a lot of apples hardly fit for cider. The box apple grower realizes the necessity of giving the buyer what he expects or what he should.

"In the last three years, I feel safe in saying, the consumption of box apples on the Chicago market has increased 500 per cent. Some of our friends criticize this method of selling, for the reason, as they claim, that the box apple market is demoralized early in the season by the heavy offerings at auction of inferior box fruit. I believe that instead of being a detriment to the high class box fruit, it is beneficial, for the reason that these inferior grades are produced and must be sold to some one, and there is no way in which they can be placed in consumption in a quicker or better manner.

"If this inferior grade was sold at private sale, the dealers and growers would place large quantities of fruit in cold storage that would not be suitable for this purpose, and would later on be forced into the market, which would tend to make a demoralized market the entire season through. Now, an inferior grade of box apples does not mean the same as an inferior grade of barrel apples, as the lower grades of the boxes are almost if not as good as the better grades of barrel stock, and, considering their actual value, the box apples of inferior grade usually bring more than the same grade and variety in barrels.

"In my opinion, one of the most serious criticisms against the auction method is that it tends to take business from the hands of the regular fruit house and turn the business toward the hucksters, who are buyers to some extent in all fruit auction sales. From my experience I cannot see where there is anything serious to fear from this, as I believe the huckster will increase the demand more than the amount that he

will buy, and instead of being a detriment is really an advantage to the jobbing house.

"There is a certain tendency of the time to draw the producer and consumer as near together as possible. The idea is a very good one, and every middle-man between these two ends should be eliminated as much as conditions warrant. It is manifestly impossible for Mr. Jones, the consumer, when he wants a peck, a box or a barrel of apples, to go to Mr. Smith, the producer, in New York or Washington or some other state, to buy this fruit direct, and the middle-man will be required in the handling and distributing as long as apples are grown. The fruit dealer is as much a part of the producer as the man who actually owns the orchard, for the reason that the apples at producing point have practically no value until they are placed in the hands of the consumer. Both the dealer and the grower are absolutely necessary, and are really partners in the entire transaction.

"There has been a feeling in the past of antagonism or opposition between the dealers and growers that is entirely out of place. The buyers attempt to make the crop look large and convince the grower that he should accept low prices, the grower of course taking the opposite position. If the dealer buys the coming crop of apples for less than its value, it will only reflect on him the year following, as the grower will feel that he has not been treated justly and will endeavor to get back at the dealer and try and secure extreme prices on the next crop, which is no more than reasonable to expect.

"If the buyer should buy the fruit for less than its actual value, he only tends to weaken the grower and does not permit him to produce the grade that he would had he received full value for his crop. On the other hand, if the grower should accept or should insist and finally make buyers pay more for the crop than it was worth, the buyers thereby entailing heavy losses, as a consequence they would necessarily be forced to accept a lower price the year following than the law of supply and demand would justify, the grower suffering thereby on account of lack of competition the following season. We must realize that the dealers and growers are both partners in the production, each absolutely necessary to the other, and it is as necessary for them to deal equitably with one another as it is for two partners in any other business concern.

"Every business man recognizes the fact that if he desires to be successful he must deal honestly, fairly and equitably with the customer to whom he sells; but it is to be regretted that this idea is not always in mind when the dealer purchases from the grower. Very few of us would willingly overcharge any of our customers in their purchases from us, but all of us are willing to buy from the grower at the lowest prices at which we can secure his products, regardless of their value; and, under the circumstances, how can we expect that the grower will not or should not endeavor to get from

us every cent he can, and use every scheme possible to do so, for the article which he is selling, regardless of its value. When the time comes when the dealer and grower will endeavor to meet one another in a spirit of justness and fairness, our business will be much more pleasant and profitable than at present.

"If it were possible to select a committee from among the buyers and growers who had canvassed all apple-producing sections carefully, and they should recommend an average price at which the crop should be sold, that would be recognized and accepted by both buyers and growers as a fair basis on which to trade, I feel confident that it would mean millions of dollars in benefit to the growers and dealers.

"Any season that the buyer is forced to pay more for the crop than its actual value, he suffers heavy losses, and it may be years before some of us fully recover, or any season that the buyers secure the fruit for considerably less than the value,

the grower is unable to carry out his business arrangements and improvements in his production that he otherwise would, the advancement in the production suffering to greater extent, and thereby injuring both grower and dealer. In other words, each of us is killing the goose that lays the golden egg. I am only in hopes that the coming year, and every year thereafter, will be such that the growers will receive and the buyers purchase at a fair and equitable price."

Editor's Note: This article is full of much information that will not only prove interesting but very valuable to fruit growers in general, and we regret that it takes up all the space that is left in "Better Fruit" before going to press, for the editor would like to review this article, as many thoughts expressed in it are similar to his own. It is our intention to write a review of this article for the next issue, not in the nature of a criticism, but in appreciation of the good ideas expressed for a square deal.

NINETEENTH NATIONAL IRRIGATION CONGRESS

BY R. INSINGER, CHAIRMAN BOARD OF GOVERNORS

UNQUESTIONABLY the most important and beneficial work the Western delegates could do at the sessions of the Nineteenth National Irrigation Congress in Chicago, December 5 to 9, would be to direct their efforts in a movement with a view toward disabusing the minds of Eastern investors of the erroneous and harmful impression that irrigation in general is in a precarious condition. As a matter of fact there is no record of a single failure of a reclamation project anywhere in the Western country where soil and water conditions and engineering requirements and financial responsibility have been considered properly, and it might be mentioned that as a business proposition this development challenges comparison for permanency, stability and adequate returns on the investment with any industrial enterprise in the United States or elsewhere.

Irrigation, whether by private project or governmental works, needs no defense at my hands; nor do I hold a brief for either interest. Its economic value has been thoroughly established in most of the Western states, where populous and progressive cities and towns have been built, prosperous and attractive inter-urban communities have been settled, and millions of acres of productive orchards and fertile fields have replaced the sagebrush and desert wastes and once timbered wilds since its introduction on an extensive scale less than twenty years ago.

The average irrigated farm is small as compared with the land holdings in the Eastern, Central and Southern states, but the yields are prolific beyond comparison. Orcharding, as well as general farming, has been placed upon a business basis and the most modern methods of practical, scientific knowledge in the planting, cultivating, harvesting and marketing of crops are employed. This development is going forward in a liberal yet unspeculative way, with the result

that the wide expanses of land once so unpromising as to evoke derision are being transformed into beautiful garden spots and peopled with thrifty and earnest men and women, whose optimism is justified fully by the measure of what they have accomplished.

Heads of federal and state engineering departments say in their reports that there are more than 200,000,000 acres of undeveloped arable lands in the United States proper west of the ninety-eighth meridian, and men versed in agriculture assert that under proper cultivation this area would produce annually between 4,000,000,000 and 4,500,000,000 bushels of wheat, or other crops in proportion. This would mean homes for not less than 20,000,000 population and a source of added food supply, and as a consequence permanent prosperity.

Not more than five per cent of the 253,894,760 acres of land in the four Northwestern states is occupied by farms, and the total population in the area of 397,700 square miles was 2,516,402, according to the 1910 census, apportioned as follows: Washington, 1,140,990; Oregon, 672,765; Montana, 376,053; Idaho, 325,594. Fully 50,000,000 acres of this land is adapted to intensive cultivation. Seeded to alfalfa, grown under irrigation, the yield would be a matter of from 200,000,000 to 250,000,000 tons of hay, or if planted to sugar beets the annual output would be from 550,000,000 to 600,000,000 tons, either crop approaching a money value of from one-tenth to one-ninth of all the farm crops produced in the United States last year. Set to apple trees the minimum yield at maturity of this vast acreage would be from 18,000,000,000 to 20,000,000,000 boxes (bushels), or more than 225 times the total crop of 1910, when it is estimated about 24,000,000 barrels of commercial fruit was harvested.

While I do not think the time ever will come when such enormous agricultural and horticultural operations are fully

realized, I make use of these figures to show the possibilities of the country, incidentally pointing to the fact that as gold was the magnet which attracted the first American across the continent to the Californian coast in 1849 so the apple is largely responsible for the settlement of thousands in the great orchard belts of the Northwest.

With the opening of new districts, increased transportation facilities and the steady influx of home-makers, the early attempts in the valleys and uplands have become more pretentious and systematic. Irrigation plants have been established by private individuals and corporations, and the United States government is expending enormous sums in reclaiming the volcanic wastes, which are so wonderfully rich and fertile and so peculiarly adapted to raising exquisitely flavored fruits, unblemished and perfect in size and color.

Regarding possible overproduction in the Northwest I may say that the demand is growing greater every day, not only throughout America, but in Europe, Australia and the Orient. Although population and the domestic demand for these fruits has increased and exports continually augmented, strangely enough the production of the apple in the United States has steadily decreased. The apple crop for 1910, reported to be about 24,000,000 barrels, for example, was only slightly in excess of one-third of that for the years 1896 and 1900, and much less than the crop for 1905, when the production reached a low figure. The fact that the production in the United States has averaged below 30,000,000 barrels in four of the last five years alone should dispel any thought of overproduction.

Economists have warned the people repeatedly during the last quarter century of the failure to make the sources of food supplies keep pace with the increases in population. They have warned against the menace of congestion in the larger cities, also, however, expressing the belief that the crisis toward which the world's food problem is leading may be averted by increasing the productive capacity of the land or by extending the agricultural area. Advocates of irrigation now come to the fore with proof that modern tillage has greatly increased the acre production as well as the productive area, also showing

that dividend-paying farms and orchards mark the sites of former barren deserts.

The trend of population has been turned from urban to rural life to an appreciable extent during the last few years and immigration experts show by the establishment of prosperous towns and productive farms in Washington, Idaho, Oregon, Montana and other states in the semi-humid West that never in history has there been such a widespread movement of homeseekers. Most of the early settlers in the Western country invaded unoccupied lands, as others are doing today, and their successes are cited as proof that these irrigated acres have been made highly productive by the practice of the principles of modern agriculture.

Indications point to the fact that the day of the large farm is passing. The man who is "land poor" never does quite so well as if he had what he could handle wisely and to the best advantage. Better would it be that he have ten, twenty or forty acres well tilled than from 160 to 1,000 acres, of which more than half is running to waste and calling for an annual outlay for taxes and other expenditures.

Large farms have been and still are the rule in the Northwest, but even here the tendency is toward a division of land among more men. This idea will prevail more and more as the country fills up. It will mean better farming. We have many examples of the improvements that come about from smaller farms, which really produce more now than when the country was new.

Intensive culture is making them better every year. The smaller the farm (within proper bounds, of course) the more study and labor the farmer can devote to his crops, with the unquestioned expectation that better yields will be harvested. The time for idle land is no more. Every foot of land possessed must be turned to use and practical irrigation will solve the problem.

A few words about what the United States government is doing may be of interest. When developed the twenty-five projects will add 3,198,000 acres of land to the crop-producing area of the United States, while thirteen other projects, held in abeyance until the completion of the former, will reclaim 3,270,000 acres, or a total of 6,468,000 acres, furnishing homes for thousands of families and adding several hundred millions of dollars to the taxable property of the various states. The total cost of the work is placed at \$159,621,000. Privately owned projects are watering about 5,000,000 acres of land in the Western states, and these represent a capital investment of more than \$500,000,000.

This enormous expenditure shows, in a way, the confidence that capital has in these substantial development enterprises, and points the way to future investments. However, I should urge upon investors to make full inquiry into soil, water and climatic conditions, the engineering difficulties presented and the responsibility of the men identified with the project before buying a dollar's worth of stock or otherwise investing a penny in any irrigation enterprise.

WESTERN FRUIT JOBBERS ASSOCIATION of AMERICA

Circular Letter No. 104

DENVER, Colorado, August 28, 1911. To Members: For many months this association has been working on the important subject of storage in transit with reconignment privileges for boxed apples from the Western territory. Since August of last year we have been working for the restoration of the privilege which was formerly granted California apples. It is an acknowledged fact that storage in transit is an absolute necessity for the proper distribution of the apple crop of the Western states. The Northwestern states have never enjoyed this privilege, and they have been hampered in the proper distribution of their crops year after year.

Last fall, through the efforts of a few of the interested parties, the National League of Commission Merchants and the International Apple Shippers' Association were brought into meeting with the representatives of the Western Fruit Jobbers' Association. The outcome of this meeting was a conference committee representing the three organizations, which was determined to secure these privileges if possible. This committee is as follows: W. L. Wagner, Chicago, whose firm is a member of all three organizations; R. S. French, of the National League; E. N. Loomis, of the International Apple Shippers, and your secretary. W. D. Tidwell, H. J. Schifferle, of the Gibson Fruit Company of Chicago, was selected to act as secretary

of the committee. Since the organization of this committee we have been working might and main to secure the privilege and have been successful in the Trans-Missouri lines, Western trunk lines and the Southwestern lines, but for various reasons we have never been able to secure a hearing from the Transcontinental Association.

Immediately after the meeting of the board of directors of your association, which was held in Detroit, Michigan, August 8, the secretary of your association left for Chicago, determined to do everything in his power to secure a hearing from the transcontinental lines, who were in session in that city. The committee was not considering subjects of this kind at all, but was holding a consultation relative to the Interstate Commerce Commission decisions that have been recently handed down. After many personal interviews with the heads of the various roads that are interested, I was able to secure an emergency hearing from these gentlemen on Tuesday afternoon, August 15. In presenting the request for a hearing I had asked for Wednesday morning, August 16, but the transcontinental committee found that they could hear me at an earlier date, and naturally I did not lose the opportunity.

At the hearing I presented the question as I understood it, from the growers, shippers, packers and dealers' standpoint,

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and judging from the questions that were asked I believe that the roads are really and truly interested in the subject. After the hearing I was assured by a number of the interested lines that they looked upon the matter favorably, and that they thought the request would be granted. On Wednesday morning after the hearing Mr. R. S. French, representing the National League, and Mr. E. N. Loomis, representing the International Apple Shippers' Association, arrived in Chicago and a hearing was secured for them also. The result of the hearing is as follows:

"W. D. Tidwell, Denver, Colorado: We are arranging to immediately publish rates on apples, carloads, subject to storage in transit privilege as published in tariffs of individual lines lawfully on file with Interstate Commerce Commission, ten cents per hundred pounds higher than present rate. The present rate without storage in transit privilege will be continued. Will advise date effective as soon as possible. (Signed) R. H. Countiss, Chairman Transcontinental Committee."

We are all aware of the fact that every railroad company in the United States has been using every effort to advance their rates during the past few months. Whether the advance is right or not is another question, and has nothing to do with the present subject. The meaning of the ruling of the committee is this: On the great bulk of apples that move from the Pacific Coast during the early part of the season that are shipped from point of origin to final destination there will be no advance in rates. The apples that move to cold storage points, where they are stored for several months, will bear a higher rate if reconsigned. While this is not what the conference committee or the writer asked of the railroad companies, I feel that it is at least a step in the right direction and will materially assist in the marketing of the apple crop of the Pacific Coast. Formerly if we were forced to store apples in transit it was necessary to pay the sum of two locals, which is a great deal higher than the proposed ten cents. I feel that it is a concession on the part of the railroad companies and that they are really anxious to assist in moving the crops of our Western country. It is at least an acknowledgement by the transportation companies that storage in transit for

boxed apples is necessary and proper to move the crop.

Understand that the subject is not closed, but that we appreciate at least the spirit the railroad companies have shown. We sincerely trust that by continuous work and effort we will be able to have this advance of ten cents per hundred withdrawn, though we do not believe that it is advisable to agitate the matter with the Interstate Commerce Commission.

In conclusion I wish to say that the work of the conference committee has been very valuable indeed, and while the Eastern members have not been able to secure transit privileges in their territory, they have given invaluable assistance to the Western end of the work, and each member of the committee is given due credit for his labors. We have received the support of the growers' organizations throughout the entire West, as well as the apple packers and shippers. Our members have been very active also. Particular mention may be made of Mr. H. W. Adams, of the Pioneer Fruit Company, Sacramento, and Mr. C. H. Sproat, of the Hood River Apple Growers' Union. These gentlemen have given very valuable assistance to the committee. The secretary of the conference committee has worked very hard on this subject and has kept the members of the committee posted as to developments of the question as they came up.

I sincerely trust that the work of the committee meets with the approval of the association, for I can assure you that a great deal of time and hard work has been given the subject, and though we do not win as we wished to, it is at least a concession on the part of the roads, and we should accept it in the spirit that it is given, namely, to assist the fruit dealers and growers of the Western country.

It is more than likely that a meeting of the conference committee will be held at an early date and plans outlined for future work.

In conclusion I wish to say that the report would be incomplete if I did not mention the publicity which has been given the subject through the trade papers. They have been ready and willing to publish articles upon this subject that have been furnished by individual members of the committee and have agitated the question from coast to coast. I know that the members of this organization appreciate their efforts and assistance. Very truly yours,

W. D. Tidwell, Secretary.

Editor's Note: The two letters from Mr. W. D. Tidwell, secretary of the Western Fruit Jobbers' Association of America, indicate that this association is earnestly endeavoring to correct all evils in the fruit business, that conditions may be better not only for the dealer, but for the grower, packer and shipper also. Mr. Tidwell, who is secretary and business manager, states: "Our members stand ready and willing at all times to co-operate with the fruit growers' associations throughout the Western country for better conditions in the territory and to upbuild the Western fruit industry."

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LOS ANGELES

THE instructions to packers of the Hood River Apple Growers' Union are as follows: (1) Each packer, before beginning work, 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 of packed apples at the lower left hand corner with his official stamp. (2) Every packer must put up a first class pack. (3) When a box is packed the packer shall stamp with a rubber stamp upon the end of the box, in the center near the top, the exact number of apples the box contains. (4) Each box of apples must be packed with about a three-quarter inch to one inch swell in middle of top and bottom combined, but no box should be packed so high that it will be necessary to cleat the box before nailing on the lid. A swell on the box, however, does not necessarily mean a tight pack; the apples must be tight from side to side, and from end to end. The union wants a tight pack. (5) The packer will receive pay from the grower in cash, or a written order on the Apple Growers' Union, which will be cashed on presentation at the office. (6) Packers will be furnished meals by the grower, without charge, but must make necessary arrangements for bedding. The grower will furnish bed and mattress. (7) Packers are required to pack only apples properly wiped and sorted. If in your opinion the fruit should seem to be running poor grade for the pack you are putting up notify the field inspector or the office at once. (8) Each packer must set off his box when packed. Do not set a box of packed apples on top of another box of packed apples which has no cover. This will bruise those in the under box. Be very careful about this. (9) Packers are paid by the hour, or by the day, based on ten hours per day. (10) The packers are all under the supervision of the field inspector, who may dismiss any packer for cause. (11) All packers must refrain from smoking on the premises of any grower against his wishes. Failure to do so will result in dismissal. The union wants a tight pack of good apples. Don't jam the apples in and bruise them, but be sure to fill the boxes solid full in all directions, up and down, sideways and end ways. Don't pack slack; pack full and tight. Four-tier apples include nothing smaller than 128 size; 144 size is special. Four and one-half tier includes 150 to 175 size. Five tier includes 185 to 200 size.

W. VAN DIEM
 Lange Franken Straat 45, 47, 49, 51 and 61
 ROTTERDAM, HOLLAND
 European Receivers of American
 Fruits
 Eldest and First-Class House in
 This Branch
 Cable Address: W. Vandiem
 A B C Code used; 5th Edition
 Our Specialties are
**APPLES, PEARS AND NAVEL
 ORANGES**

WHEN WRITING ADVERTISERS MENTION BETTER FRUIT

READY PRICE RECKONER FOR RETAIL FRUIT DEALERS							
No. apples in box.....	80	96	112	126	150	176	200
No. dozen in box.....	6 $\frac{2}{3}$	8	9 $\frac{1}{2}$	10 $\frac{1}{2}$	12 $\frac{1}{2}$	14 $\frac{2}{3}$	16 $\frac{2}{3}$
<i>Figures below indicate cost in cents per dozen, according to contents of the various boxes shown by figures at top of table.</i>							
<i>Cost Per Box</i>							
\$2.00	30	25	21 $\frac{1}{4}$	19	16	13 $\frac{1}{2}$	12
\$2.25	33 $\frac{3}{4}$	28	24	21 $\frac{1}{2}$	18	15 $\frac{3}{4}$	13 $\frac{3}{4}$
\$2.50	37	31 $\frac{1}{4}$	26 $\frac{3}{4}$	23 $\frac{3}{4}$	20	17	15
\$2.65	39 $\frac{3}{4}$	33	28 $\frac{1}{4}$	25	21	18	16
\$2.75	41	34 $\frac{1}{4}$	29 $\frac{1}{2}$	26	22	18 $\frac{3}{4}$	16 $\frac{1}{2}$
\$3.00	45	37 $\frac{1}{2}$	32	28 $\frac{1}{2}$	24	20 $\frac{1}{2}$	18
\$3.10	46	38 $\frac{3}{4}$	33	29 $\frac{1}{2}$	24 $\frac{3}{4}$	21	18 $\frac{1}{2}$
\$3.25	48	40	34 $\frac{1}{2}$	31	26	22	19 $\frac{1}{2}$
\$3.50	52	43 $\frac{3}{4}$	37 $\frac{1}{2}$	33 $\frac{1}{4}$	28	23 $\frac{3}{4}$	21
\$3.75	55 $\frac{1}{2}$	46 $\frac{3}{4}$	40	35 $\frac{3}{4}$	30	25 $\frac{1}{2}$	22 $\frac{1}{2}$
\$4.00	60	50	43	38	32	27 $\frac{1}{4}$	24
\$4.25	63	53	45 $\frac{1}{2}$	40 $\frac{1}{2}$	34	29	25 $\frac{1}{2}$
\$4.50	67	56 $\frac{1}{4}$	48	43	36	30 $\frac{3}{4}$	27
\$4.75	71	59 $\frac{1}{4}$	50 $\frac{3}{4}$	45 $\frac{1}{4}$	38	32 $\frac{1}{4}$	28 $\frac{1}{2}$
\$5.00	75	62 $\frac{1}{2}$	53 $\frac{1}{2}$	47 $\frac{1}{2}$	40	34	30
\$5.50	82 $\frac{1}{2}$	68 $\frac{3}{4}$	59	52 $\frac{1}{2}$	44	37 $\frac{1}{2}$	33
\$6.00	90	75	64 $\frac{1}{2}$	57	48	41	36

TO FRUIT GROWERS' ASSOCIATIONS: We have been receiving numerous complaints from our members, who handle a large number of cars of green fruit and apples from the Northwest every year, relative to the various estimated weights applying on the above commodities established by the railroads from different territories in the Northwest. After careful investigation of this subject we have found their complaints are warranted. It has been causing the consignees as well as the railroads a large amount of extra work investigating the overcharge claims that invariably arise from shipments moving under the above conditions, and we believe the railroads as well as the shippers of the Northwest should come to an understanding on a scale of estimated weights to apply on green fruit and apples. The Transcontinental Freight Bureau eastbound tariff No. 3-I, applying from California terminals and "interior points" in California, Nevada and Utah, to points in the United States and Canada, carries estimated weights on green fruit as follows: Cherries, 11 pounds per box, size 2 $\frac{3}{4}$ x9x19 $\frac{3}{4}$ inches; peaches, 21 $\frac{1}{2}$ pounds per box, size 5x11 $\frac{1}{2}$ x19 $\frac{3}{4}$ inches; pears, 50 pounds per box, size 9x11 $\frac{1}{2}$ x19 $\frac{3}{4}$ inches; apricots (single crates), 26 pounds per box, size 5x16x17 $\frac{1}{2}$ inches; prunes (single crates), 26 pounds per box, size 5x16x17 $\frac{1}{2}$ inches; plums (single crates), 26 pounds per box, size 5x16x17 $\frac{1}{2}$ inches; grapes (single crates), 26 pounds per box, size 5x16x17 $\frac{1}{2}$ inches; nectarines (single crates), 25 pounds per box, size 5x16x17 $\frac{1}{2}$ inches; grapes (double crates), 56 pounds per box, size 11 $\frac{1}{4}$ x16x17 $\frac{1}{2}$ inches. The Transcontinental Freight Bureau eastbound tariff No. 2-H, applying from North Pacific Coast terminals and points in Oregon, Washington and Idaho to points in the United States and Canada, does not carry any estimated weights on green fruit or apples. We also wish to advise that the railroads in Colorado and Southwestern lines carry an estimated weight in their tariffs on apples of 50 pounds per box, size 11 $\frac{1}{2}$ x11 $\frac{1}{2}$ x19 $\frac{3}{4}$ inches. This association has always stood ready to remedy any evils arising that are detrimental to the handling of fruit and by co-operating with your association believe we can straighten out this matter and have the railroads in the Northwest establish uniform weights on green fruit and apples. We are working with the grower, the shipper and the jobber in order to get a proper distribution of the fruit and apple crop. Please give this your prompt attention and advise as soon as possible regarding the above table of estimated weights and sizes of crates and boxes and any additional information that you think will help the cause. Very truly yours, Western Fruit Jobbers' Association, August 8, 1911.

LIST OF AGENTS for the Palmer Bucket Company of Hood River, Oregon (see advertisement on page 49). Ask any of the following dealers for a practical demonstration. They will show you how you can save the bruises: S. E. Forstrom, Joseph, Oregon; C. O. Ramsey, La Grande; Lane & Sexton, The Dalles; Grants Pass Hardware Company, Grants Pass; Churchill Hardware Company, Roseburg; Medford Hardware Company, Medford; Wallowa Mercantile Company, Wallowa; H. G. Masterson, Elgin; Wright Hardware Company, Union; R. H. Huston, Corvallis; Hulbert-Ohling Hardware Company, Albany; Craven Bros. Hardware and Implement Company, Dallas; Wade, Pearce & Co., Salem; Chambers Hardware Company, Eugene; R. M. Wade & Co., McMinnville; Wenatchee Hardware Company, Wenatchee; Yakima Hardware Company, North Yakima; Davis-Kaser Company, Walla Walla; Darbey & Mourey, Pomeroy, Washington; J. W. Stevens Hardware Company, Dayton, Washington; A. de Regt, Kennewick; Palmquist Bros., Prosser; Evans Mercantile Company, Clarkston, Washington; Valley Mercantile Company, Hamilton, Montana; A. C. Rolofson Company, San Francisco, sales agents South Pacific states.

Wholesale Retail

Reliable Nursery Stock

We have a large stock of the standard commercial varieties for the Northwest coming on for fall and next spring's delivery. It is being grown in a rich volcanic soil under irrigation in the famous Wenatchee Valley, by experienced men.

From a small beginning six years ago our business has grown to a half million plant this year. We must be delivering good stock and treating our customers right or our business would not make such a large growth in so short a time. Give us a trial order and we are satisfied that you will order again from us.

A few live agents wanted.

THE CASHMERE NURSERIES
 G. A. Loudenback, Proprietor
 CASHMERE, WASHINGTON

S. E. Bartmess
 UNDERTAKER AND
 LICENSED EMBALMER
 For Oregon and Washington
 Furniture, Rugs, Carpets
 and Building Material
 Hood River, Oregon

VIRGINIA
 Apple Lands

One hundred and twenty acres of high grade apple land in Shenandoah Valley for \$2,000.00 to insure quick sale; within two miles of the largest apple shipping station in Virginia and no better land for apples in the state; well watered by springs and streams and partly cleared. Easily worth double the price asked. Other lands in large and small tracts at \$15.00 to \$50.00 per acre.

ADDRESS
F. H. LaBAUME, Agricultural Agent
 Norfolk & Western Ry.
 Box 2076, Roanoke, Va.




WHEN WRITING ADVERTISERS MENTION BETTER FRUIT

MOSIER FRUIT GROWERS' ASSOCIATION
APPLE PACKING SCHEDULE FOR STANDARD BOX

Group Size	No. in Box	Style of Pack	No. in Rows	No. in Layers	Remarks
3-tier.....	45	Straight 3	5	3	Spitzenberg, Ben Davis and extra long Newtown.
3-tier.....	54	Straight 5	6	3	Flat Newtown, Red Cheek, Wagner.
3-tier.....	56	Diagonal 2-2	3-4	4	Almost any variety.
3½-tier.....	64	Diagonal 2-2	4-4	4	Almost any variety.
3½-tier.....	72	Diagonal 2-2	4-5	4	Almost any variety.
3½-tier.....	80	Diagonal 2-2	5-5	4	Almost any variety.
3½-tier.....	88	Diagonal 2-2	5-6	4	Almost any variety.
4-tier.....	96	Diagonal 2-2	6-6	4	Do—except Ortley or extremely long apple.
4-tier.....	100	Diagonal 3-2	4-4	5	Do—but preferable for long apples.
4-tier.....	104	Diagonal 2-2	6-7	4	Any flat variety—not Spitzenberg, Ortley, etc.
4-tier.....	112	Straight 4	7	4	Newtown, Baldwin and similar flat apples.
4-tier.....	113	Diagonal 3-2	4-5	5	Almost any variety.
4-tier.....	125	Diagonal 3-2	5-5	6	Almost any variety.
4-tier.....	128	Straight 4	8	4	Any extremely flat apple.
4½-tier.....	138	Diagonal 3-2	5-6	5	Almost any variety.
4½-tier.....	150	Diagonal 3-2	6-6	5	Almost any variety.
4½-tier.....	163	Diagonal 3-2	6-7	5	Almost any variety.
4½-tier.....	175	Diagonal 3-2	7-7	5	Almost any variety.
5-tier.....	188	Diagonal 3-2	7-8	5	Almost any variety.
5-tier.....	200	Diagonal 3-2	8-8	5	Flat variety.
5-tier.....	200	Straight 5	8	5	Long variety.

WE received the extra copies of "Better Fruit" and we want to compliment you. We sent a copy of one issue to the general manager of our largest daily here, the Times-Democrat, and he sent his photographer down to tell us that it was the finest publication of its kind he ever saw. This firm was established twenty-one years ago under the name of Weinberger & Co., and has continued in the same location for that period. Mr. Hy. J. Laux was a member of the original firm of Weinberger & Co. and continued in business here up to the time of his death on June 17, when Mr. Geo. H. Appel succeeded to the business and continues it under the firm name of Laux & Appel. We believe that the old firm was instrumental in handling some of the first apples packed in boxes to come to this market, which has always been a barrel market. With the advent of the finest apples from the Northwest the trade here had to be educated to the use of the box stock and at this time boxes have gained quite a prestige and the trade appreciates the convenience of boxes, especially so for fancy fruit.

The present firm is making a specialty of box stock, handling them from the Pacific Coast, from California to Vancouver and from New Mexico to Missouri. We make a specialty of fancy fruit and cater to the fancy trade. This market is partial to red varieties, such as Winesap, Arkansas Black, Jonathan, Gano, Lauver, Baldwin, Wagner, and will handle more Ben Davis to good advantage than any other city of its size in the United States. We have provided for storage for fifty carloads and export considerable to Cuba and Panama.

We are known as "The Fancy Fruit House" of New Orleans and we represent Stephens & Humphrey of California, who produce the finest grapes grown in the state, also the A. Block Fruit Co., who are considered the finest packers of fall and winter pears in California. We have handled their account here for years and they will not sell a car to any one else on this market. We have the exclusive control of their shipments here. We mention these growers as they are known as fancy packers, and we also represent the best packers in other sections of the United States. We are the only exclusive wholesale fruit concern here, we handle nothing but fruit and some fancy vegetables. Mr. Geo. H. Appel was for years manager of the pioneer line of refrigerator cars on the Pacific Coast, starting there in 1888, and is well known over the Pacific Coast. We are specially desirous of arranging with parties who make a specialty of fancy fruit and shall be glad to act as their correspondents and representatives here. Yours truly, Laux & Appel, New Orleans, Louisiana.

Editor Better Fruit:

Kindly send me the names and addresses of the two best magazines published in California devoted to citrus fruits and their culture, and greatly oblige, yours very truly, S. R. Linn, Slidell, Louisiana.

Editor's Note: It is interesting to note that a fruit grower in Louisiana writes to "Better Fruit" to learn the names of California fruit papers, which is further evidence of the wide circulation of "Better Fruit," which has subscribers in every state and territory in the United States, every province in Canada, and twenty foreign countries.

Constable & Morgan

BROKERS

Los Angeles, California

WE HAVE THE
C-A-S-H
BUYERS

**Ginocchio-Jones
Fruit Co.**

KANSAS CITY, MO.

APPLES
are our main Specialty

Established in Kansas City 25 years

Desel-Boettcher Co.

The Fancy Fruit House of Texas

WHOLESALE COMMISSION MERCHANTS AND JOBBERS OF

APPLES

AND OTHER FRUITS

Ample warehouse facilities

Private cold storage plants

HOUSTON, TEXAS

Branch distributing plant

Corpus Christi, Texas

C. C. EMERSON & CO.

Wholesale

FRUIT and PRODUCE

Car Lot Distributors

Apples Pears Peaches

Potatoes Onions

ST. PAUL, MINN.

Duncan Campbell & Co.

349 DAVIS STREET

SAN FRANCISCO, CALIFORNIA

Car Load Brokers and Distributors
Citrus and Deciduous Fruits

Write or wire us regarding anything you have to offer in carload lots.

Want pears for Eastern shipments; also canning pears.

Satisfactory references guaranteed.

ESTABLISHED 1877

Potter & Williams

144, 146, 148 Michigan Street

BUFFALO, N. Y.

Can handle a few cars Fancy Apples to advantage

Correspondence Solicited

Joseph Flaherty

65 Twenty-First Street

PITTSBURG

Box Apples and Pears

OUR SPECIALTY

**Apple Shippers
Attention!!**

Get in touch with one of the OLDEST APPLE DEALERS in the West; write us what you will have to offer—get our proposition before selling.

Established 1868

C. C. CLEMONS PRODUCE CO.
Second and Grand Avenue
Kansas City, Missouri

OREGON APPLE SHOW TO BE HELD AT PORTLAND

THE twenty-sixth annual meeting of the Oregon State Horticultural Society will be held Wednesday, Thursday and Friday, November 15 to 17, 1911, in Portland, Oregon. In connection with this meeting, as has been the custom in the past, there will be an apple show. Until last year the exhibit was merely of a few hundred boxes with small prizes. Last year the apple show was enlarged and made a special feature, there being 3,000 boxes of apples on exhibition, as well as some pears, dried fruit, etc. This year it is the expectation of the officers and trustees that the exhibit will be much larger and better than ever before. While it is not intended to rival the National Apple Show it will be by far the largest and best one ever held in Oregon. Growers in other districts of the Northwest will also be invited to bring exhibits from their districts. The Northern Pacific and Great Northern Railroads have promised to again offer prizes. Last year their prizes were among the largest offered and brought out keen competition, being rivaled only by the competition for the sweepstake prize.

It is the expectation of the management this year to offer premiums on 100, 50, 25, 10, 5, 3 and single box lots of apples; single and three-box lots on pears; also plate exhibits of each.

Judging Contest—One of the new features this year will be a judging contest in naming varieties of apples, and growers of new and promising varieties, as well as those who happen to have some old variety but are not certain of the name are urged to bring five of the best specimens and enter them in the plate contest of naming varieties. This will be conducted under the supervision of the horticultural department of the Oregon Agricultural College, with Professor C. I. Lewis and assistants in charge.

Dried Fruits—Dried berries, nuts and prunes will also have suitable prizes. Prune growers are especially urged to bring a creditable exhibit, as too little attention has been paid in the past to this great industry of Oregon.

The contests for 100 and 50-box lots will be district prizes, and will be open to growers, fruit growers' associations, commercial clubs or any combination of growers in the same county or district. Each will be for not less than three varieties of apples, at least twenty-five boxes of each variety in the 100-box prize and at least fifteen boxes of each variety in the 50-box contest. The contests for twenty-five boxes or less will be open to growers only, and will be offered on from four to twenty varieties, about four varieties in the 25-box contest; five varieties in the 10-box; ten varieties in the 5-box, and from fifteen to twenty varieties in the single box lots. In plate exhibits, in addition to the sweepstake prize, there will be prizes on twenty-five to thirty of the leading varieties on single plates of five apples each. The premium list will be mailed about the middle of September. Any grower who has not received these in the past is urged to

send his name to be placed on the mailing list. There is no charge for space to exhibitors.

It is the wish of the management that every fruit district in the Northwest be represented, and especially every district in Oregon, and make it an all-Oregon exhibit. Quarters will be secured in the business district of the city so that thousands can avail themselves of the chance to see the exhibit. Every fruit grower, fruit growers' association and commercial club in Oregon are requested to do all they can to further the success of this show. Several commercial clubs are offering special prizes on fruit grown in their county. Help boost for a big show. Watch the October issue for full premium list and the November issue for program.

Loganberry Plants

All Tips

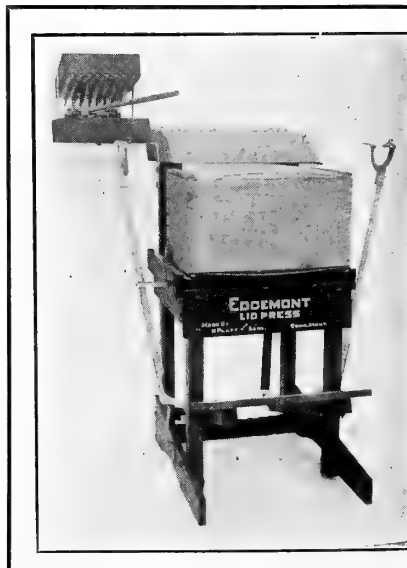
\$20.00 per M.

ASPINWALL BROS.
BROOKS, OREGON

Sale of Real Estate IN Shenandoah Valley

September 26, 1911, at Charles Town
Jefferson County, West Virginia

Five tracts of land, ranging from forty-six to one hundred and fifty-eight acres, with good improvements and located in the apple belt in the picturesque Shenandoah Valley, five miles from main line of the Baltimore & Ohio Railroad, two hours west of Washington, D. C. Under state of high cultivation, richest limestone soil. Land lies in high altitude, excellently adapted to fruit growing. Fine macadamized roads. For further information address GEORGE D. MOORE and JAMES BENNER, Charles Town, West Virginia.



THE EDEMONT LID PRESS

Patented September 20, 1910

Improved for 1911

A Handier and Better Stripper
Better Cleat Holders
New Ratchet on Treadle

Price \$11.00 F. O. B.
Hamilton, Montana

Price delivered Washington and Oregon
\$13.00

MADE BY
H. PLATT & SONS, Como, Montana

THE CHERRY CITY NURSERIES

Claim their trees are the best, their prices right, and solicit your patronage for their fine line of

Apple, Pear, Peach, Prune
and Plum Trees

and small fruits. Also ornamental trees and shrubs. Special attention given to roses. Send for catalogue and price list.

J. H. LAUTERMAN, Salem, Oregon

Orchard Tract

Ten acres rich orchard land in famous Rogue River Valley. Write for description and price. CHAS. E. HICKS, Independence, Oregon.

Red CLOVER and VETCH SEED

Now Ready for prompt
shipment.

Lilly's Best Red Clover is

99% PURE

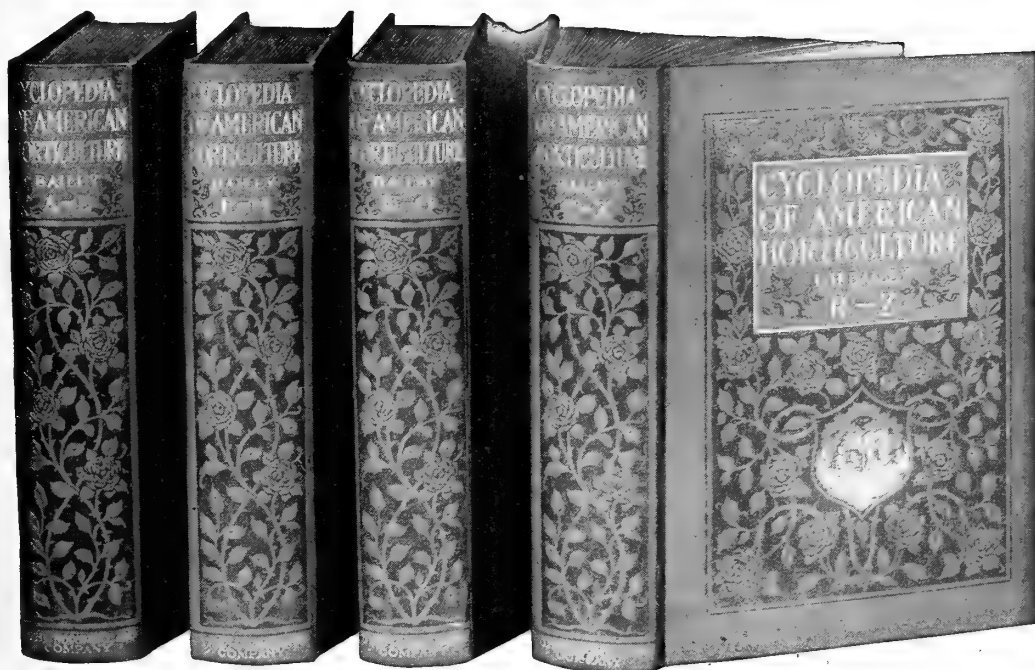
It is fresh, re-cleaned, Northern grown seed, 7% better than the Pure Seed Law demands. It costs a trifle more, but it's worth more. Lilly's Vetch Seed is of Standard Lilly Quality—fresh, re-cleaned seed of high germination. Send for price list. Prompt shipment guaranteed.

A Copy of our "Crop Book"
Sent Free with Orders

THE CHAS. H. LILLY CO.
Seattle Portland

LILLY'S

A Great Offer for Our Readers on Special Easy Terms



- A Text-Book to the Student
- A Manual to the Gardener
- A Library to the Teacher
- A Treasure to the Botanist
- A Guide to the Amateur
- A Companion to the Country Gentleman

L. H. Bailey's Remarkable Cyclopaedia of American Horticulture

The Cyclopaedia of American Horticulture presents the combined labor and experience of the 500 foremost American and Canadian authorities on horticultural subjects, which it has taken years of painstaking editorial work to put into its present convenient and attractive form. These four magnificent volumes place at the disposal of the horticulturist, whether practical, amateur or scientific, an ample and readily accessible account of every subject which at any time may be of interest or practical use in his calling.

EVERY LOCALITY TREATED

Its range is wide, covering plants, flowers, vegetables, trees, tillage processes, physiological chemistry, tools and implements, cultural discussions, botanical history, biographical sketches, horticultural geography and a myriad items that only constant use will reveal.

GREAT VALUE TO NURSERYMEN

The set is indispensable to all American libraries, not only because of its position as the foremost work of reference in its field, but by reason also of its great literary excellence and its scientific accuracy, as well as the wealth of cultural data and descriptions it contains. Nor has the scope of the volumes been confined to botanical subjects alone. Such captions as "Diseases of Plants," "Graftage," "Parks," "Perfumery Gardening," "Insects," "Nut Culture," "Railroad Gardening," "Transplanting," "Plant Breeding," "Storage," "Tillage," "Tools," all illustrate the fact that every subject in any way incident to the activities of the horticulturist has been fully covered, commercially as well as scientifically.

COMMERCIALLY PRACTICAL

It is therefore evident that the appeal of this work is very general. Its subject matter is of almost universal interest, and is treated in such a practical, scholarly and discriminating manner that whoever may be in any way concerned with horticulture, whether as a means of gaining a livelihood, as a mode of recreation, as an outlet for pent-up energy, as a field for scientific investigations, as a method of beautifying his surroundings, as gardener, seedsman, korist, student, teacher, botanist, merchant or country gentleman, will find in "The Cyclopaedia of American Horticulture" a work replete with suggestions, abounding in ideas, and fertile in timely hints, philosophic in design, wide in scope and minute in detail—a counselor, guide and instructor ever within call.

Four large quarto volumes, 2,016 pages, 50 full page plates, 500 contributors, 2,800 original engravings, 4,400 articles, 24,400 plant names.

Our Offer Better Fruit has always endeavored to supply its readers with the most authoritative and up-to-date matter on horticultural methods, and has therefore made arrangements with the publishers of the **CYCLOPEDIA OF AMERICAN HORTICULTURE** whereby they may obtain the work on special easy monthly terms. The complete set of four volumes, bound in cloth will be delivered to you for only \$2.00 down and \$2.00 a month for 9 months. Further particulars sent on request.

SEND ONLY \$2

BETTER FRUIT PUBLISHING CO., Hood River, Oregon

FOURTH ANNUAL APPLE SHOW HELD AT SPOKANE

TWENTY THOUSAND DOLLARS in cash premiums and gold and silver trophies will be awarded in competitions, free and open to all, at the Fourth National Apple Show in Spokane, Washington, November 23 to 30, inclusive. In addition, there will be a series of growers' conventions, practical demonstrations and country life meetings, at which men and women of recognized ability in horticulture will discuss modern methods. Other features to be provided are street festivals and celebrations to commemorate the formal opening of the Monroe Street bridge, the largest single span of concrete reinforced construction in the world, and the Inland Empire's thanksgiving for the bountiful crops.

Business men and residents of Spokane have subscribed \$35,000 to guarantee the coming exposition and provide for the demonstrations by practical growers, showing the various stages of modern commercial orcharding from breaking the raw land, setting trees, cultivating, pruning and spraying to harvesting and marketing the crop. Arrangements have been completed to display two million or more of the highest grade products of commercial orchards in the United States and Canada and five experts of international renown will score the competitive exhibits and award prizes to the successful growers.

The management of the National Apple Show, Inc., headed by E. F. Cartier Van Dissel, has decided to eliminate the sweepstakes contest, the winner of which was awarded \$1,000 in gold at each of the three preceding shows, and in its stead there will be added premiums on carload displays and box exhibits. It is thought that this plan will be more satisfactory to the growers in the various districts, as it affords an opportunity for every district to win a big prize on the variety scoring the highest number of points.

Briefly stated, the prize purposes of the National Apple Show, which has become an annual event in Spokane, are as follows: To popularize the apple as a national fruit and food; to encourage the production of cleaner and better fruit; to assist growers in harvesting and marketing their products; to supply the ever-increasing demand at home and abroad for high grade commercial apples; to demonstrate to the West the possibilities of intensive cultivation and to bring to the attention of the North, East and South the value to the entire country of this development.

Ren H. Rice, who was secretary of the second and third expositions and has been retained to manage the coming show, already has sufficient entries to occupy half of the 150,000 square feet of floor space to be devoted to exhibits in the State Armory and temporary buildings to be erected at the intersection of two streets.

"We shall have displays, ranging from full carloads to single plates of five apples, from almost every commercial district on this continent," said E. F.

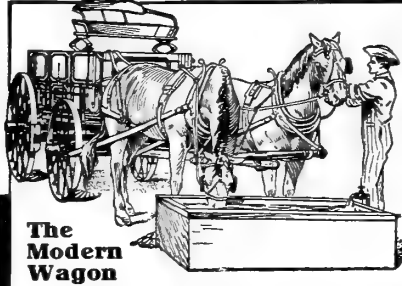
Cartier Van Dissel, chairman of the board of trustees of the National Apple Show, Inc., who has just returned from an extended trip through the Middle Western States. "I feel confident, too, that the show will be larger and better than ever, as growers all over the country realize the many advantages from a horticultural view point to be derived from these expositions and conventions, where they have opportunities to make comparisons and discuss methods with fellow orchardists."

The development of the national show idea began in the spring of 1908, when David Brown, chairman of the Country Life Commission of Washington, and several acquaintances informally discussed a plan to determine which district on the continent raised the largest perfect apple. The plan was discussed at a meeting of the Spokane County Horticultural Society soon afterward, when

it was proposed to have an exhibition the following fall.

The plan was also indorsed by the Washington State Horticultural Society and the Spokane Chamber of Commerce, which pledged their support to the undertaking. Changes followed rapidly as the idea was worked out, and from a county show it passed to an exposition of international scope and character.

The first show in 1908 cost the people of Spokane about \$40,000, the organization facing a deficit of \$3,500 after the last prize had been paid. This was met by one hundred business men, each contributing \$35. The second show, in 1909, cost more than \$45,000, and the two expositions in 1910, one in Spokane and the other in Chicago, cost in the neighborhood of \$88,000. The show next November, with its accompanying carnivals and festivals, means an expenditure of more than \$60,000, every penny of which will be provided in contributions from the people of Spokane.



The Modern Wagon

There are many reasons why the **DAVENPORT** is the wagon for the farmer today. Among these are: 30% to 50% Lighter Draft, Increased Carrying Capacity, Does Not Carry Mud, No Repair Bills, No Tires to Reset, and Many, Many More.

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John Deere Plow Company
Moline, Illinois

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When the Going is Hard

Contains information that is well worth your time to read. The discussion on "A Wheel with One Spoke" is worth DOLLARS to you. We tell you why a **wooden wheel is dished**, which is something many wagon manufacturers do not know. There are about twenty-five other articles just as interesting.

DAVENPORT ROLLER-BEARING STEEL FARM WAGON



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VETCHES ALFALFA, GRAINS AND CLOVERS,

We offer to you in any quantity and at lowest market price our new crop of "Diamond Quality" **Selected, Re-cleaned Farm and Field Seeds** including Special Mixtures for Special Purposes.

Cover Crops for Orchards

Dry Land Pasture Mixture—Wet Land Pasture Mixture—Special Mixture for Burned-Over Land.

Write to-day for Samples—Compare them—Note their purity and weight—Or, send in your order at once. We guarantee prompt and careful attention and full value for the money.

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Portland, Oregon



SPRING VETCH (*Vicia Sativa*) for sections West of the Cascade Mountains.

WINTER VETCH (*Vicia Villasa*) for sections East of the Cascade Mountains.





Nine Kimball Cultivators in operation on property of Dufur Orchard Company, Dufur, Oregon, owned by the Churchill-Matthews Company, 510 Spalding Building, Portland, Oregon. This company is using at this time thirty-five Kimball Cultivators on their Dufur, Sheridan, Drain and Cottage Grove properties. This speaks volumes for home-produced machinery. Why go East for yours?

The Kimball Cultivator

Great Weeds and Fern Exterminator

Hood River, Oregon, Feb. 26, 1910.
 W. A. Johnston, The Dalles, Oregon.
 Dear Sir: I use three "Kimball Cultivators" in my orchard. There is nothing better as a weeder, dust mulcher, or to stir the soil. Yours truly,
 E. H. Shepard, Editor "Better Fruit."



Ninety per cent Hood River Orchardists use this machine.

 Send for illustrated descriptive booklet.



RETAIL PRICE SCHEDULE

No. 4—4½ feet, 6 blades, weight complete 70 lbs... \$13.50
 No. 5—5½ feet, 7 blades, weight complete 85 lbs... 15.00
 No. 6—6 feet, 8 blades, weight complete 100 lbs... 17.50
 No. 7—7 feet, 9 blades, weight complete 115 lbs... 18.50
 No. 8—8½ feet, 11 blades, weight complete 125 lbs... 20.00
 No. 9—10 feet, 13 blades, weight complete 140 lbs... 25.00
 No. 10—12 feet, 10 blades, onen center, weight complete 160 lbs... 22.50

No. 11—12 feet, 15 blades, weight complete 185 lbs... \$30.00
 No. 13—One 8½ and one 9 feet, 23 blades, gangs, fully rigged, weight 300 lbs... 47.50
 Extra Frames \$1.00 per foot; weight 10 lbs. per foot.
 Extra Blades \$1.50 each; weight 5 lbs. each.
 TERMS: Cash with order, except to dealers with established credit. All quotations f.o.b. The Dalles, Oregon.

W. A. JOHNSTON, Manufacturer

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LIST OF BIG LAND, IRRIGATION AND APPLE SHOWS

A LIST of the great land, irrigation and apple shows to be held throughout the country. In the editorial columns will be found further particulars about each and every one of these big shows with the address of the secretary, so that every one of our readers can secure further information, as our information is necessarily brief in this issue on account of limited space. We hope in the next number to have a brief article about each one of these shows, explaining their objects more fully.

Watsonville Apple Annual, Watsonville, California, October 9-14.

Sixth International Dry Farming Congress and International Exposition of Dry Farmed Products, Colorado Springs, Colorado, October 16-20.

American Land and Irrigation Exposition, November 3-12, Madison Square Garden, New York.

Indiana Apple Show, Indianapolis, Indiana, November 6-11.

American Apple Exposition Denver, Colorado, November 12-18, Auditorium Building.

Oregon Apple Show Portland, Oregon, November 15-17.

United States Land and Irrigation Exposition, Coliseum, Chicago, Illinois, November 18 to December 9.

National Apple Show Spokane, Washington, November 23-30.

Nineteenth National Irrigation Congress, Chicago, December 5-9.

Northwest Land Products Show St. Paul Auditorium, St. Paul, Minnesota, December 12-23.

On another page in this edition will be found a list of all the state fairs and local fairs, which will be of interest to every fruit grower and agriculturist.

All of the big shows which are going to be given during the balance of the year 1911 are entitled to liberal support for the reason that they are immense factors in developing all sections of the country. While great credit is due to the originators of these shows, to the men who put up the capital to guarantee the expense, and particularly the managers who have made all of these shows successful in the past, we believe there is something underneath this that enabled these men to make these events successful in the past two or three years, in quantity, quality, attendance and

finances. We believe evolution has much to do with the subject. It is development of the United States that is making such shows possible, and we might add that there is an additional feature which many overlook, and that is the law of nature working to preserve a balance. In other words, the big cities have been growing faster than the country. The population in the big cities is too great in proportion to the country population, and necessarily the result of this condition today is that all farm products as a rule are commanding high prices. The farming class is prosperous. On account of the high prices of food and moderate wages many people in cities are simply able to eke out an existence. The land presents a golden opportunity to the people in overcrowded cities, and the development of the country indicates that many are taking advantage of this opportunity.

The popular expression of today, "Back to the Land," indicates the movement that is going on and that will continue to go on until nature has balanced itself, and until this time comes these big shows will be successful. Beyond that time to give an expression will be only prophesy, and as prophesies are not backed up by evidence it is hardly worth while to make one, except to say it is not in the near future.

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Standard Varieties.
Prices Right and Stock First Class

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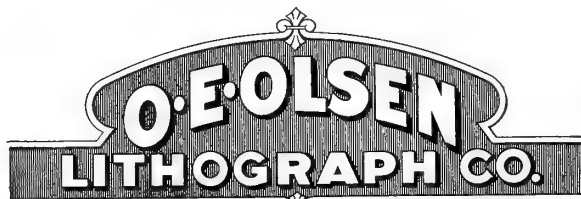
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FOR BOXES, CANS, BOTTLES, ETC.

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 70,000 Square Feet of Floor Space
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FORTY YEARS IN BUSINESS

Correspondence invited with associations and individual growers desiring first-class connection in St. Louis. Auction facilities unequaled. Will buy outright or handle consignments, private sale or through St. Louis Fruit Auction.

References: Franklin Bank, Dun and Bradstreet, any wholesale fruit house in the country.



REFERENCES

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Market quotations and full particulars on application

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Fruit growers or apple growers and dealers of the Western markets in and around Portland, who have watched the markets closely for the past few years, have learned that in the spring there is always a good demand for apples, and that they usually bring good prices if they are in good condition. There is only one way to keep them in good condition for spring consumption, and that is to put them in cold storage.

We offer the best of cold storage facilities in the city of Portland and solicit correspondence from all the associations and fruit growers in general who want to store fruit in the fall or early winter to be used in the spring.

Write us and we will give you further particulars.

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APPLES!

We want the best the market provides

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ST. PAUL, MINNESOTA

Members St. Paul Board of Trade

Let us keep you posted on the St. Paul market
It will pay you

NORTHWEST LAND PRODUCTS SHOW AT ST. PAUL

UNDER the auspices of the Northwestern Development League the Northwestern Land Products Show will take place from December 12 to 23, and will be held in the St. Paul Auditorium, one of the finest buildings of its kind in the country. The dates were decided upon after advice had been received from the various Western states interested, and the dates of state fairs and other expositions had been considered. The dates selected will give those who wish to exhibit in Chicago an opportunity to bring their exhibits to St. Paul for the Northwestern Land Products Show, as the Chicago Land Exposition closes on December 9. The entire enterprise has but one object in view, according to

officials of the league, and that object is to aid in the development of Oregon, Washington, Montana, Idaho, North Dakota, South Dakota, Minnesota and Alaska. The Northwestern Land Products exhibit will be something more than a mere land show, and will include not only products but resources of the country. This development league is defined by its officers as an "educational movement," seeking to make people acquainted with the facts about the fertile Northwest. It is planned to make the exhibit an annual affair to be held in subsequent years in various cities of the Northwest, which will serve to stimulate activity, since the exhibit, being common property of the states men-

tioned, will be enthusiastically pushed by all.

Mr. W. A. Campbell, secretary of the Northwestern Development League and formerly manager of publicity for the Omaha Chamber of Commerce, has been appointed general manager of the show, and is now actively at work to secure exhibits and entertainment features. As the league is composed of commercial clubs of all the states interested the officers will communicate with these bodies, advising them in reference to exhibit material, space available, etc.

IT is not the aim or object of "Better Fruit" to deal in personalities or criticisms, but it is our endeavor to give fruit growers all the valuable information that we can get

IF YOU WANT THE BEST ORCHARD LAND IN OREGON

I have what you want, whether it is five to forty acres for a HOME ORCHARD, or 400 acres for subdivision.

I have land in the Hood River Valley or in the Mount Hood Valley adjoining Dufur.

If you do not want to take possession at once, your land will be planted and cared for, in the best manner, for you for from three to five years, when it will come into bearing.

For further particulars address,

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APPLE STORAGE—410,000 Box Apples Capacity

Our Apple Department is constantly in touch with the market and we are therefore in a position to give storage customers best results

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Plants at Vincennes, Indiana; Flora, Illinois; Seymour, Indiana; Washington, Indiana

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Largest Handlers of Pacific Coast Fruits in the East

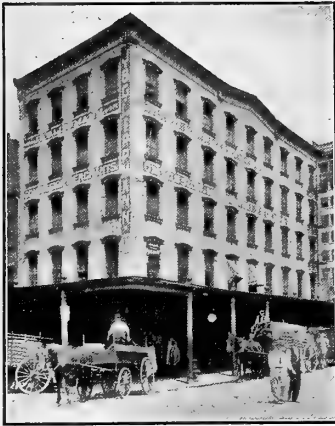
REPRESENTING THE FOREMOST WESTERN SHIPPING COMPANIES AND ASSOCIATIONS
ON THE NEW YORK MARKET

Operating in All Producing Sections

RELIABLE

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Five Stories
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Corner
Harrison and
Washington
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On one of the most conspicuous corners of the fruit and produce district. Handle all kinds of produce and want to get in touch with Western shippers of peaches, plums, prunes, etc. Box apples we shall make a specialty. Prepared to handle business of large associations, being fortified with ample capital to take care of any deal. Correspondence solicited.

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We Want all Shippers of Green and Fresh Fruits to Write Us

Auction Facilities Unequaled by any House in America

THE B. PRESLEY CO.

ST. PAUL, MINNESOTA

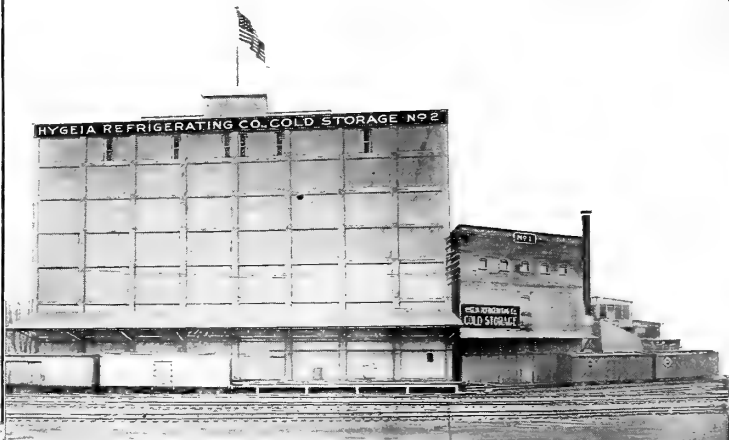
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Capacity
35 cars per day
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Every facility is
offered for the successful
carrying and
marketing of
Box Apples
for domestic and
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Fireproof warehouse
30c Insurance rate

Storage rates and advances
quoted on application

William N. Irwin

THE late William N. Irwin, who departed this life in Washington, D. C., June 22, 1911, was born near South Salem, Ohio, May 21, 1844. His boyhood and youth were spent in Ohio, near the place of his birth. Soon after his marriage, December 15, 1868, to Miss Ella N. Rowand, who with four children survives him, he removed to Eastern Kansas, where he engaged in farming and related pursuits for the succeeding twelve years. About 1880 he returned with his family to his old home in Ohio, where he engaged in fruit growing and nursery work. This occupied his attention until 1891, when he was appointed to a position in the division of pomology (subsequently merged into the Bureau of Plant Industry) in the United States Department of Agriculture. Here he continued actively engaged until a few days before his death.

In his department work Mr. Irwin exhibited high efficiency. As a judge of varieties he had a wide acquaintance with fruits, and possessed and developed a delicacy and discrimination of taste and of descriptive power which rendered him unusually expert in the identification and description of rare and little known varieties. In work of this character the efficiency of the individual depends largely upon his ability to acquire through observation and test such complete and accurate knowledge of varieties as renders their recognition possible, even where printed descriptions or illustrations fail to indicate their distinguishing characteristics. This ability Mr. Irwin possessed in an exceptional degree. Coupled as it was in him with a friendly and cordial disposition, it rendered him a most valuable co-worker in the pomological force of the department. His opinions and advice were steadily sought and highly prized, both by his associates and the general public.

In a time when the commercial temptation to sacrifice dessert quality in fruits to the more showy characteristics of large size and brilliant color, Mr. Irwin stood steadily and consistently for high quality as the most important character in determining whether or not the dissemination of a new sort should be encouraged. He was quick to discover

the good that often resides under uncouth or unpromising exteriors, and equally prompt to commend it when found, whether in fruits or in men. His influence in this respect upon the younger men associated with him, both in the department and in the national and state horticultural societies of which he was an active member, has been far reaching and strongly beneficial. As an expert judge of fruits he was frequently called upon to judge exhibits made at national and state competitions, including the St. Louis Exposition in 1904.

In recent years he became very much interested in the question of introducing from foreign countries animals suitable for use as food for man, especially such as could be expected to subsist and thrive on the wild growth in forests and swamps which now yield little return to man in any form. Through his personal advocacy of the plan much interest was aroused, especially in some parts of the South, where large areas of swampy and other wild land at present support little animal life possessing economic value. Aside from his ability, industry and faithfulness as a public servant, qualities which merit universal commendation, the many who were so fortunate as to know Mr. Irwin personally mourn his loss as that of a most considerate and generous friend. No trouble, whether that of a friend or stranger, which he could see a way to lessen was disregarded by him. Gentle, tactful and considerate of the feelings of others, he was at the same time strong, effective and practical in his efforts to aid those who

needed help, whether through his advice, his substance or his personal service. He was a gentleman in the truest sense, whose example and influence have left the world better than he found it.—Contributed.

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*A Boarding and Day School for Girls
Comprising a French School for Little
Children, Primary, Intermediate, High School
and Post Graduate Departments, Household
Economics, Drawing, Painting and Elocution.
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jobbing trade through Central and Southern
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us sell your apples for you.

Your correspondence solicited.

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MODERN COLD STORAGE

with every facility for handling
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Apples, Fruit, Produce

at any temperature desired.

Finest market and distributing point in the Northwest
Write for terms

De Soto Creamery and Produce Co.

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WE ARE HEAVY OPERATORS IN
BOX APPLES and the **PEARS**
 three big **PEACHES**
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We handle more box apples than any concern in Ohio and want to hear from every grower and shipper who will have either large or small lots to offer.
 Let us hear from you at once.

OUR SPECIALTY, BOX APPLES

I. N. PRICE & COMPANY, CINCINNATI, OHIO

REFERENCES: ANY BANK OR CREDIT AGENCY

Security Ladders

"NOT A NAIL IN THEM"

The Most Economical to Buy and Use

Security Construction is Rigid and Inspires Confidence



Security Patent Step Joint Makes these Ladders **STRONGEST** Where Others are Weakest

Ask your Dealer for Security Ladders
 LIGHT-STRONG-DURABLE--SAVE WAGES
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EVERYTHING TO WEAR

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 CLOTHES

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Strictly Cash—One Price to All

What's
 in a
 Name?

"NURSERY—A place where young trees, shrubs, vines, etc., are propagated for purposes of transplanting."—NOAH WEBSTER.

Noah is dead now, so we thank his memory for this generous write up. If you wish to know how accurate this definition is, write or call on

The Sunnyside Nursery Company

SUNNYSIDE, WASHINGTON

OLIVIT BROS. 335 WASHINGTON STREET
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Commission Merchants

FRUITS AND PRODUCE

Announce they have been established forty years handling all kinds of fruits. Apples in boxes and barrels are a specialty with us, and we have our salesmen who devote their entire time to selling apples throughout the season. We handle more box apples through our store than any house in New York. We solicit correspondence of any nature relating to apples or the fruit business in general, in advance of the season. We can furnish the best of references and can handle your crop to the best possible advantage.

25 DOUBLE EAGLES—\$500.00 IN GOLD

A PRIZE FOR THE BEST EXHIBIT 25 Boxes of Apples

NORTHERN PACIFIC RAILWAY

Will present this to the apple grower making the best 25-box exhibit of his product at the American Land and Irrigation Exposition to be held in New York City in November, 1911. The apples may be of any variety or varieties, a single variety to the box; may be all of one variety or different varieties in the various boxes. No exhibit will be barred on account of location of the land producing the apples, all other conditions being lived up to.

As an apple grower you are interested personally and in your loyalty to and pride and faith in your own section, you are doubly interested.



Write today for copy of circular telling about this and other prizes to be awarded for exhibits of products. Address

A. D. CHARLTON, Assistant General Passenger Agent, Portland, Oregon

A. M. CLELAND, General Passenger Agent, St. Paul, Minnesota

WATSONVILLE'S SECOND ANNUAL APPLE SHOW

THIS apple growing community, which ships more apples than many whole states, and of a quality equal to the best produced anywhere, last year concluded to stimulate the industry, not alone locally but throughout the state, and for that purpose organized an association known as the "Apple Annual," induced the city to vote bonds for the erection of a pavilion larger than Dreamland in San Francisco, and gave an apple show which beat anything of the kind ever held in the world, more than three millions of apples being displayed. The affair was such a success from the growers' and shippers' standpoint it will be repeated this year, October 9 to 14, and fruit from all sections of the state will be exhibited. The show of 1910 demonstrated beyond contradiction California is one of the greatest apple states of the Union, although Watsonville and the Pajaro Valley at present do the most shipping, the output of fresh fruit from this station alone last year being a trifle over 4,000 carloads of 650 boxes, or bushels, to the car.

The "Annual" is held during the prevalence of tourist rates from all points east over all lines, with stop-over privileges, and fruit men generally take advantage of this condition to attend, while colonists in search of homes will come in large numbers. Watsonville is one hundred miles from San Francisco, on the coast line of the Southern Pacific, and is easily reached by trains from north and south, almost hourly. The

displays of fruit are worth traveling across a continent to see, for in this section apple growing is the chief industry, and the fact that there are more than a million bearing trees in the immediate vicinity of the town is ample proof of the assertion. The product is largely Newtown Pippins and Bellflowers, the markets being the larger Eastern cities and the principal cities of Great Britain, which last consume a large portion of the product. Under the stimulus of this California apple show the industry has progressed in fifteen counties of the state during the last year

SITUATION WANTED

By nursery foreman. Wide experience in floral and horticultural work, two years in West. Am single and can furnish first-class reference. Would like position taking care of large starting or bearing orchard. State full particulars in first letter. Hevelingen, care "Better Fruit."

J. M. SCHMELTZER, Secretary

HOOD RIVER ABSTRACT COMPANY

Hood River, Oregon

ABSTRACTS INSURANCE
CONVEYANCING

"I HAVE SO LITTLE FUNGUS

That I cannot afford to mark my fruit with bordeaux," says Mr. George T. Powell, of Ghent, New York, a grower of fancy apples. "I have less scale and finer foliage than ever before."
Reason: Five years' consecutive use of

"SCALECIDE"

Cheaper, more effective, and easier to apply than lime-sulphur
Send for booklet, "Orchard Insurance"

PRICES: In barrels and half-barrels, 50c per gallon: 10-gallon cans, \$6.00; 5-gallon cans, \$3.25; 1-gallon cans, \$1.00

If you want cheap oils, our "CARBOLEINE" at 30c per gallon is the equal of anything else
B. G. PRATT CO., Manufacturing Chemists, 50 Church Street, NEW YORK CITY

J. F. LITTOOY

CONSULTING HORTICULTURIST

Orchard director, orchard schemes examined, orchard plans submitted, orchard soils and sites selected, nurseries visited and stock selected, values examined for farm loans, purchasing agent for land and orchard investments, acts as power of attorney in selection of Carey Act lands.

MOUNTAIN HOME, IDAHO

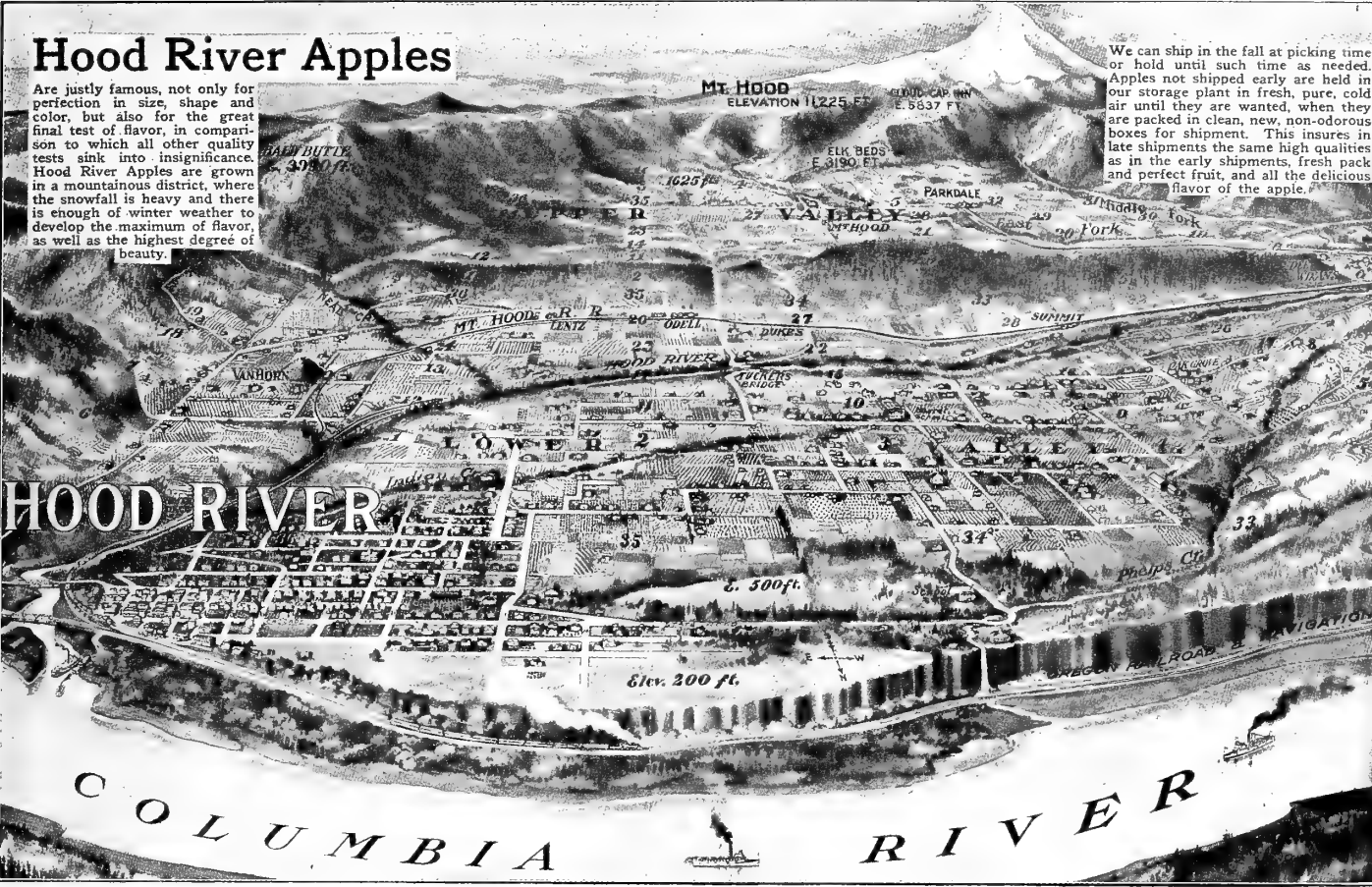
NURSERY

Doing good retail business for sale. Address Box 431, Cashmere, Washington.

Hood River Apples

Are justly famous, not only for perfection in size, shape and color, but also for the great final test of flavor, in comparison to which all other quality tests sink into insignificance. Hood River Apples are grown in a mountainous district, where the snowfall is heavy and there is enough of winter weather to develop the maximum of flavor, as well as the highest degree of beauty.

We can ship in the fall at picking time or hold until such time as needed. Apples not shipped early are held in our storage plant in fresh, pure, cold air until they are wanted, when they are packed in clean, new, non-odorous boxes for shipment. This insures in late shipments the same high qualities as in the early shipments, fresh pack and perfect fruit, and all the delicious flavor of the apple.



Will make early quotations on carloads and solicit your business

DAVIDSON FRUIT CO. Hood River, Oregon

SAWYER & DAY Wholesale Dealers and Jobbers of FOREIGN & DOMESTIC FRUITS

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We desire to get in touch with the best apple growers associations and private shippers in the Northwest. We are familiar with the quality and grade of Western box apples and we have an extensive acquaintance with the trade throughout New England that are looking for fancy boxed apples. Therefore we feel confident that we can assure splendid returns on all fruits that may be consigned to us, and consequently we feel justified in asking for your trade, and in order to get better acquainted with the fruit shippers when the apple season is on, we solicit correspondence in advance.

Our reference—Faneuil Hall Branch of the Beacon Trust Company, Boston, Massachusetts.

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Some Class TO OUR NEW STORE
S. W. Corner Dock and Walnut Streets

20 YEARS' EXPERIENCE AS SELLERS, IMPORTERS AND GROWERS
MAKE US LEADERS

FRANK W. STANTON & CO.

Can furnish reference from ocean to ocean

Lewiston-Clarkston School of Horticulture

Owners of fruit land in the Lewiston-Clarkston district, conceiving that in the long run the value of their lands will depend upon the scientific knowledge and skill with which the orchards are conducted, have deemed it wise to establish a school under the management of one of the most distinguished teachers of horticulture in the United States, at which instruction will be given not inferior in quality to that offered at the best agricultural colleges.

INSTRUCTION IS OFFERED FREE TO ORCHARDISTS OF THE DISTRICT

Thorough courses are given in the growing of orchards and the harvesting of fruit, including the following subjects: Principles of Fruit-growing, Nursery Practice, Vegetable Gardening, Small Fruits, Plant Diseases, Insect Pests, Spraying, Harvesting, Packing and Marketing of Horticultural Crops.

The school is under the direction of W. S. THORNBUR, M. S., graduate and post-graduate of South Dakota Agricultural College; post-graduate Cornell University, Ithaca, New York; instructor in Horticulture, South Dakota Agricultural College, 1897 to 1904; tutor, Department of Horticulture at Cornell University, 1905; professor and head of Department of Horticulture, Washington State Agricultural College, 1905 to 1911.

Associated with him is an able corps of instructors of technical training and practical experience both in the class-room and in the field.

Much emphasis is laid upon the laboratory work, which occupies a great portion of the instruction, and for which there are unusual opportunities in the Lewiston-Clarkston Valley, where are to be found apples, pears, peaches, plums, cherries and European grapes, besides other varieties of fruit, in large quantities and in various stages of development.

Special attention is given to the study of irrigation with two large irrigation systems in operation in the valley.

Address W. S. THORNBUR, Lewiston-Clarkston School of Horticulture, Lewiston, Idaho

FEATURES IN WASHINGTON STATE FAIR PRIZES

THE annual prize list and catalogue of the Washington State Fair, September 25-30, at North Yakima, is being issued, and contains many new features. One idea is carried out by the suggestions of the fruit growers at their annual session last January. A number of varieties of apples are eliminated from the prize list on the theory that experience shows they have no commercial value, and it has been deemed best to confine the prize money to those varieties that are making the Northwest famous as an orchard section. It has been suggested that the Washington State Fair adopt the plan of many others in the country and make their prizes in all divisions open to the world—the same as they have always been in the livestock division. The theory is that if Oregon, Idaho or British Columbia are producing anything better than the Washington product our people ought to have a chance to see it and learn how the improvement has been accomplished. This idea is purely educational, and if carried out will be of value to Washington producers notwithstanding the fact that the idea is opposed by some producers of the state. The officers of the Washington State Fair have been notified that the railways of the state will give a round trip rate of fare and one-third. These rates are concurred in by the Oregon-Washington Railway & Navigation Company, the Northern Pacific and the Spokane, Portland & Seattle. The rate will apply from Sep-

tember 24 going till October 1 returning. A modest effort is being made to improve the State Fair grounds at North Yakima, and when the fair takes place visitors are going to be agreeably surprised. The state now has a fair plant the realty value of which is over \$150,000, exclusive of buildings, and until last year no attempt was made at beautifying the site or taking advantage of the natural advantages offered. This year over two hundred trees have been planted around the permanent buildings and drives, new lawns started and a general plan of ground improvement inaugurated on a small scale. The work will add greatly to the pleasure of those attending the State Fair.

FRUIT Western Soft Pine. Light, strong and durable.
"Better Fruit" subscribers demand the "Better Box."
BOXES

CAN MAKE TWO CARRIAGES DAILY

Washington Mill Co.

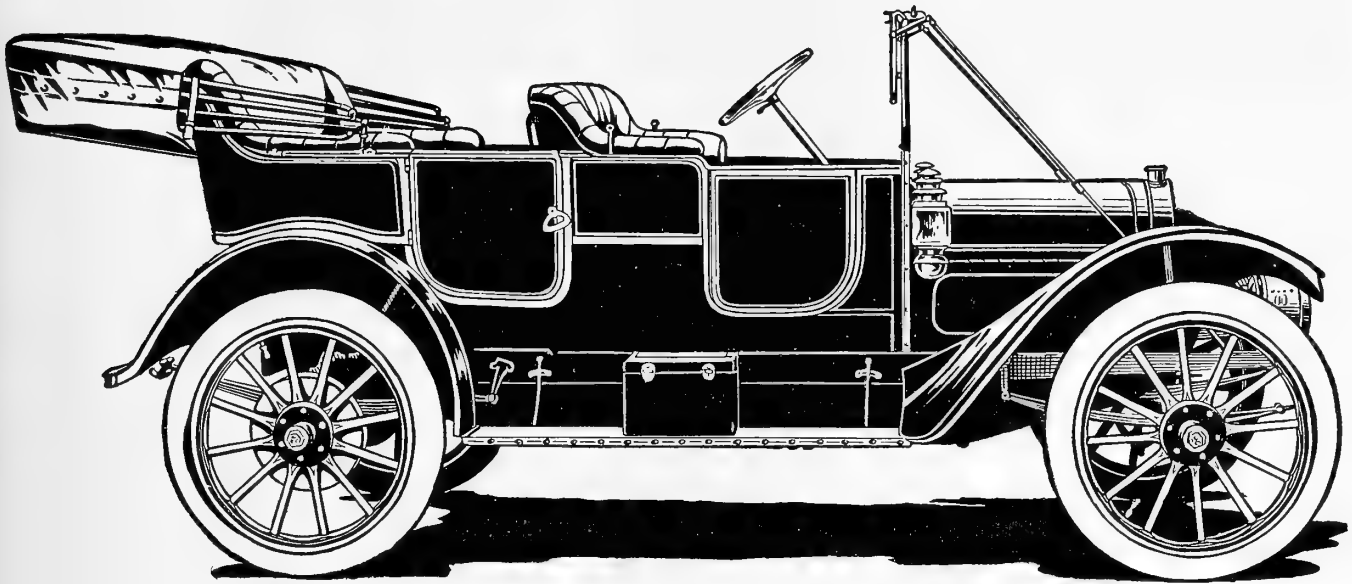
Wholesale Manufacturers

Spokane, Washington

BARNETT BROS. 159 South Water Street
CHICAGO

A Minute's Talk

with Western Fruit Associations, particularly those dealing in Apples, Cantaloupes and Peaches, are invited to correspond with us. We are able to put before you a plan for marketing your output in a manner satisfactory to you and mutually profitable.



The **REO** Sensation for 1912

This Car for \$1,000

(Price Subject to Change Without Notice)

Here is the first attempt to sell a high-grade car—roomy, luxurious, speedy and powerful—for an even-thousand dollars. It is the latest design of Mr. R. E. Olds—the finest car which this famous factory ever sent out from its doors.

The price is subject to change; it may be impossible. We count that this price will add 50 per cent to our output without added overhead expense. If it does, the price becomes possible—at the present cost of materials. If we find it impossible we shall later advance it. For we never shall skimp on any part of this car to keep the price at \$1,000.

Every Reo agent now has this car on exhibit. Each now offers this initial price. And you will find no car under \$1,500 which compares for a moment with it.

How We Did It

Year after year we have constantly increased our output. Part by part we have brought the Reo car to perfection. Gradually each important part has been standardized, and permanent machinery has been adapted to it.

Year by year we have equipped ourselves to build every part of the car—to cut off the profits of parts-makers.

All the costly experiments are ended now. The expensive changes have all been made. Our machinery, dies, jigs and tools need no more alteration.

Some expensive materials, like tires and steel, are costing less than formerly. Our selling cost is a great deal less, because of our organization.

We have enormous capacity and our output can now be increased by half

The new Reo "Thirty," with fore-door, five-passenger tonneau. Four 4x4½-inch cylinders—108-inch wheel base—34x3½-inch tires—the best of magnetos. Our latest and finest creation—a roomy, powerful, stunning car—for an even-thousand dollars.

Top and windshield not included. We equip this car with a Mohair Top and Slip Cover, a Mezger Automatic Windshield, a Speedometer and a Gas Tank—all for \$100 extra.

with no extra cost save for materials and labor.

For all of these reasons, the time seems at hand when a car of this class can be sold for \$1,000. And, until further notice, we are going to try it.

No Skimping Whatever

We pledge you our word that in adopting this price, we have not skimped the car in the slightest particular. This is the finest model, regardless of price, that we ever turned out from our factory.

It is the best car we can make. It is as good a car as any man, at any price, can make.

The car is built under laboratory supervision of the most scientific sort. The steel for each part is analyzed. It is tested for tensile strength and for hardness. Nothing is left to chance.

The gears are tested in a crushing

machine, to withstand a pressure of 27½ tons. The bearings are fitted with the best roller bearings—the Timken and the Hyatt High-Duty. The carburetor is adapted to the present grades of gasoline.

All that is known to the best modern practice is embodied in this car. From the big tires and wheels down to the smallest hidden part, we are giving you better than necessary—the very best we know.

Designed by R. E. Olds

This car was designed by Mr. R. E. Olds, the dean of automobile designers. It is built under his supervision.

Long before the days of automobiles Mr. Olds was building famous gas engines. In the early days of the motor car he built the only cars worth having. And in every step of progression since, Mr. Olds has kept well in the lead.

This car we are selling for \$1,000 is Mr. Olds' latest creation. It embodies all his skill and experience. And all his reputation as a great engineer is staked on this Reo car.

Ask for Details

On this car we publish complete specifications. We state every material, every feature, every detail of the mechanism. We do this to help you compare this car with the highest-priced cars in existence.

Please write for these facts. Then go to the nearest Reo agent and see the car itself. This is the first great car to sell for \$1,000. And, if the price is found possible, it is bound to change the whole motor car situation.

R. M. Owen & Co., General Sales Agents for **Reo Motor Car Co., Lansing, Mich.**

MOVING THE GREAT SOUTHWEST MELON CROP

THE Southern Pacific Company has practically completed one of the greatest crop movements in the history of any transportation company in this country. This movement was the handling of the cantaloupe crop of the Imperial Valley, California, and of the crop in Arizona and Nevada. Up to and including midnight, July 24, the Southern Pacific Company had shipped 2,844 cars of cantaloupes out of the Imperial Valley during the season of approximately two months. About one hundred more cars remain to be shipped from this point to the markets. This record exceeds all previous shipments by approximately 1,000 cars. The cantaloupe crop of Arizona up to and including July 24, amounts to 403 cars, with about 300 more cars of this fruit to be shipped. About twenty-five cars have already been shipped from the Moapa district in Nevada by the San Pedro, Los Angeles and Salt Lake road, about 100 more remaining to be shipped.

Nearly 57,000,000 pounds of ice were required for the shipping of these cantaloupes. The biggest day's picking was June 11 when 133 carloads were harvested. These cars were hauled from Brawley, the shipping center, to Imperial Junction on the main line of the Southern Pacific, in one train, the length of which was 6.175 feet, considerably more than a mile. There were 324 crates in each car and forty-five melons to the crate, or a total number of 14,580 melons in each car, and in this long train 1,939,-

140 melons. The largest previous train-load of cantaloupes was shipped from the Imperial Valley in 1908, eighty-nine cars moving over the Southern Pacific lines to Eastern points. When one appreciates the fact that each of these melons were handled at least three times, in picking, wrapping and crating, they can readily imagine the army of men necessary to do this work. Two and a quarter million dollars is the estimate of value put on the Imperial cantaloupe crop, now that the season is near its end. One feature of this year's output is that, despite its size, the melons have been of better quality than ever before.

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420 Acres Devoted to Nursery Purposes

THE WOODBURN NURSERIES

Established 1863 by J. H. Settlemier

Grower of Choice

NURSERY STOCK

F. W. SETTLEMIER

Woodburn, Oregon

NEW RESIDENTS

We are always pleased to extend courteous assistance to new residents of Hood River and the Hood River Valley by advising them regarding any local conditions within our knowledge, and we afford every convenience for the transaction of their financial matters. New accounts are respectfully and cordially invited, and we guarantee satisfaction. Savings department in connection.

HOOD RIVER BANKING AND TRUST COMPANY
HOOD RIVER, OREGON

LESLIE BUTLER, President
F. McKERCHER, Vice President
TRUMAN BUTLER, Cashier

Established 1900
Incorporated 1905

Butler Banking Company

HOOD RIVER, OREGON

Capital fully paid \$50,000 Surplus and profits over \$50,000

INTEREST PAID ON TIME DEPOSITS

We give special attention to Good Farm Loans

If you have money to loan we will find you good real estate security, or if you want to borrow we can place your application in good hands, and we make no charge for this service.

THE OLDEST BANK IN HOOD RIVER VALLEY

LADD & TILTON BANK

Established 1859

Oldest bank on the Pacific Coast

PORTLAND, OREGON

Capital fully paid - - - - - \$1,000,000
Surplus and undivided profits - - - - - 800,000

Officers:

W. M. Ladd, President R. S. Howard, Jr., Assistant Cashier
Edward Cookingham, Vice President J. W. Ladd, Assistant Cashier
W. H. Dunckley, Cashier Walter M. Cook, Assistant Cashier

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Accounts of banks, firms, corporations and individuals solicited. Travelers' checks for sale, and drafts issued available in all countries of Europe.

CAPITAL STOCK \$100,000 SURPLUS \$22,000

FIRST NATIONAL BANK

HOOD RIVER, OREGON

F. S. STANLEY, President
J. W. HINRICHS, Vice President
E. O. BLANCHAR, Cashier
V. C. BROCK, Assistant Cashier

ESPECIAL ATTENTION AND CARE GIVEN TO BUSINESS DEALS FOR NON-RESIDENT CUSTOMERS

Thorough and Conservative

Assets over \$500,000

Savings Bank in connection

Order Direct and Save Agent's Profit

Why not order your nursery stock direct from us, and save that 25 per cent commission which most nurserymen allow their salesmen? The price we name for our stock is a price based on actual growing cost, plus our one small margin of profit, a price eliminating all traveling men's expenses, dealers' profits and agents' commissions. Write us before placing your order.

DONALD NURSERY COMPANY, Donald, Oregon

GAMBLE-ROBINSON COMMISSION CO.

Wholesale Fruits

Our Specialties

Box Apples

Elberta Peaches

WE—WITH OUR SEVERAL ASSOCIATE HOUSES—HANDLE SEVERAL THOUSAND CARS OF APPLES, PEACHES AND OTHER FRUITS ANNUALLY. WE WANT TO CONTRACT NOW WITH CARLOAD LOT SHIPPERS.

ASSOCIATE HOUSES:

Gamble-Robinson Fruit Co., St. Paul

Gamble-Robinson Fruit and Produce Co., Mankato

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Gamble-Robinson Co., Rochester, Minnesota

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Gamble-Robinson Fruit and Produce Co., Pipestone, Minnesota

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Have for the coming season a very complete line of

NURSERY STOCK

Newtown and Spitzenberg propagated from selected bearing trees. Make no mistake, but start your orchard right. Plant generation trees. Hood River (Clark Seedling) strawberry plants in quantities to suit. **Send for prices.**

RAWSON & STANTON, Hood River, Oregon

Nursery Stock of Absolute Reliability

That's the only kind to buy. Good trees bring success and poor trees failure. Fruit growers know this. They do not experiment. They buy non-irrigated, whole root, budded trees, and we number scores of them on our list of well pleased customers. We have prepared this season for an immense business. That means trees, trees, trees without limit as to variety and quantity. We also have an immense stock of small fruits and ornamentals. We solicit your confidence, and will take care of the rest. Catalogue on application.

Salem Nursery Company, Salem, Oregon

Reliable and live salesmen wanted.

G. M. H. WAGNER & SONS

EXPONENTS AND PURVEYORS OF

High Grade Box Fruits

MARKET CREATORS AND DISTRIBUTORS

Located for forty years in the largest distributing market in the world. Correspondence invited

123 W. South Water Street, CHICAGO

IF YOU ARE INTERESTED IN CANNING YOU NEED THE BOOK

“A Complete Course in Canning”

PUBLISHED BY A CANNED FOOD AUTHORITY

Contains 245 pages. Is well printed. Neatly bound in cloth

Price \$5 cash with order

Postage paid anywhere in the United States

Order through “BETTER FRUIT,” Hood River, Oregon

SEND FOR LIST OF CONTENTS, IF IN DOUBT

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with some of the up-to-date shippers and packers of fancy apples in your section. We have a market for fancy apples that is second to none in this country, and believe it will be to your advantage to get acquainted with us and this market.

We want to do business only with those who put up a well packed box, and who will respect grades.

H. B. FISKE & CO.

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PROVIDENCE, RHODE ISLAND

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FOREIGN AND DOMESTIC FRUITS AND VEGETABLES

All Popular Codes. Cable Address "Cloeifield." Bankers: National Bank of the Republic

THE BEST CHICAGO CONNECTION

Growers and shippers of Western fruits must have proper connections in Chicago if they expect to realize full market value of their fruit.

We have the best of connections on all the larger markets and the confidence and patronage of the carlot buyers on the smaller markets.

We have the most favorable auction connections and a good auction market in Chicago.

We have a large and attractive jobbing house on South Water Street and a thoroughly organized and competent sales force for handling local and country orders.

We have the organization and equipment for obtaining the full market value of fruits and vegetables when conditions are most unfavorable, as well as favorable.

Let us hear from you at once as to what you have to sell.

CRUTCHFIELD, WOOLFOLK & CLORE

ENCOURAGING MELBOURNE, AUSTRALIA, NEWS

IN accordance with the progressive immigration policy of the commonwealth government of Australia, instructions were recently given by the Department of External Affairs to the Horticultural Press of Australasia, 44 William Street, Melbourne, Victoria, Australia, to forward a special issue of their fruit magazine, "The Fruit World of Australasia," direct to the farmers and fruit growers of Great Britain. This is the third time the commonwealth government has approached the English producers direct through "The Fruit World of Australasia," with the result that many of the right class of immigrants have come to Australia. All the states have received considerable benefit, as settlers, after reading the practical articles dealing with the several states, have made their homes accordingly, and in doing so have brought considerable capital with them. Immigrants have arrived from the various English counties. Kent, Somerset, Devonshire, etc., through "The Fruit World's" influence, many of whom in the past few months have voluntarily testified to the value of having received in their own homes in Great Britain a copy of that publication. There surely cannot be any more direct and convincing way to attract the right class of settlers than this. It shows that there are good, live men administering affairs in Australia. The illustrations of the issue just published depict various orchard and fruit scenes typical of

Australian conditions. There is also an illustration showing the sturdy type of settler Australia is receiving from England and the United States of America; it also shows the steamships arriving filled with immigrants, describes the opinions by those who have already touched conditions there. It also shows the steamships leaving loaded with fruit grown by men who immigrated over thirty years ago to the country of sunshine and the Southern Seas.

[Editor's Note—One of our subscribers in Australia has sent us the above article, which shows the work that is being done by the English government to develop the fruit industry in Australia. "The Fruit World" is a fruit growers' paper published in Australia, and it is being mailed and distributed extensively throughout England, Ireland and Scot-

land at the expense of the government for the purpose of getting settlers to go to Australia to help develop the fruit industry. We cannot help but add that "Better Fruit" has been built entirely without public support. We wish the good Lord that we had some government, state or publicity organization to do as much for "Better Fruit" as the English government is doing for "The Fruit World," published in Australia.]

◆ ◆ ◆

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.

CHICO NURSERY COMPANY

GROWERS OF

High Class Nursery Stock

The best that good soil, care, skill and long experience can produce

Write us for prices on Grape Vines, Cherries, Apples, Peaches, Pears, Nut Trees, Ornamental Shade Trees, Flowering Shrubs and Roses
Peach Seed For Sale. Catalogue Free

CHICO NURSERY COMPANY, Chico, California

OPEN LETTER TO NORTHWESTERN SHIPPERS

There are three (3) essentials to Successful Marketing

First—Facilities and Organization

Second—Expert Salesmanship

Third—Judgment, based on Knowledge and Experience

If you want maximum results communicate with us.

Yours truly,

CRUTCHFIELD & WOOLFOLK

PITTSBURG, PENNSYLVANIA

FREE EXPERT ADVICE

By Professor A. Van Holderbeke, five
years Washington State Horticulturist,

TO FRUIT GROWERS

Purchasing high grade nursery stock,
guaranteed true to name, from the

Van Holderbeke Nursery Company

Main Offices:
Columbia Building
Spokane, Washington

RELIABLE
AGENTS
WANTED

Nurseries:
Spokane Valley and
Kennewick, Washington

BUTTE POTATO & PRODUCE CO.

BUTTE, MONTANA

Jobbers of All Farm and

Orchard Products

We have a large outlet for fruits
and vegetables. We want to hear
from shippers.

A. J. KNIEVEL, President and Manager

Sixteen years' experience on the
Butte market.

THE EVANS & TURNER CO.

COLUMBUS, OHIO

ARE OPEN FOR CONNECTIONS IN THE EXTREME WEST ON

Apples, Pears and Peaches

We are members of National League of Commission Merchants and the Produce Reporter Company
References: The Union National Bank, Columbus, Ohio; Union Savings Bank, Manchester, Michigan

OVERCOMING THE POWER SPRAYING DIFFICULTY

W HILE the power sprayer has been considerably improved during the past few years there still remain some weaknesses for the genius of inventors and manufacturers to overcome. Among these the first to be encountered by the beginner is likely to be the inherent difficulties in the management of a gas engine. These, however, in most cases succumb to experience and acquaintance with the machine, and in few cases are due to defects either in design or construction. Therefore, this presents a problem not so much to the manufac-

turers as to the users of power sprayers. The gas engine has become quite well standardized, and seems incapable of much further improvement. The next observable weakness is likely to be found in the pump mechanism. Few people realize the great strain involved in operating a pump at 200 pounds pressure. Neither is the corrosive effect of various spray mixtures upon the metal surfaces fully appreciated. The importance of using brass wherever possible can hardly be overestimated. The cutting effect of the mixtures, moving at

high velocities, especially when carrying more or less sediment, soon becomes apparent in the valves and packings. Hence it is important that all possible parts be easily accessible for repair or renewal. Next might be mentioned the unsatisfactory results very frequently obtained at the nozzles. There are innumerable patterns of nozzles—good, bad and indifferent. The pattern most commonly used in the West, the Bordeaux, is quite generally condemned because of the rapid wear of the surfaces, against which the liquid impinges, and inability to renew them. Greater durability and ease of renewal is certainly very desirable. Round nozzles with renewable disks, which throw a direct and positive spray of the same general character as the Bordeaux, have appeared on the market and promise to rapidly displace the latter. Improvements are rapidly being made in this line and the newer types of nozzles are being eagerly sought by progressive growers.

Probably the most difficult problem of all lies in the means for controlling pressure. That the ordinary relief valve used for this purpose is unsatisfactory no one who has nursed one through a season will deny. It may work pretty well for a short time, but soon it becomes partially, if not wholly, unreliable, and is a source of constant annoyance and anxiety. This problem seems incapable of solution with the present style of valve. Recently a new method of pressure and local control has been devised and patented, which operates by "short circuiting" the pump and throttling the suction automatically when the pressure runs too high. This method greatly increases the efficiency of the sprayer, but is somewhat expensive compared with a relief valve, and growers are still looking for a cheap and effective means of controlling pressure. That present day genius and experience will soon solve this problem we have no doubt. Much greater attention is being paid to the perfecting of power sprayer accessories than ever before, and some factories are making it an exclusive business. It is a long road to perfection in any line of manufacture. The perfect power sprayer may never be built. There will doubtless still remain much more room for improvement when the problems mentioned have all been solved.—Contributed.

The PACIFIC MONTHLY

has just closed the most successful and prosperous year in its history. We want to make 1911 even more successful than the year just passed. We want *your* name upon our subscription list. Here are a few facts which will help you to decide the question of subscribing,

¶ The Pacific Monthly is recognized as the most successful independent magazine in the West. It publishes each month artistic and unusual duotone illustrations of beautiful Western scenery, studies of Indian heads, or of animal life, ranging from Alaska, on the North, to Mexico on the South, and as far afield as Japan and the South Seas. From its striking cover design to the last page you will find a feast of beautiful pictures.

¶ Each month it publishes from five or six short stories by such authors as Jack London, Stewart Edward White, Harvey Wickham, D. E. Dermody, Seumas MacManus, Fred. R. Bechdolt, and other well known writers of short stories. Its stories are clean, wholesome and readable.

¶ Each month one or more strong articles are published by such writers as William Winter, the dean of dramatic critics, John Kenneth Turner, the author of "Barbarous Mexico", Rabbi Wise, the noted Jewish Rabbi, and John E. Lathrop, who contributes a non-partisan review of national affairs. Charles Erskine Scott Wood contributes each month under the title of "Impressions" a brilliant record of personal opinion.

¶ The Pacific Monthly has become noted for having published some of the best verse appearing in any of the magazines. Charles Badger Clark, Jr., contributes his inimitable cowboy poems exclusively to The Pacific Monthly. Berton Braley, George Sterling, Elizabeth Lambert Wood, Wm. Maxwell, and other well known poets are represented by their best work in our pages.

¶ A feature that has won many friends for The Pacific Monthly has been our descriptive and industrial articles. During the coming year one or more such articles will be published each month. Articles now scheduled for early publication are: "Money in Live Stock on the Pacific Coast", "Success with Apples", "Nut Culture in the Northwest", "Success with Small Fruits", "Fodder Crops in the Western States".

¶ In addition to these articles the Progress and Development Section will give each month authoritative information as to the resources and opportunities to be found in the West. To those who are planning to come West, the descriptive illustrated articles on various sections of the West will be invaluable.

¶ If you want a clean, fearless, independent magazine—one that will give you wholesome, readable stories, authoritative, descriptive articles of the progress being made in the West, a magazine that believes thoroughly in the West and the future destiny of the West—you will make no mistake in subscribing for the Pacific Monthly. Its subscription price is \$1.50 a year. To enable you to try it for shorter period, however, we will give a trial subscription of six months for \$.50.

¶ Fill out the coupon below and send it with \$.50 in stamps to The Pacific Monthly Company, Portland, Oregon.

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Portland, Oregon

Gentlemen:—Enclosed find fifty cents in acceptance of your special offer of a trial subscription for six months.

Name.....

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APPLE SPECIALISTS

Write for Memo Loose Leaf Book. Mention "Better Fruit"

119 W. South Water Street, CHICAGO

Associations, Independent
and Individual Shippers

We desire to get in touch with you for the purpose of arranging to handle your apples. To that end we ask you to please write us at once, giving estimate of what your crop will consist of and the varieties of apples you will have.

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Stacy Mercantile Company, Valley City, N. D.
Stacy Fruit Company, Bismarck, N. D.
Stacy Fruit Company, Carrington, N. D.
E. P. Stacy Fruit Company, Watertown, S. D.
E. P. Stacy & Sons Company, Mason City, Iowa
Stacy Fruit & Produce Company, Albert Lea, Minn.
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Davidson Brothers Company, Des Moines, Iowa

E. P. STACY & SONS

Largest Handlers of
Western Deciduous
and Citrus Fruits

Correspondence Solicited

MINNEAPOLIS, MINNESOTA

Founded 1839

Capital, \$150,000.00, paid in

Incorporated 1904

JOHN NIX & COMPANY

281 Washington Street, NEW YORK CITY
WESTERN OFFICE, 220 No. State Street, CHICAGO, ILLINOIS

Pacific Coast Fruits and Vegetables

Our Store Centrally Located. One Block from Erie R. R. Depot

A. LEVY & J. ZENTNER CO.

NORTHWEST CORNER OF DAVIS AND WASHINGTON STREETS

SAN FRANCISCO, CALIFORNIA

The largest dealers in and distributors of Box Apples on the Pacific Coast

Get in touch with us. Let us know what you have to dispose of. Best modern cold storage facilities
Inquire about us of any bank, mercantile agency, Produce Reporter Company, or the manager of your
association

LET US HEAR FROM YOU

S. SEGARI & COMPANY

No. 109 Poydras Street
New Orleans, Louisiana

Next door to the auction room, will be our headquarters for California deciduous fruits and box apples. Remember, we keep experienced salesmen at the Illinois Central Railroad fruit and produce sheds, also at the Louisville and Nashville Railroad watermelon and produce sheds. We are now ready to handle

Apples, Pears, Cantaloupes, Peaches

WRITE OR WIRE WHAT YOU HAVE

NEW ORLEANS

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The Acknowledged
FANCY FRUIT HOUSE
of New Orleans

IMPORTERS
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LAUX & APPEL

Wholesale
Commission

All Fruits in Season

Storage for 50 Cars

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YOU WANT

LINDSAY & CO. LTD.

Wholesale Fruits

HELENA, MONTANA

Established in Helena Quarter of a Century

Branch houses: Great Falls, Mis-
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Fruit and Produce

306-310 Poydras and 507-509 South Peters, NEW ORLEANS

Box Apples
Peaches, Pears and Cantaloupes

We are distributors. We reach all points tributary to New Orleans,
including Cuba, Panama and Central America

SOUTHERN OREGON NURSERIES

YONCALLA, OREGON

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GENERAL NURSERY STOCK PROPAGATORS

Stock clean and true. Budded or
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E. P. DREW
Consulting Horticulturist

30 years in business

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DEALERS IN

Commercial Fertilizers
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Hose, Nozzles, First-
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BURLINGTON, IOWA

TRIAL SHIPMENTS OF PEACHES TO GREAT BRITAIN

Continued from page 40 August issue "Better Fruit"

It is very important that peaches, in common with other tender varieties of fruit, should be cooled as quickly as possible after they are picked. As the St. Catharines Cold Storage and Forwarding Company, which packed the peaches for these shipments, have cold storage in connection with their packing house it was possible to cool about one-half of each shipment to about 40 degrees before loading them into the car. As the other half were only received from the orchard on the day of shipment they were packed and loaded direct into the iced car. At Montreal, as already stated, a difference of about 10 degrees was found between the peaches that had been pre-cooled and those that were not, the temperature in the one case being 44 degrees and in the other 54 degrees. One advantage of pre-cooling before shipment and the consequent retarding of the ripening process soon after the fruit is picked, is that the peaches may be allowed to get more mature on the tree, and thus improve the flavor and appearance.

The following letter from Captain H. E. Shallis, cargo inspector for Canadian Department of Agriculture at Bristol, dated September 28, 1910, regarding the shipment to Bristol on September 15, will be of interest:

I am pleased to report that this shipment was landed here in very good condition. Of the total of ninety-nine boxes (or trays, as they are termed here) fifty were retained for Bristol, twenty-five were sent to Cardiff and twenty-four to Birmingham, and were dispatched to their respective destinations without delay. Of the Bristol lot we had some boxes on show at the offices of the Bristol Fruit Brokers, with whom I had arranged for their disposal. The fruit was found to be firm, hard and green on arrival, though some were showing signs of color, and the first opinions expressed by those connected with the trade were that the fruit was somewhat disappointing, being small in size and not sufficiently rounded in shape compared with our house-grown fruit, but as the fruit ripened very favorable opinions have been expressed as to the color and quality. The boxes each contained twenty-three peaches, but there were two boxes of only twenty; these peaches were much superior in every respect as regards size, color and fleshiness, and more the class of fruit which would find ready acceptance with the public. The packing left nothing to be desired. The temperature kept on board the ship throughout the passage ranged from 34 to 36 degrees until the last day, when it was allowed to rise 50 degrees and slightly over. The day following the arrival of the fruit twenty-eight boxes were sold at \$1.44 per box, but, owing a great deal to the unripe condition, the others did not go off till yesterday, but on obtaining more maturity the fruit showed some waste, with the result that a lower price of ninety-six cents per box had to be taken to effect its sale, fearing further deterioration. In all we had to lose eight boxes in re-packing to make others sound, for the slightest spot or blemish rendered the fruit unsalable. From various opinions before me, I may say that the merchants are very favorably impressed and would welcome a large trade in this line, and trust that this may lead to further developments in all classes of fruit from Canada, for with the facilities of carrying in cold storage now available to this port a good opening affords itself.

The following report, under date of September 28, 1910, from Mr. W. A. MacKinnon, Canadian trade commissioner at Birmingham, England, will be found interesting:

It may not be out of place to report in some detail on the condition of the trial shipment of peaches which the Department of Agriculture sent to Bristol by the Canadian Northern steamship Royal Edward. This shipment is the first of a series which will be distributed from various points, including Glasgow, Liverpool and London. The present consignment of about one hundred single layer cases, holding twenty-three peaches each, was divided between Bristol, Cardiff and Birmingham. The fruit was shipped at Montreal on the fifteenth instant, reached Bristol on Thursday, the 22nd, was conveyed to Cardiff by Great

Western Railway and to Birmingham by Midland Railway, and placed on the markets of both towns on Friday morning, the 23rd instant. Samples were examined at the two last named places, where what remains unsold is still under observation. There is not a word to be said regarding package or packing, since both were entirely admirable. The excelsior is the finest and whitest I have seen used in Canada, and the packing everyone here considers absolutely perfect. As regards maturity, the first hasty comments of handlers and receivers were to the effect that the peaches had been picked too green. Even if that were so it would be a mistake on the right side, but in view of the rapid ripening, the weather here being unusually warm for the season, it is likely everyone will now say that they must have been picked at exactly the right stage of maturity. There is some trifling unevenness in the matter of size, and also of ripeness. As to the former it should be corrected, for the more even the size the better show will be made, but a little difference in maturity is helpful, since it allows the retailer time to sell the ripest before the others are quite ready. It has been pointed out that bruise and incipient rot should be guarded against. The former is usually understood, and it is gratifying to note that among all the specimens examined not one single peach appeared to have a finger or thumb bruise, and very few showed either cut or pressure such as might be made by the side or angle of basket or box; in fact the only bruises noticeable were such as appear to have been caused by undue pressure against the twig in the act of pulling off the fruit. Such marks, however, though generally found close to the stem, were not always in line with the hollow where the twig itself had been. It is, therefore, possible that in some cases at least this bruise has originated by the fruit being set down rather roughly on the stem end. In other cases, however, the injury is rather a break than a bruise, and has evidently been caused in the act of snapping off the fruit in such a way that a fragment of skin has been torn loose for perhaps a quarter of an inch from the point where the stem was detached. The loose flap thus formed could be distinctly seen in the midst of the rotted portion. It is probably impossible to avoid this injury to some peaches, but they should then be omitted from the shipment. What is called "incipient rot" may or may not have been discovered when the fruit was shipped; if not there is, of course, no help for it, but if on minute examination a spot is visible from which decay might be expected to radiate the peach should be discarded. A case was examined containing ten, more or less, damaged peaches, and it is reported that the number amounted sometimes to twelve, though, on the other hand, some cases showed not a single damaged specimen, and the average would apparently not exceed six. These figures apply to Saturday and Monday, the second and fourth days after landing. The decayed spots varied in size from a pin head to nearly an inch in diameter, but in every case there was clearly discernible

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a center, or heart, from which the trouble had originated and spread. The smallest of these spots were simply marks varying from whitish-yellow to a light brown color, from which the peach down was missing, so that there was a slight depression. Some receivers described the trouble as "dry rot," but none were able to state its cause with certainty. The smaller spots suggest the possibility that a strong sun had reached them through a drop of rain, which formed a temporary burning glass. Possibly, however, Canadian horticultural experts can indicate exactly the origin of this rot and point out a remedy, since it would probably make itself evident in similar lots of fruit cold-stored in Canada.

The government shipment appears to have been confined to the early Crawford, but a private exporter has sent to Birmingham one case of Crawfords and one of Fitzgeralds. The latter variety seems to have stood the journey very much better than the former, assuming that conditions were exactly similar at time of shipment. Only one or two specimens out of the case containing sixty-four peaches showed signs of damage or rot, while amongst the Crawfords the waste was much more considerable. On the other hand, the Crawfords had preserved much more of their natural flavor, and were on the whole of a better size for sale in the English markets.

The twenty-three peach cases were selling in Cardiff at \$1.44, and the fruit (which was prominently displayed and advertised by show cards calling attention to the fact that they were the first direct shipment of Canadian peaches to Cardiff) sold retail at twelve cents per peach. In Birmingham the price realized at market was \$1.20 per case, and the retail price eight cents each. The trade here pointed out that as this fruit is necessarily inferior to the best English hothouse varieties it cannot compete with the latter as choice dessert fruit, and that consequently it is better to fix the price from the beginning at a reasonable figure, which will allow a continuous supply being readily marketed hereafter. These peaches arrive just when the English peaches are disappearing, and should, therefore, find a ready sale at the price indicated. It is evident, of course, that in any case the question of profit or loss will be decided by the percentage of sound fruit capable of holding firm long enough to admit of disposal in retail stores.

It must be admitted that the Crawford is not entirely satisfactory as a long distance carrier, but as already stated the results of this first important experiment are on the whole surprisingly good. The gradual raising of the temperature is most desirable, and had in this case excellent results. Fruit packages quickly removed

from low temperatures to the outside air are often quite damp, owing to condensed moisture upon wrapper and packing material. The consignment under consideration was carefully examined, and no trace of moisture found, both fruit and wrappers being in excellent condition. It is too early to draw general conclusions, but in this matter of temperature again it is most gratifying to observe how successful has been this first experiment.

The Lord Mayor of Cardiff received a few specimens which he acknowledged as follows: "I must say the fruit was in excellent condition, and I am sure will find a ready and appreciative market in Cardiff and district. The samples were exceedingly choice and luscious."

Of the first London shipment, 78 cases Elbertas, 72 cases Old Mxon, shipped from Montreal September 17, landed at London September 29, Thomas E. Davis, cargo inspector for Canadian Department of Agriculture at London, says:

The stowage of packages showed good stave-doring, adequate space being allowed between cases owing to extra dunnage, whilst a tarpaulin was placed under head pipes to guard against

possible sweat. Immediately on arrival a quick start was made, the goods being on the market within three hours from breaking of cargo. Examining peaches I found the fruit sound, without marks, and of good appearance. The department's parcel opened sound, although hard, and in the opinion of Messrs. Monro not sufficiently ripe. In regard to the packages, I venture to say that the method of crating these cases together should be placed before shippers, as it certainly is an object lesson in packing, and if accepted as a standard crate would, I am sure, justify the reason of its adoption, as it not only minimizes the handling, but also the chance of plunder. With the absence of English peaches the varieties are eagerly sought for.

Of the second shipment, 324 cases Elbertas, 18 cases Old Mixon, shipped from Montreal September 24, landed at London October 7, Inspector Davis reports:

The cases came forward properly stowed, and carried at a temperature of 35 degrees, rising 40 degrees the last two days. At the time of discharge (6 p. m.) the atmospheric temperature stood at 58 degrees. When landed and delivered

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the packages were carefully handled and placed with the receivers within three hours of arrival. The peaches turned out well generally, the trouble being that here and there fine examples go off quickly, commencing with a small speck which rapidly spreads. This bad feature does not appear to be in any way associated with the packing. Messrs. Monro's theory is that the rot sets in by the fruit being punctured by insects. Personally I have wondered whether the adverse condition could not be attributed to change of temperature. The Elbertas sent by the department were packed twenty, twenty-three and twenty-five per case, the twenties being put up separately in wood wool, while the twenty-threes and twenty-fives were packed solid. Dealers have a preference for the former pack.

Regarding the third shipment, 198 Elbertas, shipped from Montreal September 30, arrived in London via Liverpool October 11, Messrs. Geo. Monro, Limited, Covent Garden Market, London, dated October 10, 1910, has this to say:

We are just in receipt of yours of the 30th ult., and we are pleased to note that you have sent these by Liverpool, being a quicker route than coming by the Thompson line. We are sorry to note that this will be the last shipment for the season, as we anticipated making a considerable trade in this fruit, but can see that the weather has been against it this year. We do not think it would be advisable to try to get any more for the peaches than we have done, as there are still a good few English ones about, and to make a trade it is a wrong principle to pinch the buyers too tightly, a good many of them already complaining that they could do a much larger trade at a little less money. There have also been some complaints of a percentage of them turning out in wasty condition, and this is probably through

the wet weather you refer to in your letter just received. We trust that our results will be entirely satisfactory to you and that it may lead to a larger business in the coming years. We must certainly congratulate you on the method of packing, as it is perfect and takes on at once with the buyers here, whereas, if they had the same fruit offered them in any other package than single layers it would not have realized anything like as much money.

Of first shipment, Liverpool 51 cases, Leeds 12 cases, Manchester 12 cases, variety Early Crawford, shipped from Montreal September 16, landed at Liverpool September 26, A. W. Grindley, chief cargo inspector for Canadian Department of Agriculture at Liverpool, under date of September 27, 1910, writes:

The above peaches, landed per steamship Megantic September 24th, and were discharged early September 26th. The Liverpool lot was sold in the commercial sales room at 3 p. m. September 26; the Manchester lot in Smithfield market about 6 a. m. September 27, and the Leeds lot in Kirkgate market at the same time as the Manchester lot. Liverpool made from 96 cents to \$1.02, Manchester \$1.32 and Leeds \$1.20. The peaches were carried at from 35 degrees down to 34 degrees, and today are still quite green, and I am afraid will not mature to perfection. The size of the fruit is good, style of packing and package perfect. You must remember when comparing prices realized that the Liverpool commercial sales room is wholesale, and can deal in large quantities, while Smithfield market, Manchester and Kirkgate market, Leeds, are like Queen's Square, Liverpool, where jobbers sell small lots on commission. Mr. Fred Bridge, Manchester, who realized \$1.32 per case, telephoned me today that he did not want any more than eight crates—twenty-four cases—from next shipment, so the smaller markets can only deal with very limited quantities. I understand that the bulk of the peaches sold here yesterday were bought by a Birmingham firm. Liverpool and Covent Garden are the great distributing centers for fruit in England.

Under date of September 29, in further reference to peaches mentioned above, Mr. Grindley writes:

Some of the peaches are standing up well, and are being retailed at eight cents and twelve cents

each. I fancy some cases on top and near coils in ship's refrigerator were too cold, while those which were not so much exposed appear to be turning out well. Peaches from the Cape could be carried at a lower temperature than Canadian peaches, as they arrive here during cold weather, while ours are discharged from a temperature of 35 degrees into a temperature of 70 degrees, and such a sudden change is bound to injure the fruit. I find California pears and plums which are landed in good condition quickly ripen, and go wasty during the warm weather. I noticed yesterday in

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CARLTON, OREGON

Queen's Square California plums which were carried at 35 degrees, which were running juice out of the chip baskets simply because they could not stand a sudden change of 30 or 35 degrees. The fruit should be kept for twelve hours in an intermediate temperature. Engineers should be instructed to allow the temperature of refrigerator chambers where delicate fruits (peaches, pears and plums) are stowed to gradually rise during the last twenty-four hours, so as to more nearly approach the temperature that the goods will have to meet when discharged.

In reference to second shipment, Liverpool 102 cases, Manchester 24 cases, Leeds 24 cases, variety Elberta, shipped from Montreal September 24, landed at Liverpool October 4, Mr. Grindley wrote under date of October 4, 1910:

The peaches were all in perfect condition when landed this morning, and will be sold in Liverpool commercial sales room tomorrow, except eight packages to Manchester and eight packages to Leeds. Temperature of thermograph 35 to 37 degrees, which I still continue to consider too low; better have 40 to 42 degrees, as the peaches are still on the firm side and have still to meet warm weather when discharged. This morning, three hours after being discharged from ship's refrigerator, moisture was condensing from atmosphere, and the wood wool and tissue paper wrappers were quite damp. This has a tendency to damage the fruit and make it go wasty. Members of the trade much prefer to have a band of wood wool around each peach, as it gives the fruit a better appearance when exposed for sale in the retail shops, as well as preventing the peaches bruising each other when ripe. As the fruit was all hard when landed there was practically no difference in condition on arrival, but the packages with only tissue paper and packed solid (twenty-threes and twenty-fives) were not nearly as attractive in appearance as the twenties, with wood wool bands around each peach.

Of the same shipment, under date of November 9, 1910, Mr. Grindley wrote:

Some of the peaches stood up well for ten days or a fortnight, and they took care of themselves, realizing twelve cents and sixteen cents each as Canadians, and in a few cases twenty-four cents or more as English hothouse. For future shipments

it would be well for the Department of Agriculture to advise Canadian shippers to confine their consignments to the ports of London, Liverpool and Glasgow, and to place their fruit in the hands of reliable firms at one or more of these ports, from which centers the fruit could be distributed to the best advantage to the inland towns. The port of Bristol might be added to the above three ports, as there is a good direct service from Montreal to Bristol, but Bristol and district can easily be supplied from London and lacks the competition between numerous buyers which is found at the three ports first mentioned. As it appears that Canada, in the near future, will have large quantities of peaches to export the idea of realizing fancy prices from a very restricted market will have to be thrown aside, and the fruit put on the British market at such a price that the middle classes will buy it.

Of first shipment, 57 cases Early Crawford, 36 cases Old Mixon, shipped from Montreal September 17, landed at Glasgow September 26, James A. Findlay, cargo inspector for Canadian Department of Agriculture at Glasgow, under date of September 27, 1910, wrote:

I am in receipt of yours enclosing copy of letter sent to Messrs. Simons, Jacobs & Co., relating to consignment of peaches, and, as instructed in yours, I cabled you the condition on arrival and prices secured: "Condition satisfactory, \$1.08



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Protects your trees against rabbits, mice and other tree gnawers; also against cut worms, sun scald, and skinning by cultivation. Cost is but a trifle. The value of one tree is more than the cost of all the Hawkeye Protectors you will need. Write for prices and full description.

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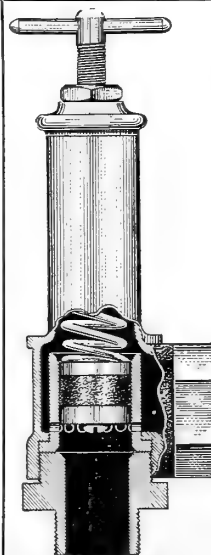
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per box." I examined them on arrival and got them passed by the customs officials immediately on discharge, and thereupon lifted by contractors for Messrs. Simons, Jacobs & Co.'s stores. The fruit landed in good order, and I saw only two peaches in the number of boxes I happened to see at the docks and in Messrs. Simons, Jacobs & Co.'s store when offered for sale showing slight touch of waste. Both varieties made the same price and were in equal condition.

Regarding second Glasgow shipment, 177 cases Elbertas, shipped from Montreal September 17, landed at Glasgow September 26, Mr. James A. Findlay, Glasgow, under date of October 7, 1910, wrote:

I regret the price is lower than last week; one item which is certainly affecting the price secured for your consignment to Glasgow is that Liver- and London are sending down small consignments to a few firms in the Bazaar, who are naturally pushing the sale with their own customers and are not committing themselves any further by buying those sent here direct. A fair test of the markets can only be secured by each distributing center depending on its own district. I did not cable the prices of the peaches on Tuesday as little or none were sold, and at the moment of writing there are still a few crates to sell. The firm condition of the peaches on arrival and when on offer tells against the sale, but buyers, as they become acquainted with the mature peach, will give greater support to consignments. The condition of the fruit was very satisfactory in both styles of packing, though the package of twenty peaches, showing each peach surrounded with wood wool, looks best, but one or two retailers whom I have spoken with on the matter prefer as little packing as possible.

These trial shipments have demonstrated that Canadian peaches can be delivered in Great Britain in good marketable condition, provided proper care is exercised in preparing them for shipment; that only peaches of good quality, of large size and with a touch of color should be shipped; that every detail of packing must be attended to with scrupulous care; that if peaches can be pre-cooled before shipping they may be picked in a more mature condition, which would add to their flavor, size and appearance; that shipment by fast freight in a well iced and properly loaded refrigerator car is better than by express; that in the ocean steamers any temperature between

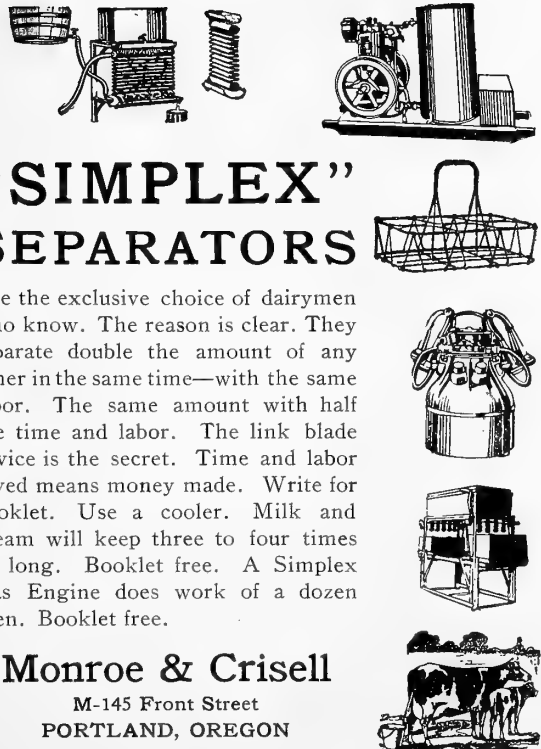


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PORTLAND, OREGON



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New York Cleveland Chicago St. Louis
Boston Buffalo Cincinnati San Francisco
(John T. Lewis & Bros. Co., Philadelphia)
(National Lead & Oil Co., Pittsburgh)



35 and 40 degrees will carry the peaches safely if they have been delivered to the steamship in right condition; that it is important to have the temperature gradually raised to about 55 degrees during the last thirty-six hours the fruit is in the ship's refrigerator, so that when it is landed there will be no condensation of moisture from the warmer outside air; that it would be an advantage if during the next few years all the Canadian peaches shipped could be sold by one broker in each of the principal markets so that undue competition might be avoided; that only a comparatively small quantity of our peaches can be disposed of in Great Britain at the prices realized for our shipments the past season, and that if our growers desire an outlet for a considerable quantity a much lower price will have to be accepted, and, finally, that the number of growers who are in a position to successfully cater to this export trade is limited, and that if it is gone into by the average grower or shipper, following the average slipshod methods, nothing but disaster may be anticipated.

Hood River Valley Nursery Company

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A Heavy Miscible Oil for Orchards and Gardens

An Effective EXTERMINATOR of all Insect Life, Germs and Vermin

We Guarantee Results

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Crest Spray is a soluble or miscible oil and mixes readily with water. It remains in solution, forming an emulsion. It is non-poisonous and harmless to operator. It requires no boiling or preparation like the Lime-Sulphur. Its use is a saving of time and money. Home-made Lime-Sulphur costs from 1 1/2 to 2 cents per gallon. Crest Spray costs from 1 1/2 to 3 cents per gallon. A gallon of Crest Spray has a covering power almost twice as great as Lime-Sulphur, reducing the most nearly one-half.

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One-gallon cans, per gallon . . .	1.50
Half-gallon cans, each90
Quart cans, each50
Pint cans, each30

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WITH EVERY SHIPPER OF

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THE MOST EXTENSIVE OPERATORS IN
HIGH CLASS FRUITS IN THE WORLD

THE Messrs. Steinhardt & Kelly take great pleasure in advising the fruit growers of the Northwest that a member of the firm will as usual make his annual trip to the Coast sometime during the latter part of August and the early part of September, for the purpose of acquiring, both by the outright purchase or such other method as agreeable to the growers, the large amount of reserve stock in all varieties of fruit which their business demands. Particularly do the Messrs. Steinhardt & Kelly wish to draw the attention of the growers to their practically unlimited outlet for fancy fruit and to their sincere belief in their ability to handle and dispose of the crops of the most extensive districts at prevailing market rates with celerity and dispatch. ¶ The Messrs. Steinhardt & Kelly might also incidentally mention that they have completed arrangements giving them cold storage space for several hundred carloads in the very best cold storage warehouses in the East and Middle West. ¶ All correspondence will get the prompt personal attention of a member of the firm

Oregon Agricultural College

The Oregon Agricultural College is eminent among the educational institutions of the West. It is notable because it serves the people, by and for whom it was established.

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Corvallis, Oregon



APPLE SEEDLINGS, WASHINGTON NURSERY CO., TOPPENISH, WASHINGTON
PHOTO AUGUST 9, 1911

WE reproduce herewith a photo of a field of apple seedlings in the Washington Nursery Company's sixty-acre seedling plant at Toppenish, Washington. This picture is of unusual interest to nurserymen, for it marks the permanent establishment in the Northwest of a business which is of vital importance to the nurseryman from the standpoint of convenience, but is of equal importance to his customers, whom he is trying to serve. Heretofore practically every seedling used in the large nursery plants of the Northwest has come either from the big seedling center at Topeka, Kansas, or from France or Holland, where most of the foreign stocks are grown. In either case the money goes away from the Northwest, and in the latter case goes abroad for a product inferior to our own. The Topeka-grown seedlings have generally been preferred by Northwestern nurserymen, but there has always been an aggravating delay in getting them on hand in time for an early start on the winter's grafting, besides which of late years there has been the constant fight against the wooly aphid, which in long-cultivated tree ground is a perennial pest.

The newly-cultivated lands of the Yakima Indian Reservation, where the Washington Nursery Company raises seedlings, are ideal in this respect, and the nurserymen are welcoming the opportunity of buying a clean, first-quality product at home, while the planter who buys trees, propagated on clean, home-grown stock is assured of thrifty, healthy trees, free from the troublesome aphid. The Washington people inform us that they have for eight years been experimenting with more or less quantities of French and American apple seed, and that their experience thus far has convinced them that the

French crab seed produces better roots and that the volcanic ash soil and silt of the Yakima Reservation is even superior to the famous loam of the Kaw River bottom in Kansas. It has cost a good deal of money, so they say, for experimental work, but for the past three years they have made a success, and they have now entered the field as commercial seedling growers. This year they planted ninety bushels of French crab seed and have a magnificent stand of splendid seedlings, which will grade principally number ones for grafting purposes. They state they already have orders booked for 1,660,000 and that the apparent shortage of larger grades in the Eastern plants indicate an early clean-up of their remaining surplus. The Eastern plants have this year suffered severely from drought, which will doubtless result in a larger percentage of small grades than usual. The Washington people, with their plant on irrigated land, have a sure thing in this respect, for with moisture under control, it is possible to keep the seedling growing every minute of the long, warm summer, and that means the larger grades sure and certain, which is the constant aim of the seedling grower. *

Do You Want a Home in the "BEAUTIFUL OZARKS" of Missouri

In the Famous Strawberry Land

Apples, peaches, pears, grapes, raspberries, etc., all grow excellently. Ideal location for dairy and poultry business. We offer for sale 60,000 acres of land in 40-acre tracts or more, cheap and on easy terms. Located in Stone and McDonald Counties.

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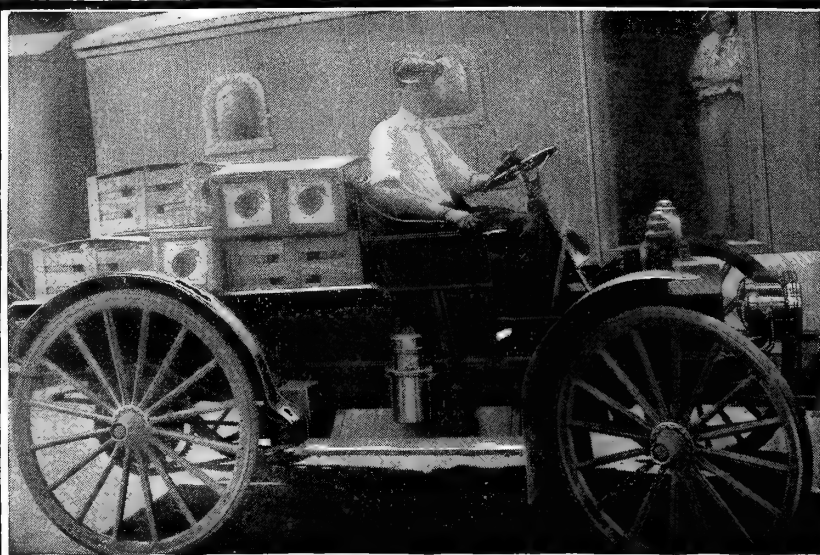
Campbell's publications explain the system.

- Campbell's Soil Culture Manual . . . \$2.50
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- Combination Price \$3.00

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Lincoln, Nebraska

When you write ask about the **Campbell Correspondence School.**



Quick Deliveries at Low Cost

WITH an International auto wagon you can deliver fruit and produce to your shipping-point in one-third the time and at less cost than you could with a horse-drawn vehicle. Besides, you know from experience that during hot weather these trips are tiresome and hard on the horses. An

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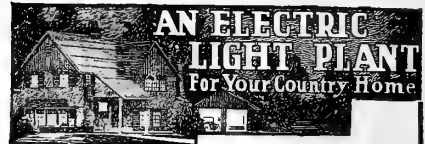
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Pure White 16-Candle-Power Light With this system you generate electric current by the means of a small gasoline engine driving a dynamo or generator at any convenient time. The current is run into a storage battery so you can have light anytime by turning on a switch. Charging of the storage battery is done once or twice a week, or whenever the engine is being run for other work.

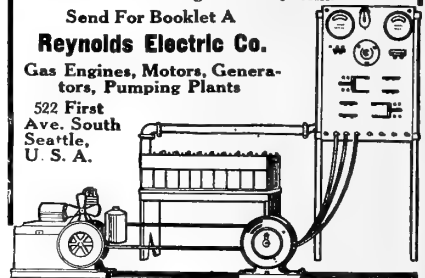
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Gas Engines, Motors, Generators, Pumping Plants

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THE Ballygreen System of selection and certification makes it possible for planters to secure clean, hardy nursery stock of proven quality and pedigree, propagated from the finest trees in the famous fruit valleys of the West.

Selected strains from the best prize-winning orchards, certified under affidavit, is fruit insurance to growers.

Our trees have the well-balanced roots and tops that skilled horticulturists aim to secure.

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Faculty Stronger Than Ever
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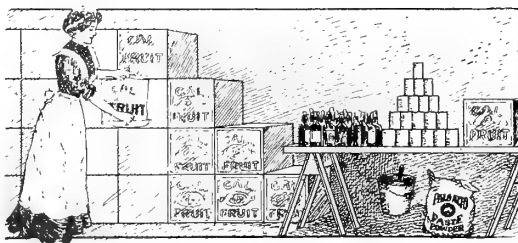
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You can place the latest model, genuine Domestic, the recognized queen of all sewing machines, in your home, use it continually while paying \$2 a month, and enjoy a very special price direct to you or from our nearest agency. A magnificent machine—a stupendous offer.

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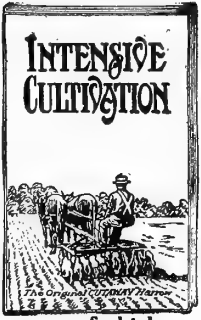
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THE TOOL that SAVES a TOOL

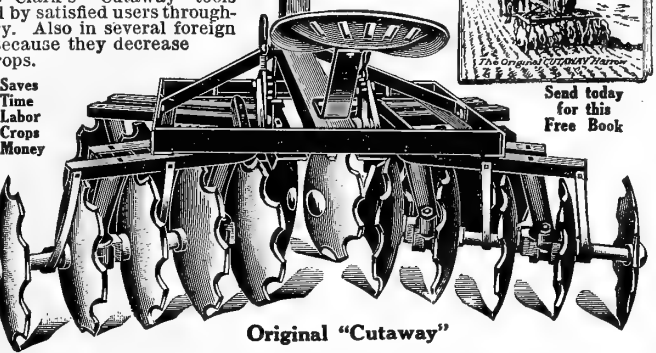
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are used and endorsed by satisfied users throughout this entire country. Also in several foreign countries. Why? Because they decrease labor and increase crops. Our disks are made of cutlery steel shaped and sharpened in our own shops and are the only genuine "Cutaway" disks.



Saves Time Labor Crops Money

Beware of imitations and infringements. We make a tool for every crop. If your dealer can't supply the genuine "Cutaway," write us your needs. Satisfaction guaranteed. Prompt shipments. Send a postal today for our new catalogue "Intensive Cultivation." It's Free.

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NORTHWEST 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**
- Eugene Fruit Growers' Association, Eugene;
 - Ashland Fruit and Produce Association, Ashland;
 - Hood River Fruit Growers' Union, Hood River;
 - Hood River Apple Growers' Union, Hood River;
 - Grand Ronde Valley Fruit Growers' Union, La Grande;
 - Milton Fruit Growers' Union, Milton;
 - Douglas County Fruit Growers' Association, Roseburg;
 - Willamette Valley Prune Association, Salem;
 - Mosier Fruit Growers' Association, Mosier;
 - The Dalles Fruit Growers' Union, The Dalles;
 - Salem Fruit Union, Salem;
 - Albany Fruit Growers' Union, Albany;
 - Cos Bay Fruit Growers' Association, Marshfield;
 - Estacada Fruit Growers' Association, Estacada;
 - Umpqua Valley Fruit Growers' Association, Roseburg;
 - Hyland Fruit Growers of Yamhill County, Sheridan;
 - Newburg Apple Growers' Association, Newburg;
 - Dufur Valley Fruit Growers' Union, Dufur;
 - McMinnville Fruit Growers' Association, McMinnville;
 - Coquille Valley Fruit Growers' Union, Myrtle Point;
 - Stanfield Fruit Growers' Association, Stanfield;
 - Oregon City Fruit and Produce Association, Oregon City;
 - Lincoln County Fruit Growers' Union, Toledo;
 - Rogue River Fruit and Produce Association, Medford;
 - Mount Hood Fruit Growers' Association, Sandy;
 - Northeast Gaston Farmers' Association, Forest Grove;
 - Dallas Fruit Growers' Association, Dallas;
 - Northwest Fruit Exchange, Portland;
 - Springbrook Fruit Growers' Union, Springbrook;
 - Cove Fruit Growers' Association, Cove;
 - Santiam Fruit Growers' Association, Lebanon;
 - Washington County Fruit Growers' Association, Hillsboro;
 - Benton County Fruit Growers' Association, Corvallis.

- Washington**
- Kennewick Fruit Growers' Association, Kennewick;
 - Wenatchee Fruit Growers' Union, Wenatchee;
 - Puyallup and Sumner Fruit Growers' Association, Puyallup;
 - Vashon Island Fruit Growers' Association, Mt. Vernon;
 - White Salmon Fruit Growers' Union, White Salmon;
 - Thurston County Fruit Growers' Union, Tumwater;
 - Bay Island Fruit Growers' Association, Tacoma;
 - Yakima Valley Fruit and Produce Growers' Association, Granger;
 - Buckley Fruit Growers' Association, Buckley;
 - Lewis River Fruit Growers' Union, Woodland;
 - Yakima County Horticultural Union, North Yakima;
 - Evergreen Fruit Growers' Association, R8, Spokane;
 - White River Valley Fruit and Berry Growers' Association, Kent;
 - Spokane Highland Fruit Growers' Association, Shannon;
 - Lake Chelan Fruit Growers' Association, Chelan;
 - Zillah Fruit Growers' Association, Toppenish;

- Kiona Fruit Growers' Union, Kiona;
- Mason County Fruit Growers' Association, Shelton;
- Clarkston Fruit Growers' Association, Clarkston;
- Prosser Fruit Growers' Association, Prosser;
- Walla Walla Fruit and Vegetable Union, Walla Walla;
- The Ridgefield Fruit Growers' Association, Ridgefield;
- The Felida Prune Growers' Association, Vancouver;
- Grand View Fruit Growers' Association, Grandview;
- Spokane Valley Fruit Growers' Company, Spokane;
- Yakima Valley Fruit Growers' Association, North Yakima;
- Southwest Washington Fruit Growers' Association, Chehalis;
- The Touchet Valley Fruit and Produce Union, Dayton;
- Lewis County Fruit Growers' Association, Centralia;
- The Green Bluffs Fruit Growers' Association, Mead;
- Garfield Fruit Growers' Union, Garfield;
- Goldendale Fruit and Produce Association, Goldendale;
- Spokane Inland Fruit Growers' Association, Keisling;
- Elma Fruit and Produce Association, Elma;
- Granger Fruit Growers' Association, Granger;
- Cashmere Fruit Growers' Union, Cashmere;
- Stevens County Fruit Growers' Union, Myers Falls;
- Dryden Fruit Growers' Union, Dryden;
- White Salmon Valley Apple Growers' Union, Underwood.

- Idaho**
- Southern Idaho Fruit Shippers' Association, Boise;
 - New Plymouth Fruit Growers' Association, New Plymouth;
 - Payette Valley Apple Growers' Union, Payette;
 - Parma-Roswell Fruit Growers' Association, Parma;
 - Weiser Fruit and Produce Growers' Association, Weiser;
 - Council Valley Fruit Growers' Association, Council;
 - Nampa Fruit Growers' Association, Nampa;
 - Lewiston Orchard Producers' Association, Lewiston;
 - Boise Valley Fruit Growers' Association, Boise;
 - Caldwell Fruit Growers' Association, Caldwell;
 - Emmett Fruit Growers' Association, Emmett;
 - Twin Falls Fruit Growers' Association, Twin Falls;
 - Weiser River Fruit Growers' Association, Weiser;
 - Fruit Growers' Association, Moscow.

- Colorado**
- San Juan Fruit and Produce Growers' Association, Durango;
 - Fremont County Fruit Growers' Association, Canon City;
 - Rocky Ford Melon Growers' Association, Rocky Ford;
 - Plateau and Debeque Fruit, Honey and Produce Association, Debeque;
 - The Producers' Association, Debeque;
 - Surface Creek Fruit Growers' Association, Austin;
 - Longmont Produce Exchange, Longmont;
 - Manzanola Fruit Association, Manzanola;
 - Delta County Fruit Growers' Association, Delta;
 - Boulder County Fruit Growers' Association, Boulder;
 - Fort Collins Beet Growers' Association, Fort Collins;
 - La Junta Melon and Produce Company, La Junta;
 - Rifle Fruit and Produce Association, Rifle;
 - North Fork Fruit Growers' Association, Paonia;
 - Fruita Fruit and Produce Association, Fruita;
 - Grand Junction Fruit Growers' Association, Clifton;
 - Palisade, Grand Junction;
 - Palisade Fruit Growers' Association, Palisade;
 - Peach Growers' Association, Pal-

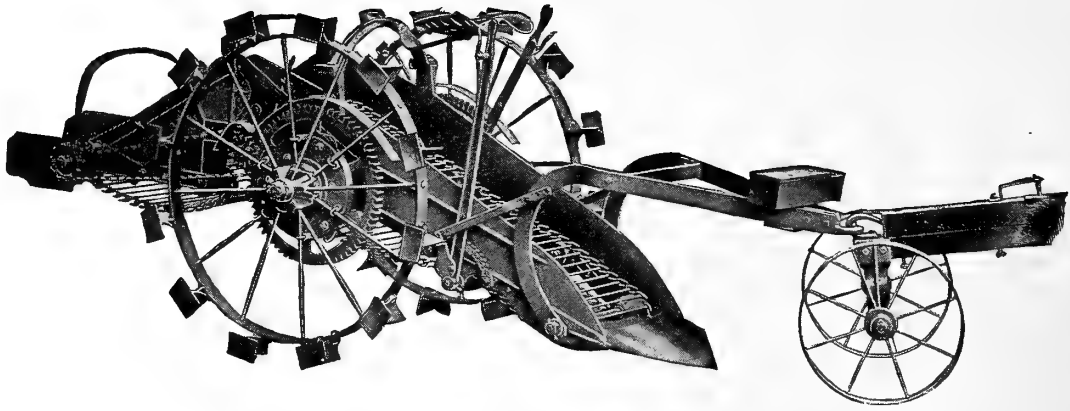
- isade; Colorado Fruit and Commercial Company, Grand Junction;
- Montrose Fruit and Produce Association, Montrose;
- Hotchkiss Fruit Growers' Association, Hotchkiss;
- Paonia Fruit Exchange, Paonia;
- Colorado Fruit Growers' Association, Delta;
- Crawford Fruit Growers' Association, Crawford;
- Amity Cantaloupe Growers' Association, Amity;
- Pent County Melon Growers' Association, Las Animas;
- Capitol Hill Melon Growers' Association, Rocky Ford;
- Denver Fruit and Vegetable Association, Denver;
- Fair Mount Melon Growers' Association, Swink;
- Fowler Melon Growers' Association, Fowler;
- Granada Melon Growers' Association, Granada;
- Grand Valley Fruit and Produce Association, Grand Junction;
- Independent Fruit Growers' Association, Grand Junction;
- Kouns Party Cantaloupe Growers' Association, Rocky Ford;
- Lamar Melon Growers' Association, Lamar;
- Loveland Fruit Growers' Association, Loveland;
- Manzanola Orchard Association, Manzanola;
- Newdale Melon Growers' Association, Swink;
- Roaring Fork Potato Growers' Association, Carbonade;
- Woods Melon Growers' Association, Las Animas.

- Montana**
- Bitter Root Fruit Growers' Association, Hamilton;
 - Missoula Fruit and Produce Association, Missoula.

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

- New Mexico**
- San Juan Fruit and Produce Association, Farmington.

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



Now We've Got It A Potato Digger Worth While

The Standard Elevator Potato Harvester Does the Work of 20 Men and Does it Better

For a long time we have been wanting to offer our customers and other farmers in the Pacific Northwest, a potato digger that would prove highly satisfactory in every respect. Until such time as we could supply one of this excellence we preferred to offer none at all.

A good potato harvester is a money maker for the farmer. And we are delighted to be able to offer so excellent an article and keen to have our customers reap the profits that result in a tremendous saving in time, labor and money.

This is How the Standard Operates

The shovel enters the hill deep enough to get every potato. The shovel is slightly concaved. It breaks the outside of the hill and turns it toward the center of the shovel. The elevator is a sort of apron—an endless belt of linked steel rods. The motion of the apron loosens the dirt from the potatoes. The dirt falls through the spaces between the steel rods of the apron, to the ground. The potatoes, after

being elevated to the highest point, are delivered to a rear apron which shakes off the last particle of dirt. The potatoes are finally delivered on the ground at the rear of the digger in a narrow row. They are all there—every one—clean—none cut or bruised—easily picked up.

Two levers control the entire machine. It is very easily guided and can be turned in a short space. The Standard Potato Harvester has high drive wheels, perfect traction, extremely light draft. Also a perfect Combination Evener for two, three or four horses. Direct center draft and each horse walks between the rows.

Made of A No. 1 First Class material throughout. We can supply only a limited number this season. We want every one of our customers and all other farmers in the Pacific Northwest to know all about this marvel of a potato digger. We have a number of descriptive booklets with illustrations and numerous testimonials from delighted users. One of these booklets free to every interested farmer—as long as they last. Be sure to get your copy. Send now.

R. M. WADE & CO.

47 Years in Business
Portland Old Established—Up-to-Date Oregon



RHODES DOUBLE CUT PRUNING SHEAR

Pat'd June 2, 1903.

RHODES MFG. CO.,
GRAND RAPIDS, MICH.

THE only pruner made that cuts from both sides of the limb and does not bruise the bark. Made in all styles and sizes. We pay Express charges on all orders. Write for circular and prices.

Let SANDOW Run It!

Wonderful Work Engine

Farmers and Shop Owners, Stop Sweating! A few dollars gets this grand little work engine, complete and ready to run Cream Separators, Corn Shreders, Grist Mills, Feed Mills, Dynamos, Printing Presses, etc., etc. Gives a lifetime of steady service! All Sizes: 2 to 20 h. p. No cranking! No cams! No gears! Only 3 moving parts. Finest construction. Thousands in use. Guaranteed 5 years. Write for Special Introductory Proposition.

DETROIT MOTOR CAR SUPPLY CO., 238 Canton Ave., Detroit, Mich.



"Eats Work"

(66)

NURSERY CATALOG

New, handsome, instructive, up-to-date, describing

Fruit and Ornamental Trees, Shrubs, Vines, Roses, Berry Plants, etc.

Free on request. Write now, mentioning this paper.

J. B. PILKINGTON, Nurseryman, Portland, Oregon

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C. M. SHAW

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Dean & Shaw

Electrical Supplies and Fixtures
Scientific Electrical Construction

Home Phone 3 Hood River, Oregon

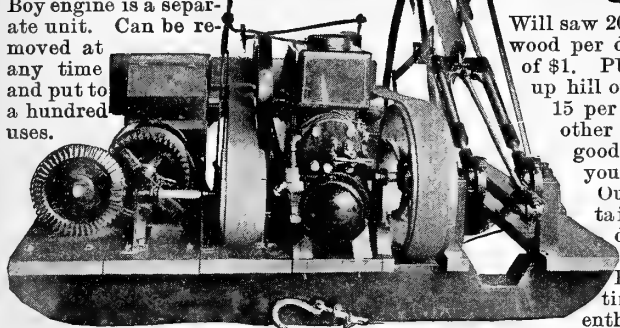
\$20 per day Earning Capacity

Will Pay for Itself in Less Than Three Weeks. Operated by One Man.

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The 4 h. p. Waterloo Boy engine is a separate unit. Can be removed at any time and put to a hundred uses.

"King of the Woods" Drag Saw



Will saw 20 to 40 cords of wood per day at a cost of \$1. PULLS ITSELF up hill or down. Costs 15 per cent less than other makes not as good. There's more you ought to know. Our catalog contains complete description and prices: sent FREE with testimonials from enthusiastic users.

ASK FOR CATALOG C 5

Reierson Machinery Co. PORTLAND, OREGON
SOLE MANUFACTURERS

The Proof of the Pudding is in the Eating

Claims are easily made, but not always easily proven. We would not make the claims we do for the high quality of our stock if we were not convinced of their truth, and if we didn't have so many compliments from customers on the superiority of our trees, and the most excellent manner in which they were packed, enabling them to arrive at destination in prime condition. This last item, good packing, is easily overlooked by many, but is one of importance, and is one of the many instances where our attention to detail keeps up the high standard of our trees.

Have you seen our new 74-page catalog? It's a beauty. Better send for it.



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More Salesmen wanted.

Seeds

THE KIND YOU CAN'T KEEP IN THE GROUND

They grow, and are true to name
Write for prices on your wants

188 Front Street J. J. BUTZER Portland, Oregon
Poultry Supplies, Spray, Spray Materials, Fruit Trees, Etc.



WE MAKE 200 DIFFERENT SIZES. SUITABLE FOR EVERY PURPOSE

Pearson Coated Nails

are the

RECOGNIZED STANDARD

Fruit Box Nails

To insure always getting

Best Quality,
Proper Size, and
Full Count Nails

specify PEARSON, and take no substitute.

Why not accept this advice when PEARSON'S cost no more?

J. C. Pearson Co.
Boston, Massachusetts
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Superior facilities for handling

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Solicit Your Consignments

Reliable Market Reports Prompt Cash Returns

A Reputation to Sustain

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PROPAGATORS OF

Reliable Nursery Stock

All stock budded from bearing trees,
fruit and ornamental

COOPER'S SPRAY FLUIDS

Read what Hood River says

Hood River, Oregon, Nov. 27, 1909.

This is to certify that I have used Cooper's Tree Spray Fluids, V1, for killing San Jose scale and found it very effectual.

G. R. Castner, County Fruit Inspector.

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THE SOIL FUMIGANT

DESTROYS INSECTS IN THE GROUND

REDUCES LOSSES SAVES PROFITS. IT WILL PAY YOU TO INVESTIGATE

Write for 1910 booklet (32 pages)

Testimony from fruit growers everywhere

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Sole Manufacturers:

William Cooper & Nephews
CHICAGO, ILLINOIS

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The tone is the Jewel.
The case is the Setting.
The combination is the
Steinway—the Perfect
Piano.

HE who is blessed with the power to create is blessed with God's greatest gift to man, and if he uses that power to increase the happiness of his fellow men he becomes a benefactor to the human race.

The world owes homage to the men who have devoted their burning energies to the consummation of one purpose, to the final and most perfect development of an ideal.

The Steinway Piano

Is an example of the grand result of years of persistent, purposeful striving after the very highest musical ideal. Sons have taken up the task where fathers left off, so that alternate generations of genius, working through the finest piano factory in the world, have evolved the Steinway—a piano that has long since been acknowledged the musical masterpiece of the ages.

Priced at \$575, \$625, \$775 and up to \$1,600. Of course you can buy a piano cheaper, but it will be a cheaper piano. Why not get the best?

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SHEET MUSIC

Sherman Clay & Co.

SIXTH AND MORRISON
PORTLAND, OREGON
Exclusive Steinway Representatives

FRUIT GROWERS, YOUR ATTENTION!

Royal Ann, Bing and Lambert cherry trees; Spitzenberg and Newtown apple trees; Bartlett, Anjou and Comice pears, and other varieties of fruit trees.

A. HOLADAY MONTE VISTA NURSERY
SCAPPOOSE, OREGON

Two Hard Headed Business Men Select Orchard Homes from Our Tracts

No. 1. Lives in Minnesota. Made a trip through the fruit districts of the West two years ago and made a second trip of investigation this year. He visited the best known fruit districts of the West—was solicited by several agents to buy of them, but came to our office in Minneapolis unsolicited and said our fruit tracts were the best he had seen in his investigations; therefore purchased his orchard tract from us.

No. 2. Has been investigating the principal fruit districts of the West for over two years, is a resident of Portland, a prominent business man, and after seeing our ad in "Better Fruit" wrote to us, came and examined the tracts and purchased immediately, saying that our tracts were the best he had seen.

The purchases made by the two men referred to above, as well as others to whom we could refer you, prove that the most careful purchasers are buying our tracts.

Buying an orchard home is important, therefore investigate all of the well-known fruit districts of the United States, but do not purchase until you examine ours. We cheerfully leave the choice of the selection to you after that.

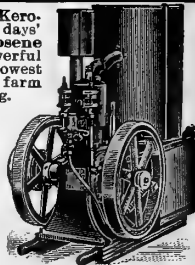
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Branch Offices { SALEM, OREGON
CRESWELL, OREGON

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Use KEROSENE Engine FREE!

Amazing "DETROIT" Kerosene Engine shipped on 15 days' FREE Trial, proves kerosene cheapest, safest, most powerful fuel. If satisfied, pay lowest price ever given on reliable farm engine; if not, pay nothing.



Gasoline Going Up!

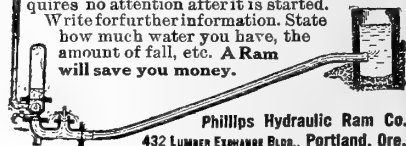
Automobile owners are burning up so much gasoline that the world's supply is running short. Gasoline is 9c to 15c higher than coal oil. Still going up. Two pints of coal oil do work of three pints gasoline. No waste, no evaporation, no explosion from coal oil.

Amazing "DETROIT"

The "DETROIT" is the only engine that handles coal oil successfully; uses alcohol, gasoline and benzine, too. Starts without cranking. Basic patent—only three moving parts—no cams—no sprockets—no gears—no valves—the utmost in simplicity, power and strength. Mounted on skids. All sizes, 2 to 20 h. p., in stock ready to ship. Complete engine tested just before crating. Comes all ready to run. Pumps, saws, threshes, churns, separates milk, grinds feed, shells corn, runs home electric-lighting plant. Prices (stripped), \$29.50 up. Sent any place on 15 days' Free Trial. Don't buy an engine till you investigate amazing, money-saving, power-saving "DETROIT." Thousands in use. Costs only postal to find out. If you are first in your neighborhood to write, we will allow you Special Extra-Low Introductory price. Write! Detroit Engine Works, 507 Bellevue Ave., Detroit, Mich.

PUMPS WATER

for your Home, your Stock, or for Irrigation, without care or adjustment. No springs; no weights. Does not even have to be oiled. The Phillips Hydraulic Ram—Simple in construction—nothing to get out of order. Pumps a large amount of water to a low height or a small amount to a greater height. Requires no attention after it is started. Write for further information. State how much water you have, the amount of fall, etc. A Ram will save you money.



Phillips Hydraulic Ram Co.
432 LUMBER EXCHANGE BLDG., PORTLAND, ORE.

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Ship your Furniture to us
to be stored
until you are located

Transfer & Livery Co.

Hood River, Oregon

Use Labels! It Pays

**A GOOD COMBINATION } 1ST GOOD FRUIT
AND A WINNER } 2ND GOOD PACKING
3RD GOOD LABELS**

THE LABEL HELPS.

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Packers and Shippers of
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Finest flavored—Longest keepers

PEARS	APPLES
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Howell	"Autocrat of the Breakfast Table"
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Modern Economy Code
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Why Bother with Irrigation?

ASK

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SPOKANE, WASH.**

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BETTER FRUIT

Has no peer in the Northwest.

And so we have established

The Fruit Journal

along similar lines in behalf of the great irrigated fruit districts of the Rocky Mountain region, a companion paper to this, your favorite fruit magazine.

We have made it up-to-date, clean, high class editorially, mechanically and pictorially.

The subscription rate is \$1.00 per year. It is worth it.

**THE INTERMOUNTAIN
FRUIT JOURNAL**

Grand Junction, Colorado

*Ask the People Using Our Boxes About
Quality and Service*

WE MAKE EVERYTHING IN FRUIT PACKAGES

Multnomah Lumber & Box Co.

Jobbers of Pearson Cement-Coated Box Nails Portland, Oregon



A Block of Our Budded Spitz Apples, Photo August 9, 1911

Budded Apple and Pear?

Well, yes.

You'd think to hear some of our esteemed nursery competitors talk that we don't know what a budded tree is, and that we grow none of them.

We wish it were possible for every prospective buyer of trees who reads this ad and who knows what a good budded tree ought to be, to go through any nursery in the Northwest today, look at and measure their finest, largest budded trees on three-year roots, then come and see ours.

The contrast would be painful.

See these magnificent budded Spitzenberg apples growing in our nursery, ready for delivery this fall and next spring.

These trees were budded last August and have made all their growth this season (photo taken August 9, 1911). The man in the foreground stands 5 feet 10 inches, hence you can judge the size of the trees.: By digging time they will be 15 to 18 inches taller.

We have budded apple, pear, cherry, peach, plum, prune—all of equally fine quality in their varieties.

The fact is, our budded trees on three-year roots are just as much superior to budded trees of other nurseries as are our yearling grafts.

It's in our exceedingly rich soil, our continuous growing weather, and our persistent cultivation, added to which we have the moisture under control and can keep the tree **growing** and **rooting** when it should grow and root, and can **ripen** and **mature** it when it should be ripened and matured, while in nurseries in many less favored localities where early fall rains set in, trees that have stood still a part of the summer, often start a new growth and at digging time are far from ripe or mature.

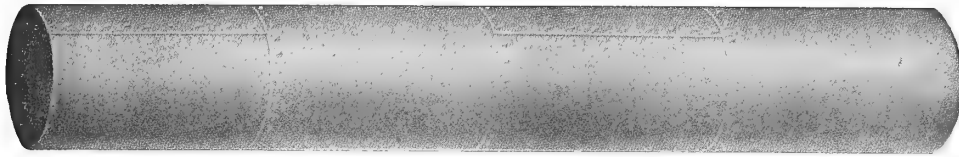
WATCH OUR STOCK—WATCH THE ROOTS—WATCH THE TOPS. and you'll know why our claims are correct.

Washington Nursery Company

TOPPENISH, WASHINGTON

More **HUSTLING SALESMEN** wanted for good, unoccupied fields. Good wages and steady position. Write us.

ANYTHING IN SHEET STEEL



STEEL PIPES SAVE WATER

STEEL PIPES SAVE LABOR

YOU DO NOT HAVE TO WAIT FOR STEEL PIPES TO
"SOAK UP" AND THEY LAST INDEFINITELY

WE MANUFACTURE

Galvanized Steel Pipe

Storage Tanks

Galvanized Steel Culverts

Pressure Tanks

Asphaltum Coated Pipe

Steel Flumes

Columbia Hydraulic Rams

COLUMBIA ENGINEERING WORKS, Portland, Oregon



A sample of our yearling trees,
the "Nunbetter" kind

Buying Any Trees This Year?

Do you know that there is as much difference in trees as there is in people?
And that is some.

Do you know that our trees grown at Orenco, Oregon, are not grown by
irrigation, but merely by CULTIVATION?

Do you know that we have a method of growing trees different from the
majority of nurseries?

Do you know that the OREGON NURSERY COMPANY has been supplying
trees to the planters of the Northwest for the past FORTY-FOUR
YEARS, and

Do you know that a very large percentage of the big-paying orchards of
today came from our nurseries?

You know that reliable goods are invariably backed by a reliable company.
You know your land is worth planting the best trees on, and you know
that it don't pay to plant unreliable or inferior trees.

We know that Orenco trees are as **GOOD** as the **BEST** and **better** than
the average.

We are confident they will please you and are sure if you give them the
proper care in transplanting and afterward that they will be profit-producers
to you and a credit to us.

Whether you want only a few or several thousand trees, either in apples,
pears, prunes, peaches, cherries, walnuts, or any other class of fruit, shade,
evergreen or ornamental trees, shrubs, vines, roses, etc., just drop us a line
stating what you need and we'll do the rest.

Reliable, energetic men wanted to represent us.

Oregon Nursery Company

ORENCO, OREGON

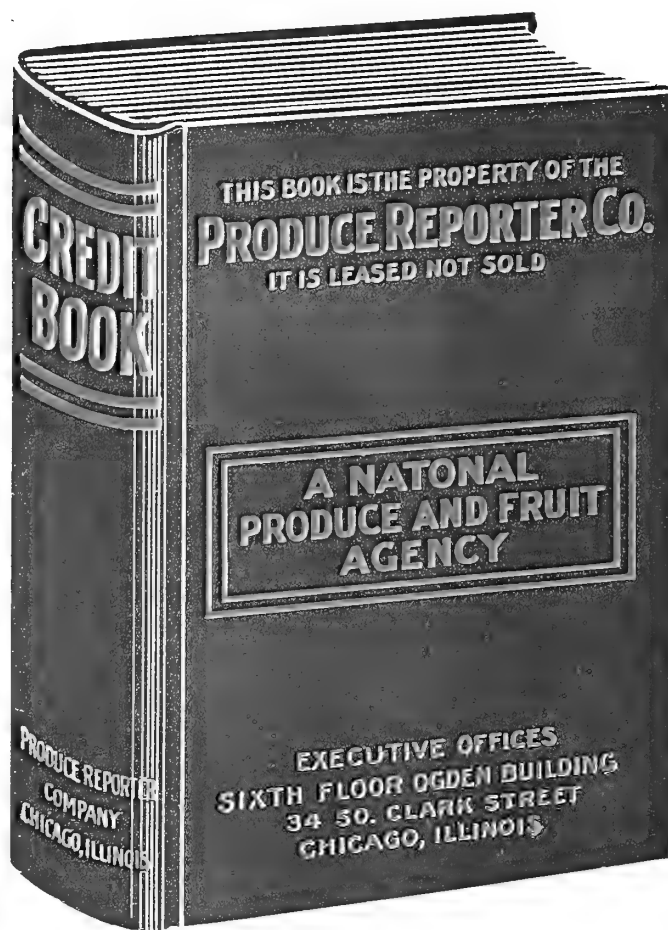
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a
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It is safer to do a Shipping Business now than it used to be. **DON'T FORGET THAT**

You need all the information and protection you can get. As a member of the Produce Reporter Co. **YOU GET IT**

You cannot afford to allow your competitors to out-distance you by reason of their being better equipped with a membership

Write us how many cars and what kind of fruit you will have to ship this fall and we will explain our Organization's System and show you how it fits your requirements

PRODUCE REPORTER CO., Chicago, Illinois

BETTER FRUIT

VOLUME VI

OCTOBER, 1911

NUMBER 4

SPECIAL STATISTICAL EDITION



*Engraved direct from the fruit by the three-color process
Plates by Hicks-Chatten Engraving Co., Portland, Oregon*

APPLES, ABOUT TWO-THIRDS ACTUAL SIZE

Top row from left to right—Arkansas Black, Spitzenberg, Baldwin
Lower row—Red Cheek Pippin, Ortley and Winesap

Grown by E. L. Howe, Mosier, Oregon

“HEALTH’S BEST WAY—EAT APPLES EVERY DAY”

BETTER FRUIT PUBLISHING COMPANY, PUBLISHERS, HOOD RIVER, OREGON

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Single Copy 10 Cents

Dangerous Fruit Pests are Unknown
in the famous

Bitter Root Valley

on Montana's Pacific Slope
Where the Wormless Apples Grow

Smudging Is Unnecessary

There has not been a killing frost on the bench lands in the growing season in the history of the Valley. There are no dust storms.

Pure water and sunshine 300 days in the year make ideal health conditions.

Net profits annually range from \$2,000 to \$5,000

on a matured apple orchard of only ten acres.

Undeveloped land in this remarkable fruit district can still be bought for less money than is asked in other valleys less perfectly adapted by nature for successful fruit growing. Values now range from \$250 to \$350 per acre.

Developed tracts of ten acres, with contract to cultivate and care for same to five-year maturity, cost only \$5,000 if purchased now. Easy terms of payment for both developed and undeveloped land.

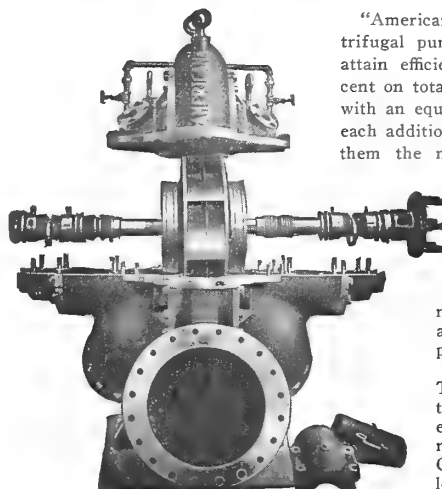
Detailed information upon request.

Bitter Root Valley Irrigation Co.

First National Bank Building, CHICAGO

All the Grand Prizes and All the Gold Medals
Given by the Alaska-Yukon-Pacific Exposition at Seattle
in 1909 to pumps were awarded to

"AMERICAN" PUMPING MACHINERY



"American" single stage centrifugal pumps are guaranteed to attain efficiencies of 60 to 80 per cent on total heads up to 125 feet, with an equal increase in head for each additional stage, which makes them the most economical pump made for irrigation purposes.

"American" centrifugals are made in both horizontal and vertical styles, in any size, in any number of stages, and are equipped with any power.

Write for "Efficiency Tests of American Centrifugals," by the most eminent hydraulic engineer on the Pacific Coast. Complete catalogue, No. 104, free.

The American Well Works

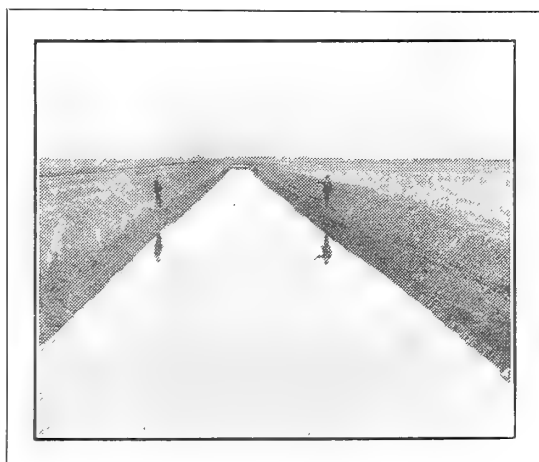
General Office and Works: Aurora, Illinois, U. S. A.
Chicago Office: First National Bank Building

PACIFIC COAST SALES AGENCIES:

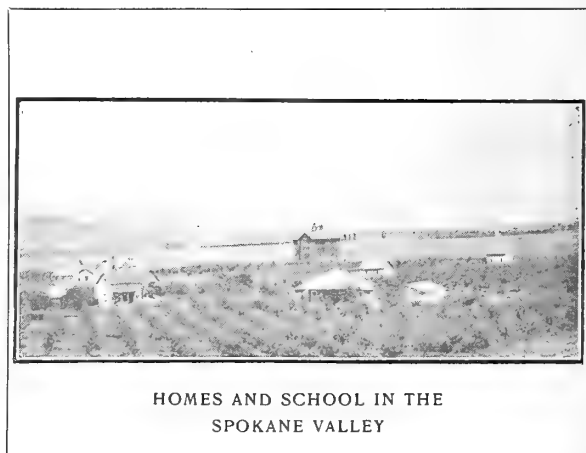
70 FREMONT STREET, SAN FRANCISCO
341 SOUTH LOS ANGELES STREET, LOS ANGELES
SECOND AND ASH STREETS, PORTLAND, OREGON
1246 FIRST AVENUE SOUTH, SEATTLE
305 COLUMBIA BUILDING, SPOKANE

THE GRAVITY IRRIGATION SYSTEM OF THE SPOKANE VALLEY

Has developed the greatest apple and berry district of the West. Nearness to market causes larger net returns than in any other locality. Seventy-two trains daily through the valley. Every modern convenience. "Life's journey is swift; let us live by the way." The Spokane Valley has the unique distinction of being the only established apple district near a big city. Think what that means and investigate. Five thousand contented settlers.



THE BEST
IRRIGATION
SYSTEM
IN THE
WEST



HOMES AND SCHOOL IN THE
SPOKANE VALLEY

SPOKANE VALLEY IRRIGATED LAND CO.
401 SPRAGUE AVENUE, SPOKANE, WASHINGTON

A CHALLENGE

The NORTHWESTERN FRUIT EXCHANGE, from its General Offices in the City of Portland, Oregon, makes a SWEEPING CHALLENGE TO THE ENTIRE NORTHWEST, Washington, Oregon and Idaho, for a public comparison of AVERAGE NET CASH RESULTS on Apple Sales for the entire season of 1910.

The Exchange has already caused to be published through the public press, and otherwise caused to be disseminated in the widest possible manner, its season's averages, for over 60 different varieties of apples produced in every important district in the three states.

So far as it has been able to determine, based on the public announcement of others, it seems very clear that the results of the EXCHANGE are BETTER THAN THOSE OF ANY OTHER ORGANIZATION OR PERSON IN THE NORTHWEST not only from the standpoint of NET CASH RETURNS TO THE GROWERS, BUT also from the important point of distribution, the Exchange having employed 125 DIFFERENT Markets during the season.

Furthermore, the Exchange extends this challenge to embrace the METHOD OF SELLING, and makes the sweeping statement, based on the information available, that the Exchange disposed of a larger percentage of its output on an F. O. B. basis of sale than any other organization in the Northwest with an output of 100 cars or more.

Anyone wishing to accept this challenge may do so by appointing a certified public accountant who, together with another appointed by the Exchange, is to have access to the sales records of both contestants, the loser to pay for the services of both accountants. Access to its records will work no hardship on the Exchange, as its well known policy permits free access to its records at all times by any responsible, interested fruit grower.

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FRUIT

RIGHT

ALWAYS SHIP TO

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WE HAVE MODERN COLD STORAGE FACILITIES
ESSENTIAL FOR HANDLING YOUR PRODUCTS

*A strong house that gives reliable market
reports and prompt cash returns*

The Old Reliable
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Richey & Gilbert Co.

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Growers and Shippers of

YAKIMA VALLEY FRUITS
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Specialties: Apples, Peaches, ..
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Magnifiers to examine scale

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200 WASHINGTON ST.

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T. O'MALLEY CO.

COMMISSION MERCHANTS

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We make a specialty
in Fancy Apples, Pears and
Strawberries

130 Front Street, Portland, Oregon

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Established 1869

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NEW YORK

Strictly commission house. Specialists in apples,
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to their own representatives in England

QUALITY
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Established 1878

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California, Oregon, Washington, Idaho and Florida fruits. Apples handled in all European markets. Checks mailed from our New York office same day apples are sold on the other side. We are not agents; we sell apples. We make a specialty of handling **APPLES, PEARS AND PRUNES** on the New York and foreign markets. Correspondence solicited.

200 to 204 FRANKLIN STREET, NEW YORK

NEW YORK

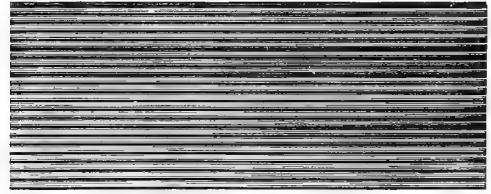
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LONDON

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Its use in your Pear or Apple box will prevent the fruit from getting bruised when being packed or in transit.



Corrugated Paper Acts as a Cushion to Your Fruit

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Suite 716 Chamber of Commerce Building, PORTLAND, OREGON

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Leads all states of the Union in growth, having increased 120.4 per cent, according to the same authority.

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PACIFIC NORTHWEST COMMERCE

Suite 842 Central Building
SEATTLE, WASHINGTON

Burpee's Seeds that Grow

140 VARIETIES ANY QUANTITY

Plenty of stock in our 40,000 pounds

Growing Plants as season requires

All makes high grade

Pruning Tools

Garden Tools

Hose and Spray Nozzles

International Stock and

Poultry Food

International Remedies

Incubators and Brooders

Everything for Building

Everything for Furnishing

Stewart Hardware & Furniture Co.
22,000 feet floor space. Hood River, Oregon

Spitzenbergs & Newtowns

From the
Hood River Valley,
Oregon

Took the first prize on carload entry at the Third National Apple Show, Spokane, Washington, and Chicago, Illinois, 1910.

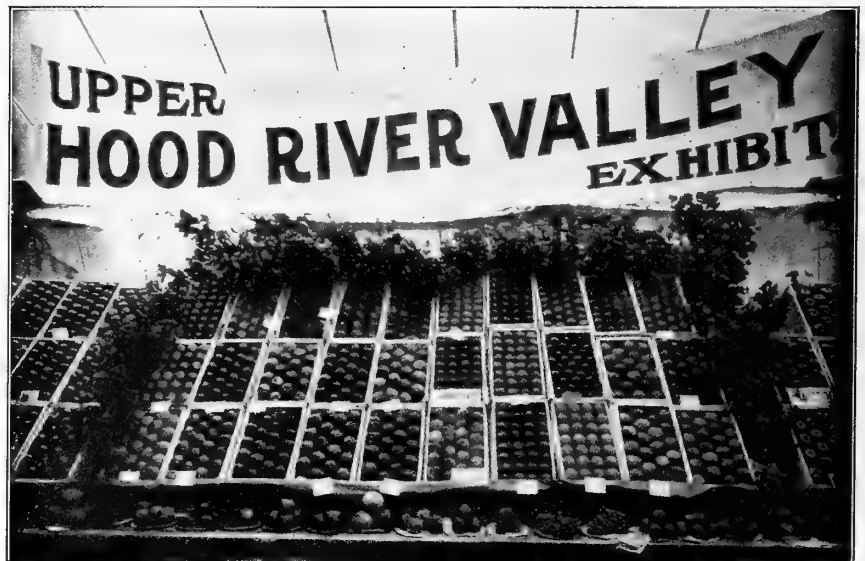
The Spitzenberg car scored, out of a possible 1,000 points, 997. The Newtown car, out of a possible 990 points, scored 988.

The Spitzenberg carload also won the championship carload prize at this show.

Can You Beat It?

We have got land improved and unimproved that is growing such fruit and that can grow it.

We are agents for the Mount Hood Railroad Company's logged off lands in Upper Hood River Valley. Many started in a small way; today they are independent. You can begin today. It pays to see us. Send today for large list of Hood River orchard land, improved and unimproved, and handsome illustrated booklet.



The above picture shows a prize-winning exhibit of Upper Hood River Valley apples at the Hood River Apple Show

W. J. Baker & Company

Hood River
Oregon

The oldest real estate firm in Hood River. Best apple land our specialty

TREES APPLE, CHERRY TREES PEAR, PEACH

MILTON NURSERY COMPANY
A. MILLER & SONS, Inc.

You cannot afford to take a chance in buying trees to plant for future profit. It requires knowledge, experience and equipment to grow reliable nursery stock.

OUR 33 YEARS' EXPERIENCE in growing first-class trees, true to name, for commercial orchards, insures our customers against any risk as to quality and genuineness of stock.

Orders are now being booked for fall delivery 1911. Catalog and price list free for the asking.
Address all communications to

MILTON NURSERY COMPANY, Milton, Oregon

Stanley-Smith Lumber Co.

WHOLESALE AND RETAIL

LUMBER

Lath, Shingles, Wood, Etc.

HOOD RIVER, OREGON

Ryan & Newton Company

Wholesale Fruits & Produce

Spokane, Washington

We have modern cold storage facilities essential for the handling of your products

Reliable Market Reports

PROMPT CASH RETURNS

YAKIMA COUNTY HORTICULTURAL UNION

North Yakima, Washington

C. R. Paddock, Manager

Apples, Pears, Peaches, Cherries
Plums, Prunes, Apricots, Grapes
and Cantaloupes

Mixed carloads start about July 20. Straight carloads in season. Our fruit is the very best grade; pack guaranteed

We use Revised Economy Code

References { District National Bank
American National Bank

Codes { Economy
Bakers
Revised Citrus

ERNEST M. MERRICK

Wholesale Fruit Commission Merchant

APPLES A SPECIALTY

937-939 B Street, N. W.

WASHINGTON, D. C.

We have been established here for over twenty-two years in one of the best localities in the city. Our facilities are at least equal to any house in the city in our line of business.

WE SPECIALIZE IN APPLES

Ridley, Houlding & Co.

COVENT GARDEN, LONDON

WE WANT TO REPRESENT THE GROWERS OF
BETTER FRUIT. We know that our
BETTER METHODS of selling will bring
BETTER RESULTS

A Trial Solicited

All Shipments Receive Personal Attention

Grafted Walnut Trees

We do not grow regular nursery stock, but make a specialty of first-class grafted Walnut Trees. While we are growing and grafting our own trees for our 250-acre tract, we decided to grow some trees for sale.

In doing so we believe we are offering the very best trees that can be bought at any price. Vrooman Franquettes grafted on Royal Hybrid and California Black roots.

Our supply has never been equal to the demand, so if you want to be sure and have your order filled, order early.

Ferd Groner

Rose Mound Farm HILLSBORO, OREGON

Correspondence

is as necessary in the fruit business as in any other line. To carry on a successful business correspondence you need good business stationery. We print the good kind—the kind you will not be ashamed to send to your correspondents no matter who they may be or where they may be located—the kind possessing that quality which will attract favorable attention. Favor us with your next order for business stationery—be it small or large—and see how pleased you will be. “Quality” is our slogan

F. W. Baltes and Company
Designers · Printers · Binders
Portland, Oregon

IDEAL NURSERY STOCK

We have all of the Standard Varieties for the Northwest and
Invite Inspection of what we have to offer.

Our scions are selected with care from Hood River orchards. Our stock is grown in Hood River
Reasonable Prices and Special Inducements to Large Planters.

We also have a very fine block of Clark Seedling Strawberry Plants to offer.
Also small fruits for the home garden.

IF INTERESTED WRITE FOR PRICES AND CATALOGUE TO

IDEAL FRUIT AND NURSERY CO., Hood River, Oregon

WOULDN'T YOU

Like to move to a new country if it was not
for the PIONEERING?

OPPORTUNITY

Is a new fruit district (under irrigation five years) but three miles from the city of Spokane in the famous Spokane valley. All our tracts have electric lights, domestic water, telephones, in fact every modern convenience. Large profits and an ideal home.

Get particulars from **CALLISON & IMUS**, Exclusive Agents
326 W. First Avenue, Spokane, Washington

Mosier Fruit Growers' Association

APPLES

PRUNES

PLUMS

CHERRIES

PEACHES

PEARS

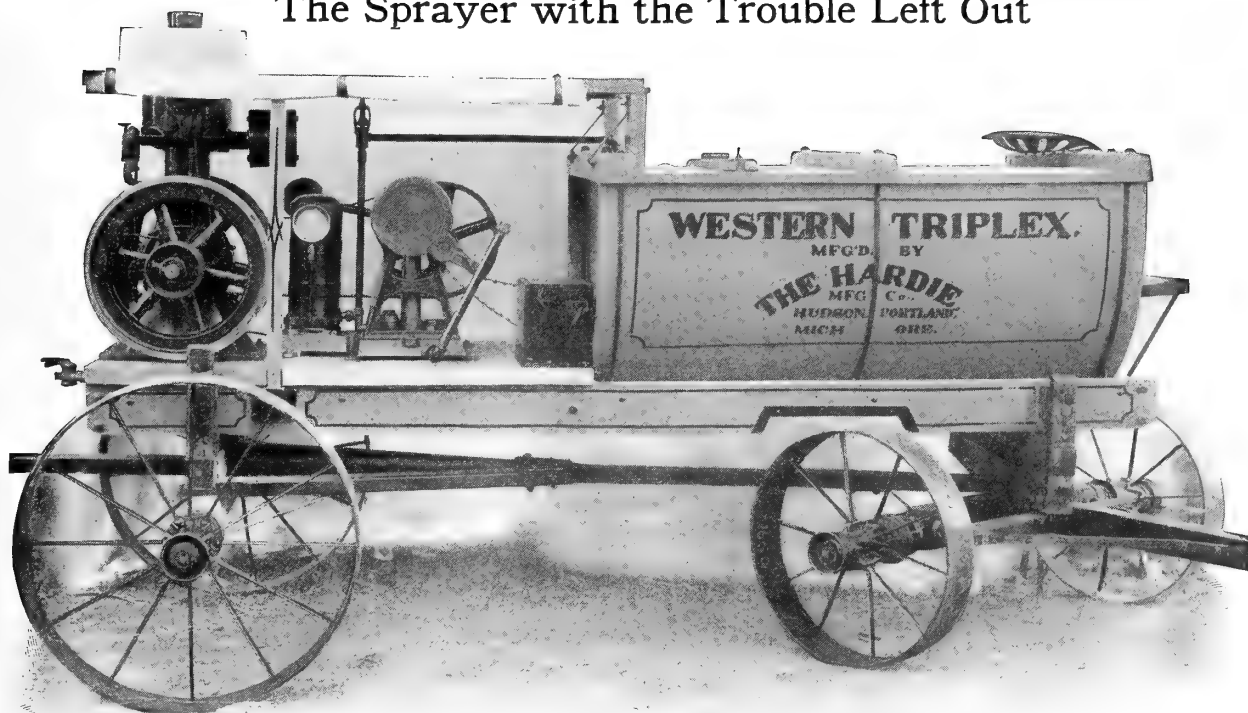
“Fancy Fruit in a
Fancy Pack”

Quality Apples
a Specialty

MOSIER, OREGON

The HARDIE TRIPLEX

The Sprayer with the Trouble Left Out



Each year demonstrates the fact that the Hardie Triplex is best adapted to Northwestern orchard conditions.

This machine is built to work successfully in any kind of an orchard, whether it is closely set or open, level or hilly.

By using good materials in construction, we give you light weight without sacrifice of strength.

All the liquid you need and at an even continuous high pressure.

A Hardie Triplex means to you Better Spraying in less time and at lowest cost.

A postal card brings you our new 64-page catalog; giving a detailed description of the construction of our Triplex and twenty other hand and power sprayers; new spraying devices, etc.

Write for it today.

The Hardie Manufacturing Company

Hudson, Michigan

49 North Front Street, Portland, Oregon

WHITE SALMON ORCHARD LANDS

The following improved ranch listed for sale for a few days:

80 acres with 30 acres set to apples, of which 16 acres are in bearing; balance of orchard, young trees one year old; 40 acres slashed and burned, ready to grub; 10 acres pasture. New apple house, 4-room residence, milk house and barn. Spring water piped to all buildings from springs on the ranch. Three acres in strawberries, also some pears and other fruits for home use. Ranch located only 2½ miles from White Salmon; fine view of the Columbia River, Mount Hood and the Hood River Valley. Ranch produced over 2,000 boxes of apples last year and should produce over 3,000 boxes next year. Owner will sell (if sold at once), including the crop, for only \$25,000.00, on these very easy terms: \$10,000.00 cash, \$2,000.00 in one year, \$1,750.00 in two years, balance \$1,625.00 a year until 1920. Interest 6 per cent. A BARGAIN AT THE ABOVE PRICE AND TERMS.

Another good buy is 10 or 20 acres two miles out, with spring water, for only \$100.00 an acre.

40 acres, out 12 miles, all good soil and location, only \$50.00 an acre.

80 acres, out 10 miles from railway station on North Bank Railway, \$62.50 an acre, including good house and 4 acres cleared ready to plant; also spring water.

For more information and BARGAINS IN ORCHARD LANDS, write or see

H. W. DAY REALTY CO., White Salmon, Washington

Cultivation and Irrigation

is what get results. Some well meaning but uninformed people will tell you that a good tree can't be raised by irrigation. Such talk is utter foolishness. On the contrary, the best trees can be raised by irrigation, if it is done right.

We don't depend on irrigation altogether to produce the tree. Incessant cultivation is necessary. After irrigating we get on the ground as quickly as we can and turn under all the moist dirt, keeping the ground well loosened, so that it does not bake and harden.

Our success is not due to luck, but to our close attention to every detail of the business.

Will you need any stock this season? If so, send for our large catalog.

MORE SALESMEN WANTED



Toppenish
Washington

Do You Want a Home

in the midst of a delightful environment? A resort city with all modern improvements, mineral springs, scenic attractions, etc. Homeseekers needed to develop small tracts in the vicinity of ASHLAND, in the famed Rogue River Valley of Southern Oregon. For information regarding fruit, gardening, poultry, dairy products and stock-raising, address COMMERCIAL CLUB, Ashland, Oregon.

Advertisers please mention "Better Fruit" in correspondence.

AMERICAN APPLE EXPOSITION AND CARNIVAL

Auditorium, Denver, Colorado

Week of November 12

Growers in every apple district on the American Continent are invited to send exhibits

AMERICAN APPLE CONGRESS ANNUAL CONVENTION SAME WEEK

The City of Denver intends to make this the greatest Apple Show ever held on earth. Carnival features will be introduced to make the week an occasion of continued festivities

WRITE FOR PREMIUM LIST

American Apple Exposition Association

210-211-212 Chamber of Commerce Building

DENVER, COLORADO

CLINTON L. OLIVER, General Manager

The Storage in Transit Rate for Western Box Apples

Is now almost an accomplished fact, for we have advices from some of the interested lines that they have practically agreed to grant what we have been contending for day in and day out during the last several years.

From present indications the storage in transit privilege will cost 10 cents per hundred extra, which amounts to about 5 cents more than is charged at present. It is our judgment that this extra privilege is worth the price—for the benefit of the grower as well as the distributor. More details later.

Some of the railroad people can tell you how hard we have argued for this storage in transit rate, and they know from the volume of business we handle in the way of Western fruits that we would not suggest anything which might in any way operate to the detriment of the people engaged in producing them.

Our sole aim in handling these fruits has been (1) to secure the BEST possible prices, and (2) to do all in our power to get the widest distribution on prevailing rate bases at highest market values.

A great deal of this work has been done without fee and without price, and we have spent some of our own money besides to secure this big advantage which is now about to be thrown open to everybody.

But we hope everybody will derive some benefit from this concession.

Gibson Fruit Company, Chicago, Illinois

P. S.—Those who have apples and other fruits, and who may not already be tied up for marketing, should communicate with us promptly.

Some Talk Dutch, Some Talk German

SOME TALK EITHER

English, Irish, Swede, Danish, Italian,
Japanese or Chinese

We talk business.

We have the trees that please all nationalities.

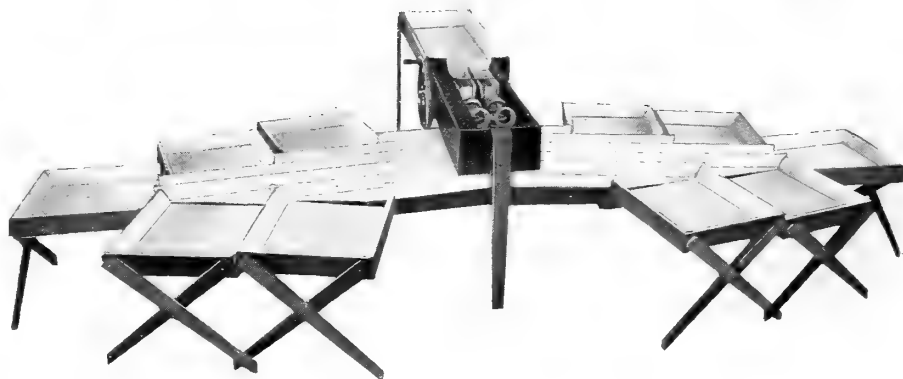
Why? Because they are grown right. Proper care is given to varieties. They are packed correctly for shipping. They are delivered on time. Our prices are right. Write for catalogue or call our salesman.

IF YOU CAN SELL GOODS WE HAVE
AN OPPORTUNITY FOR YOU

Capital City Nursery Company

Rooms 413-415 U.S. National Bank Building, SALEM, OREGON

APPLE GRADER



The Schellenger Fruit Grading Machine

Marks the dawn of a new epoch in the fruit growing industry. It places the TIER PACK without its drawbacks within the reach of every fruit grower.

It is common knowledge that the slightest bruise spoils apples for storage purposes; so delicate are they, that even the most careful handling detracts materially from their appearance, storage life and market value. Even when experienced hand sorters are working under the most competent supervision they bruise the fruit; also hand grading is but guess work which results either in loose ununiform packs, or necessitates still more handling and consequently more bruising to regrade the fruit, etc. The object to be sought in packing apples is **NOT ONLY** to avoid every chance of bruising, but to adopt a system of getting the fruit graded accurately for both color and size with an absolute minimum of handling.

THE SCHELLENGER FRUIT GRADING MACHINE process does away completely with 75% of the handling required by hand sorting. This is not all, it grades the fruit with mechanical accuracy **ABSOLUTELY WITHOUT BRUISING** and delivers to the packer perfectly sorted fruit which insures him a uniform, tight, fancy market pack.

By an ingenious method, one person does all the color and blemish sorting without picking up an apple, after which each color grade is automatically sorted into the standard five size grades and carried out onto canvas screens in front of the packers. The

opportunity provided for inspection of the graded fruit is perfect; **there is triple assurance against a blemished or off-color apple getting into a pack.**

During the grading for size the machine handles each apple separately, it is impossible for them to touch one another. All wool, first quality soft felt, $\frac{3}{8}$ of an inch in thickness protects the fruit against the **slightest bruist**. Some idea of the gentleness with which this machine handles the fruit can be gained when it is realized that it will handle eggs and not so much as crack one.

Fruit **NEVER** sticks or clogs in the machine because the mechanical features are perfect and the mechanism is built upon honor. No expense has been spared in either the quality of material used in our machines, or the labor in constructing them, **THEREFORE, WE CAN, AND DO, FULLY GUARANTEE EVERY MACHINE.**

This machine not only solves the labor problem for the grower but it will actually pay for itself in labor saved in less than ten days when run at full capacity. It does the work of **NINE** experienced hand sorters.

Each grader is arranged to be operated either by power or hand as desired. Price of machine, f. o. b. Salt Lake City, \$100.00.

SCHELLENGER FRUIT GRADING MACHINE CO.

INCORPORATED

633-635 South Fourth West Street

SALT LAKE CITY, UTAH

"Northwest"
trees
are best

"Northwest"
trees
are best

We have for the coming season a complete line of

NURSERY STOCK

Including everything handled in the nursery line

Write for our new prices and catalog

NORTHWEST NURSERY CO.
North Yakima, Washington

AGENTS WANTED

LEO UJFFY

New Orleans, Louisiana

Successor to

APPEL & UJFFY

The largest wholesale exclusive
Fruit and Fancy Vegetable Firm in the South

**IMPORTERS, RECEIVERS, JOBBERS AND
COMMISSION MERCHANTS**

Correspondence solicited



STANDARD SIZE
Capacity, One Gallon
Burns 8 hours

PRICE
Black Iron, 20c each
Galvanized, 23c each

And Still to the Fore

The BOLTON ORCHARD HEATER



LARGE SIZE
Capacity, Two Gallons
Burns 12 hours

PRICE
Black Iron, 26c each
Galvanized, 30c each

The Pioneer—Without a Peer

Absolutely essential to every grower. Drastic tests of last spring proved its infallibility. Operation perfect and simple. Construction unexcelled



Automatic ELECTRIC ALARM Thermometers

The Watch Dog of the Orchard

\$22.50
DELIVERED

Specify alarm temperature required. It is advisable to have it set several degrees above the danger point.



The experimental stage has long since passed. Equip now. Next season may be more severe than last.

**DON'T HESITATE
DON'T DELAY**

Send for our new booklet.
It will tell you how to save your fruit.

The Bolton Orchard Heater

of today is constructively perfect.
Better than ever.
Costs no more.

Endorsed by California Fruit Growers' Exchange and forty other Fruit Associations.

THE FROST PREVENTION CO.

Bank of Italy Building, SAN FRANCISCO, CALIFORNIA

GEORGE H. PARKER, Oregon Agent, 403 West D Street, Grants Pass, Oregon
 FRED H. HAMMER, So. California Agent, 107 So. Broadway, Los Angeles, California
 YAKIMA REX SPRAY CO., Northwest States Agents, North Yakima, Washington
 L. W. FISHER, Middle West Agent, 109 Temple Block, Kansas City, Missouri

John Amicon Brother & Company

Third and Naghten Streets, COLUMBUS, OHIO

Located on the Pennsylvania System Tracks and B. & O. Ry.

ALSO BRANCHES

Our market contains 200,000 inhabitants located in the central part of the state with many railroad and electric lines passing through here. 1,000,000 people in surrounding territory, who depend on this market for their supplies.

We want car lots of Western Apples, Peaches, Pears and Prunes. We are the heaviest operators in the state of Ohio in Western Box Apples.

Write today, stating number of cars you will ship; also state varieties. Look up our financial standing; ask any National Bank in city of Columbus.



Spray Your Fruit for Codling Moth with
Grasselli Arsenate of Lead
IT IS THE BEST

DISTRIBUTERS IN THE NORTHWEST:

Inland Seed Co., Spokane, Washington
Hardie Manufacturing Co., Portland, Oregon
Samuel Loney & Co., Walla Walla, Washington
Missoula Drug Co., Missoula, Montana
Western Hardware & Implement Co., Lewiston, Idaho
Salem Fruit Union, Salem, Oregon
Hood River Apple Growers' Union, Hood River, Oregon
C. J. Sinsel, Boise, Idaho
Yakima County Horticulturists' Union, North Yakima, Washington
Darrow Bros. Seed & Supply Co., Twin Falls, Idaho
Rogue River Fruit and Produce Ass'n, Medford, Oregon
And in all consuming districts.

Winners of the GRAND SWEEPSTAKES PRIZE of \$1,000.00 for best car of Apples shown at the National Apple Show, Spokane, Washington, were as follows:

1908—M. Horan, Wenatchee, Washington.
1909—Tronson & Guthrie, Eagle Point, Oregon.
1910—C. H. Sproat, Hood River, Oregon.

All the above sprayed with Grasselli Arsenate of Lead.

MANUFACTURED BY

THE GRASSELLI CHEMICAL CO.

Established 1839

MAIN OFFICE: CLEVELAND, OHIO

DISTRIBUTERS IN ALL THE FRUIT GROWING DISTRICTS

For further information write nearest distributor named above, or The Grasselli Chemical Co., St. Paul.

Branch Offices	{	New York	Chicago	St. Paul
		St. Louis	Cincinnati	Birmingham
		New Orleans	Milwaukee	Detroit

W. E. BIGALOW, President

Capital and Surplus \$100,000.00
Established 1883

H. J. BIGALOW, Secretary and Treasurer

REFERENCES:

The First National Bank, Cleveland
All Commercial Agencies
The Produce Reporter Company
Any reliable house in our line in the
United States



SOME OF OUR SHIPPERS—REFERENCES
California Growers' Exchange, Los Angeles, Cal.
California Fruit Distributors.
Earl Fruit Company.
Pioneer Fruit Company.
Producers' Fruit Company, Sacramento, Cal.
Stewart Fruit Company, Los Angeles, Cal.
Atwood Grape Fruit Company, Manavista, Fla.
Florida Citrus Exchange, Tampa, Fla.
W. G. Martin, Castleberry, Ala.
Sylvester Fruit Co., Sylvester, Ga.
Gibson Fruit Co., Chicago, Ill.
Mills Bros., Chicago, Ill.

Commission
Merchants

Jobbers and
Wholesalers

CLEVELAND, OHIO

Apples, Plums, Prunes, Pears, Peaches, Grapes

We have the largest and best trade in the Cleveland territory; our facilities are unsurpassed
We have had years of experience in handling box apples and fancy fruits

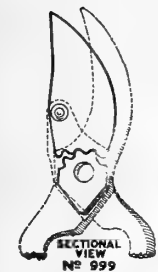
We solicit your correspondence and shipments

Searight Pruning Tools

ARE CLASS AND QUALITY THROUGH AND THROUGH

They are made of the very best of materials and designed on practical and scientific principles. Not cheap nor built for cheap trade, but when strength, durability, capacity, ease of operation, and desirable qualities are considered, they stand alone. Cheap tools are generally expensive, while high grade, desirable tools are cheap at any reasonable price.

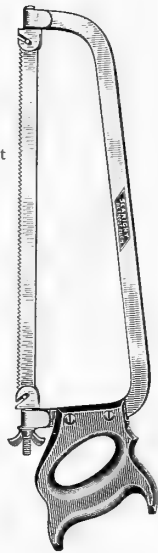
Searight Tools Are Guaranteed
Insist on seeing and trying them
A card will bring information



Length 9 inches
Pivotal Draw-Cut
Hand Pruner



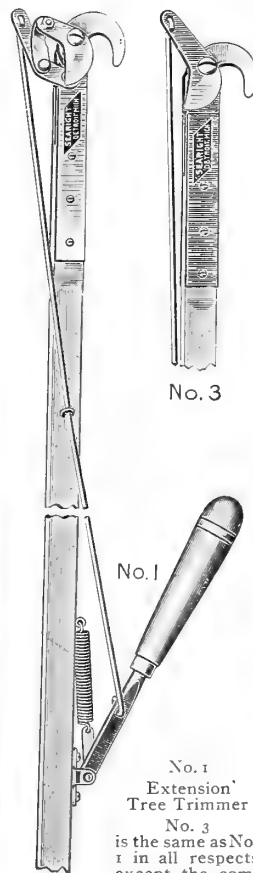
No. 888
Plain Hand Pruner



No. 18
Hand Pruning Saw



No. 777
Two-Hand Pruner



No. 1
Extension
Tree Trimmer
No. 3
is the same as No. 1 in all respects except the lever attachment
pound and blade

DETROIT SHEAR COMPANY

899 Greenwood Avenue

DETROIT, MICHIGAN

FREY-WATKINS CO., INC.

ROCHESTER, NEW YORK

JOBBERS OF

Fruits and Produce in Straight and Mixed Cars

Cold storage at Le Roy and Hilton, New York. Ship your apples to us for sale and storage. Reasonable advances, prompt returns.

References: Produce Reporter Company, mercantile agencies, the banks of Rochester

Arcadia Irrigated Orchards

The Largest Irrigated Orchard Project in the Northwest

Arcadia is located twenty-two miles from Spokane. Our soil is rich and deep, entirely free from gravel, rock and alkali. Gravity irrigation, excellent transportation, ideal climate, no dust or sand storms.

OUR PLAN: We plant, cultivate, irrigate, spray, prune and care for the orchard for four years. Water free. Real estate taxes paid for five years. Over 4,000 acres is now planted to winter apples. You may remain at your present occupation while your orchard is brought to bearing, or, if desired, move onto the land at once.

TERMS: \$125.00 first payment secures five acres; \$250.00 first payment secures ten acres; balance monthly. Eight years in which to pay for your orchard. Write for literature.

ARCADIA ORCHARDS COMPANY, Spokane, Washington

Western Pacific Railway

The New Transcontinental Highway

REACHES a rich agricultural territory hitherto without a railroad.

OPENS new markets to the merchant and orchardist and a virgin field to the land-seeker.

A one per cent maximum grade, obtained at the cost of millions, makes possible the fastest freight service ever given to California shippers

DAILY through merchandise cars for package freight

FROM Boston, New York, Chicago, St. Louis and Kansas City

FOR all points in Northern and Central California.

For rates and routing instructions, etc., write H. M. ADAMS, F. T. M., Mills Building, San Francisco

The New Transcontinental Highway

Western Pacific Railway

ACID BLAST ETCHED PLATES

We have installed the only etching machines in the State of Oregon

Blast etched cuts have a printing quality which has never before been obtainable with process engraved plates

THEY COST THE SAME AS THE OTHER KIND

WE MAKE CUTS THAT PRINT

HICKS - CHATTEN ENGRAVING CO.

607 BLAKE-McFALL BLDG., PORTLAND, OREGON

ARE YOU

Looking for the one ideal apple raising locality? The district which receives the very highest prices for its apples? The place where the very best social, climatic, scenic and transportation advantages combined make life well worth the living, and the only **proven** apple district where you can secure the best of land at reasonable prices?

IF YOU ARE

You are bound to decide on Mosier, Oregon (six miles from Hood River). Let us tell you more about it, either in person or by mail. Price list furnished on application.

D. D. HAIL CO.

MOSIER, OREGON

NO TROUBLE TO ANSWER QUESTIONS

What Constitutes a Good Spray Pump?

- High Pressure** — to throw a strong, fine spray.
- A Pump** — of sufficient capacity under slow speed.
- An Agitator** — to keep mixture well stirred so that it cannot clog pipes and nozzles.
- Some Method of Cleaning** the strainer.

Ask any fruit farmer with experience. He will tell you that the most annoying thing is to find pump, suction or nozzles clogged when he has a tank full of spray mixture in the orchard and must *clean out* before his sprayer will work.

Here We Come In Automatic Brushes with Mechanical Agitators furnished with Empire King Barrel Pump and Watson-Ospraymo Potato Sprayer, also with Leader-Triplex Gasoline Engine Machines of 10 gallons per minute capacity, and capable of a nozzle pressure of 250 to 300 pounds.

These Triplex Pumps are run only 40 to 50 revolutions per minute. This slow speed means long life, greater efficiency, less up-keep cost, the weight is not too heavy for two horses—1550 pounds with 2 H.P. engine and 150 gallon tank, including wagon with five-inch tires; or with 3½ H.P. engine and 200 gallon tank, 1800 pounds.

The prices are not too high for efficiency, durability, capacity and satisfaction.

Are you interested? A postal will bring you into touch with our nearest agency.

FIELD FORCE PUMP CO.
Dept. B ELMIRA, N. Y.

Insist on This Trade Mark



F. BORDER'S SON CO.

THE PIONEER BOX APPLE HOUSE OF

BALTIMORE

THE GATEWAY OF THE SOUTH

We represent the leading Pacific Coast shippers, including Mutual Orange Distributors, Stewart Fruit Co., San Joaquin Grape Growers' Association and others

Members National League of Commission Merchants
Members International Apple Shippers' Association

Telegraph Codes { Modern Economy
Revised Economy
Baker's Cipher

ESTABLISHED 1898

M. O. BAKER & CO.

Commission Merchants

Fruits and Produce

122 Superior Street, TOLEDO, OHIO

Apple Headquarters for Toledo, Ohio

Our regular trade takes 50 to 100 Cars every season. We are the apple people.

Don't take our word for it; write the other dealers here.

M. O. BAKER & CO., TOLEDO, OHIO

To the Jobbing Trade:

We cordially invite correspondence from all high class fruit jobbers relative to supplying their trade the coming season with the finest apples grown on earth. Our brilliant red *Spitzenbergs* for early *winter* trade and our beautiful *Yellow Newtown Pippins* for the *spring* trade are the two ideals of the Apple World, and for flavor, beauty and keeping qualities they are not equalled. Buy goods of *quality* and your trade will appreciate the same. Write

Hood River Apple Growers' Union
HOOD RIVER, OREGON

G. W. Butterworth, Northeast Corner Second and Dock Streets
PHILADELPHIA, PENNSYLVANIA

SPECIALIST IN

Western Box Apples, Pears and Deciduous Fruit

EFFICIENT HANDLING OF ASSOCIATION ACCOUNTS

Member National League of Commission Merchants of United States
International Apple Shippers' Association

Reference, Everybody

IF YOU WANT UP-TO-DATE SERVICE GET IN TOUCH WITH US

BEST FACILITIES IN AMERICA FOR THE STORAGE OF

Export Apples

Ample steamship sailings with apple space always available for London, Liverpool,
Manchester and Glasgow

FREE INSURANCE

FREE SWITCHING TO WAREHOUSE

LIBERAL ADVANCES

Write us and acquaint yourself with Boston's special advantages for the storage of export fruit

BOSTON TERMINAL REFRIGERATING COMPANY

CHAS. L. CASE, Manager

GRAND JUNCTION WHARVES, EAST BOSTON, MASSACHUSETTS

PHOTOGRAPHS CANNOT LIE—They show exactly what comes before the camera. Half-tones are exact reproductions of photographs and are necessarily true to nature.



A block of Bing, Lambert, Royal Ann (Napoleon) as the camera shows it

Sweet Cherry

For the western cherry grower we have thousands upon thousands of handsome 1-yr. and 2-yr. trees, grown in the finest cherry soil in the world. Bing, Lambert and Royal Ann (Napoleon) constitute the bulk of our sweet cherry blocks, and these three varieties are the ones that are planted almost exclusively and are the ones that have made the cherry regions of the West famous. They are unailing money makers.

Sweet cherries can be grown only in favored localities; the area is so limited that over production cannot be considered even among the possibilities—at least for many years. Therefore, these regions must increase their plantings as the demand for the fruit is increasing with each season—much more rapidly than the production, and the markets have never been one-tenth supplied. They should be planted by the thousands of acres. Cherry growing for the canners—to say nothing of the great and growing markets for the fresh fruit—is becoming one of the great industries of the West and it is only fairly well begun. The markets of the world are open to the producer.

Condensed Stark Year Book, 1912, is now in the hands of the printers and will be sent free to any reader of **Better Fruit**. Write for it today, and when writing tell us your planting plans. Perhaps some lessons we have learned in our many years of experience in nursery and orchard will help you steer clear of some of the orchard mistakes that cost many planters dearly. We will be glad to be of any service. The help of our Special Service Department is yours for the asking.

Stark Bro's Nurseries & Orchards Co.

Louisiana, Missouri. Lock Box 12 A.

Big Doings in Hood River

The city is grading the streets in the business district preparatory to paving. Six miles of new macadam road is nearly completed. The municipal water system will soon be under way. Several business blocks are under construction, including an up-to-date opera house. New warehouses for storing fruit are being built along the railroad. Many fine new houses in the town and valley are under construction.

Hood River is a live district with something doing all the time. If you want to better yourself come here and we will tell you how to do it. We have good bargains in city and orchard property.

J. H. HEILBRONNER & CO.

THE RELIABLE DEALERS

HEILBRONNER BUILDING

HOOD RIVER, OREGON

TREES THAT BEAR

Here are four-year-old Jonathans in the 40-acre orchard of F. A. Williams, two miles west of Toppenish. Trees purchased of Washington Nursery Company. (Photo taken September, 1911.)

It's too bad the camera doesn't take a red apple as well as it does something white or black.

This tree in the foreground was loaded with the finest Jonathan apples you'd find in a month's travel, and it's only one of scores of Jonathans in this same orchard, and this, too, in a year when a general 50 per cent crop of apples is as big as could be found, and many orchards with far less.

The Rome Beauties in this same orchard were also splendidly loaded.

This is only one of hundreds of orchards of our trees planted all over the Northwest during the past eight years. The proof of the merits of our stock is found in its hardy, well-matured, sturdy nature, and in its rapid growth in any proper soil in any climate.

The reason for this lies in the conditions under which our trees are grown. Months of continuous sunshine—soil of unsurpassed fertility—moisture when needed, none when not—continuous cultivation—and finally cool nights, with frost in the air in September and on till digging time. All this is what makes a Washington Nursery tree the envy of the less fortunate grower in other localities, for the stock is big and well calipered and splendidly rooted and matured.



WATCH THE GRADES

We grade our trees from where the bud leaves the scion—not from the union—and in this way you, the purchaser, get about one grade better than under the wrong method of measuring from the union.

WASHINGTON NURSERY COMPANY
TOPPENISH, WASHINGTON

MORE SALESMEN WANTED IN GOOD, UNOCCUPIED FIELDS
WRITE US

BETTER FRUIT

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

Estimate of 1911 Apple Crop of United States and Canada

From The Packer, August 19, 1911

THE report of the International Apple Shippers' Association, issued by Secretary R. G. Phillips, shows the apple crop in the United States and Canada, based upon reports from the members of the association, to be as follows. (If a state is reported at 175 per cent it means that state has 75 per cent more than a year ago, and if at 60 per cent it has 40 per cent less, if at 100 per cent it indicates a crop of equal proportions, and if at 200 per cent a crop twice as large is indicated.) Percentage compared with 1910 crop:

New England Group	Percent	Quality
Maine	115	Fair to good
New Hampshire	50	Fair to good
Vermont	100	Fair to good
Massachusetts	75	Fair to good
Rhode Island	150	Fair
Connecticut	60	Fair
<i>Central Group</i>		
New York	150	Good
New Jersey	180	Good
Pennsylvania	135	Good
Ohio	140	Poor to good
Michigan	250	Fair to good
Wisconsin	500	Fair to good
<i>Southern Group</i>		
Maryland	150	Fair to good
Virginia	45	Fair to good
West Virginia	110	Fair to good
Kentucky	75	Poor
Tennessee	75	Fair
<i>Middle Western Group</i>		
Indiana	125	Fair to good
Illinois	170	Poor to good
Minnesota	500	Good
Missouri	200	Poor to good
Arkansas	100	Fair to good
Iowa	300	Fair to good
Nebraska	130	Fair to good
Kansas	60	Poor to good
Oklahoma	150	Fair to good
<i>Pacific Coast Group</i>		
Colorado	180	Good
Utah	125	Good
Idaho	100	Good
Washington	70	Good
Oregon	60	Good
California	85	Good
New Mexico	200	Good
<i>Canada</i>		
British Columbia	85	Good
Ontario	175	Fair to good
Nova Scotia	300	Fair to good

An examination of the report of Secretary R. G. Phillips will show as follows:

New England Group—Decreases are noted, especially in New Hampshire and Massachusetts, with a substantial increase occurring only in the unimportant State of Rhode Island. This group as a whole, however, indicates a decline from last year of from 15 to 18 per cent.

The Central Group—This large and very important group shows a most substantial increase throughout, with quality generally good and better than for some time. This group indicates an increase from last year of more than 60 per cent.

The Southern Group—A decline will occur in this section, due to a falling off in the important State of Virginia.

This decline will to a considerable extent be offset by the excellent showing in Maryland and the prospect in West Virginia, Kentucky and Tennessee being unimportant factors. The group as a whole indicates a decrease of a little more than 20 per cent.

The Middle Western Group—This very important section, with the sole exception of Kansas, shows a heavy increase over a year ago. This section was generally light last year, and in some states a failure. An increase of 80 to 85 per cent is now indicated for this group.

Quantity—Declines are shown in New England, the Southern and Pacific Coast groups. The great Central and Middle Western groups show large increases, together with the Provinces of Ontario and Nova Scotia. In the United States there is now in sight fully 30 per cent more apples than a year ago, or more than 4,000,000 barrels of commercial fruit more than a year ago. Canada indicates an increase of more than 1,300,000 barrels, making for the two countries practically 5,500,000 barrels in excess of a year ago, or around 35 per cent of increase.

As bearing upon this year's deal, the exports from the United States and Canada during the last two years are important. The figures compiled by the Canadian government and United States statisticians vary, a large part of it caused no doubt by Canadian apples passing through the port of Portland, Maine. The Canadian figures show a decrease in exports from that country in 1910-11 over 1909-10 of 1,080,819. Figures compiled in New York show the decrease at 884,798. The short crop in Ontario and Nova Scotia last year accounts for this decrease. This year these provinces have sufficient fruit in sight at this time to bring Canadian exports back to the normal level. The exports from the United States increased last year between 400,000 and 650,000 barrels, largely because of the Canadian shortage, and afforded the needed assistance to carry the deal through safely. The ice was exceedingly thin last year and bent badly at times.

It should be borne in mind that last year the shortage of early fruit in the Central group allowed such states as Virginia to clean up early and started winter fruit from all sections into consumption at an unusually early date. This year there are large quantities of early and fall fruit to be first consumed. Your attention is also called to the fact that there are apples in every state where there are trees. There is no failure in any section. There is now in sight far more than enough of everything to go around and conservative views should prevail. The figures we have given are most conservative; they are understated in many instances, and with normal conditions from now on the crop will increase rather than decrease. Rains have fallen generally over the country and conditions may be said to be very favorable.

Features of this Issue

STATISTICS OF THE FRUIT INDUSTRY

APPLE PRODUCTION IN WESTERN UNITED STATES

APPLES EAST OF THE GREAT LAKES

ANALYSIS OF WESTERN SPRAYING METHODS

ORCHARD MANAGEMENT AND APPLE GROWING IN NEW ENGLAND

SPOKANE NATIONAL APPLE SHOW

Pacific Coast Group—The important States of Washington and Oregon show a considerable decrease over a year ago, with California showing a lighter decrease and Colorado a very substantial increase. Taking the section as a whole, and including New Mexico, which this year has a very favorable promise, this group now indicates a decrease of from 5 to 10 per cent.

Canada—The important eastern sections, including the Provinces of Ontario and Nova Scotia, show a very substantial increase over last year, amounting to fully 100 per cent, with generally good quality.

Quality—The only complaint of importance is on size in parts of the Southern and Middle Western groups, and varying even here from under to normal, in other respects good. With sufficient rainfall the matter of size should be largely remedied. Diseases, worms, etc., are under better control than ever, and care and spraying have increased greatly. On the whole a good quality is indicated.

General Statistics About the Fruit Industry and Sources from which Obtained

Collected by J. C. Skinner, Secretary of the Hood River Commercial Club, credit being given to the various sources from which the information was obtained

PRODUCTION OF APPLES IN THE UNITED STATES, BY STATES, IN 1889 AND 1899, AND NUMBER OF TREES OF BEARING AGE IN 1890 AND 1900, AS REPORTED BY THE ELEVENTH (1890) AND TWELFTH (1900) CENSUSES

State or Territory	Trees of bearing age 1890		Production 1889		Trees of bearing age 1900		Production 1899		Trees of bearing age 1910	
	Number	Bushels	Number	Bushels	Number	Bushels	Number	Bushels	Number	Bushels
Maine	3,003,109	3,071,471	1,421,773	2,610,000	65	6	1,273	2,351	191	1,911
New Hampshire	1,741,779	2,283,317	1,978,797	1,574,000	16,298	1,522	17,121	2,351	105,301	1,723
Vermont	1,213,105	1,476,822	1,382,900	1,382,900	1,283,307	1,172,935	1,414,497	1,723	3,877,329	1,723
Massachusetts	1,690,110	1,852,046	3,023,436	1,476,600	6,063,575	3,713,019	3,214,407	1,723	11,818,070	3,214,407
Rhode Island	207,250	239,367	339,415	432,000	5,730,144	10,679,389	8,757,238	4,907	6,053,717	3,48,000
Connecticut	1,114,757	1,093,724	3,708,931	1,545,000	5,920,000	7,283,945	5,387,775	4,907	7,714,053	2,175,000
New York	14,428,381	8,493,816	20,111,257	11,100,000	780,457	1,238,734	719,175	4,907	2,015,711	19,475
New Jersey	1,310,705	603,890	1,810,793	6,000,000	357,309	605,368	219,035	4,907	1,484,846	681,735
Pennsylvania	9,097,700	7,552,710	24,060,651	6,000,000	101,818	117,748	581,735	4,907	1,484,846	681,735
Delaware	340,618	109,644	702,920	889,500	622,801	742,993	222,565	4,907	677,068	222,565
Maryland	1,297,239	1,410,113	3,150,673	889,500	.....	.....	.....	4,907	2,054,894	111,235
District of Columbia	1,742	1,369	283	1,162,500	265	1,894,316	111,235	4,907	2,054,894	111,235
Virginia	4,253,364	8,391,425	9,835,982	1,162,500	2,114,706	1,894,316	2,811,182	4,907	7,486,145	2,811,182
West Virginia	2,870,535	4,439,978	7,495,743	1,800,000	10,960	5,896	43,939	4,907	5,896	43,939
North Carolina	4,249,468	7,591,541	4,682,751	.....	370	43	989	4,907	5,896	43,939
South Carolina	321,137	435,184	251,728	.....	77,798	70,823	257,563	4,907	2,004,895	257,563
Georgia	1,315,501	2,113,055	670,889	.....	40,416	37,192	142,332	4,907	2,004,895	257,563
Florida	7,025	2,610	1,866	.....	2,296	1,973	13,471	4,907	2,004,895	257,563
Ohio	10,860,613	13,789,278	20,617,480	5,820,000	112,396	56,633	189,882	4,907	2,004,895	257,563
Indiana	6,089,106	8,784,038	8,620,278	2,079,000	27,187	30,083	10,760	4,907	2,004,895	257,563
Illinois	6,919,336	9,600,785	9,178,150	5,322,000	96,497	88,296	982,349	4,907	2,004,895	257,563
Michigan	8,382,386	13,154,626	10,927,899	5,322,000	315,479	295,196	728,978	4,907	2,004,895	257,563
Wisconsin	1,383,070	1,591,747	393,373	1,902,000	2,268,395	1,638,492	873,980	4,907	2,004,895	257,563
Minnesota	1,655,294	80,131	120,143	.....	1,269,784	1,654,636	3,488,208	4,907	2,004,895	257,563
Iowa	3,640,588	5,040,352	3,129,862	2,793,000	.....	.....	.....	4,907	2,004,895	257,563
Missouri	8,150,412	8,698,170	6,496,436	1,035,500	.....	.....	.....	4,907	2,004,895	257,563
Missouri	.....	.....	.....	.....	.....	.....	.....	4,907	2,004,895	257,563
United States	.....	.....	.....	.....	.....	.....	.....	4,907	2,004,895	257,563

Estimated by dealers.

Attention is called to the right-hand column. The increased setting of apples began as far back as 1882 and has continued in many states annually. Please note the decreased production in the estimate for 1911 of the different states. Maine and Rhode Island are the only states that show an increased estimate for 1911 as compared with the production in 1899, among the states east of the Rocky Mountains. Missouri is reported as having 20,040,390 bearing trees, with an estimate for the year 1911 of 1,033,500 bushels. Of course this is an off year, but if you consider 1911 an off year you might as well consider 1905, 1906, 1907, 1908, 1909 and 1910 off years, as the general production in the United States was not much greater in any one of these years. In 1889 the United States had 120,152,795 apple trees of bearing age, which produced 143,105,689 bushels, about one and one-sixth bushels per tree. In 1899 the United States contained 201,794,642 trees and produced 175,397,600 bushels, or three-quarters of a bushel per tree. While the number of trees is not known for the year 1910, it is probably safe to estimate that the number has increased as much or even more from 1899 to 1910, which would probably mean that there are 300,000,000 apple trees. Yet in the year 1910, according to the following table, the crop amounted to 23,825,000 barrels or 71,475,000 bushels, which would make the average production per tree one-quarter of a bushel. All of these statements are simply conclusions from the statistics published herewith, which you can figure out for yourselves. It seems evident that any orchard district or any state which averages from only seven-eighths of a bushel in the year 1899 to one-quarter of a bushel in

the year 1910 is not a paying proposition, and it seems evident also that the following conclusion must be drawn by any individual who will take the pains to carefully study these statistics that there must be an immense area planted to apples throughout the United States which from 1899 to 1910 has been a losing proposition. This is a self-evident fact. What may be the cause is another matter, but it is evident that there are causes in many sections to account for this small average. In other words, the soil is not suited to apple culture, climatic conditions are not right, or the orchards have received a woeful lack of attention. It may be any one or two of these three or all three combined. There are many sections and some states where the trees have averaged from five to ten bushels per tree, such being the case in many districts throughout the Northwest, and if this is true it also must be evident that many sections and some states have produced far less than the average part of a bushel per tree, which has varied from seven-eighths to one-quarter of a bushel during the last eleven years. In conclusion, each state, each district will be forced in the future to work out the problem for itself as to whether apple growing is a remunerative industry or whether it is conducted with a financial loss. All states in the Union are not adapted to the production of all products of the soil. Southern states are celebrated for their cotton and sugar. The Middle Western states for grain and corn. Some states are adapted to general farming, and only portions of all the states are adapted to fruit growing, the necessary combination of soil and climate being found in somewhat limited areas.

APPLE CROPS, EXPRESSED IN BARRELS, OF THE UNITED STATES, BY STATES, FROM 1899 TO 1910, INCLUSIVE

State	CENSUS ESTIMATE		ESTIMATE OF AMERICAN AGRICULTURIST					FROM DEPARTMENT OF AGRICULTURE				
	1899	1900	1899	1900	1901	1904	1905	1906	1907	1908	1909	1910
Maine	474,000	850,000	570,000	1,200,000	1,200,000	1,425,000	630,000	900,000	1,700,000	950,000	850,000	850,000
New Hampshire	659,000	1,100,000	450,000	900,000	900,000	700,000	710,000	800,000	800,000	400,000	600,000	600,000
Vermont	392,000	700,000	375,000	600,000	600,000	475,000	600,000	600,000	750,000	200,000	350,000	550,000
Massachusetts	1,008,000	1,550,000	425,000	1,050,000	1,050,000	895,000	700,000	700,000	600,000	500,000	500,000	350,000
Rhode Island	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Connecticut	1,236,000	1,750,000	550,000	720,000	720,000	479,000	100,000	100,000	100,000	100,000	100,000	100,000
New York	8,037,000	3,100,000	2,450,000	6,250,000	6,250,000	7,200,000	5,250,000	5,200,000	4,650,000	4,100,000	3,200,000	3,200,000

New Jersey	8,020,000	2,250,000	1,400,000	3,300,000	3,800,000	4,150,000	750,000	650,000	400,000	350,000	400,000	350,000
Pennsylvania	6,872,000	2,220,000	1,500,000	3,500,000	3,100,000	3,275,000	1,500,000	1,800,000	2,000,000	2,000,000	2,000,000	2,000,000
Delaware	2,977,000	3,150,000	3,800,000	3,400,000	3,260,000	3,575,000	1,800,000	2,750,000	1,600,000	1,600,000	1,600,000	1,600,000
Ohio	2,873,000	2,100,000	1,250,000	1,400,000	980,000	750,000	100,000	250,000	250,000	250,000	250,000	250,000
Michigan	3,039,000	2,230,000	1,150,000	2,100,000	924,000	510,000	510,000	1,000,000	600,000	600,000	600,000	600,000
Wisconsin	2,165,000	2,000,000	2,450,000	1,400,000	466,000	600,000	425,000	2,100,000	750,000	750,000	750,000	750,000
Indiana	1,071,000	1,100,000	1,150,000	1,000,000	450,000	540,000	350,000	450,000	300,000	300,000	300,000	300,000
Illinois	1,043,000	850,000	900,000	1,250,000	1,306,000	1,550,000	365,000	650,000	425,000	425,000	425,000	425,000
Missouri	937,000	1,000,000	1,000,000	1,000,000	800,000	1,100,000	550,000	900,000	300,000	300,000	300,000	300,000
Kansas							240,000	300,000	300,000	300,000	300,000	300,000
Nebaska							100,000	100,000	150,000	150,000	150,000	150,000
Iowa							90,000	100,000	150,000	150,000	150,000	150,000
Arkansas							25,000	40,000	75,000	75,000	75,000	75,000
Colorado							950,000	1,000,000	1,250,000	1,250,000	1,250,000	1,250,000
Utah							400,000	500,000	600,000	600,000	600,000	600,000
Montana							390,000	425,000	450,000	450,000	450,000	450,000
California	1,162,000	1,200,000	1,200,000	1,100,000	1,150,000	865,000	400,000	500,000	300,000	300,000	300,000	300,000
Oregon							900,000	600,000	650,000	650,000	650,000	650,000
Washington							1,200,000	550,000	700,000	750,000	750,000	750,000
West Virginia							250,000	300,000	300,000	300,000	300,000	300,000
Virginia							1,700,000	2,000,000	1,500,000	1,300,000	1,200,000	1,100,000
Maryland							1,200,000	1,500,000	1,300,000	1,250,000	1,100,000	1,000,000
Kentucky							2,000,000	3,500,000	3,000,000	3,000,000	3,000,000	3,000,000
Tennessee							17,846,000	16,575,000	17,500,000	17,500,000	17,500,000	17,500,000
All other	16,481,000	16,700,000	18,100,000	16,455,000	17,846,000	16,575,000	2,000,000	3,500,000	3,200,000	3,000,000	3,000,000	3,000,000
United States	58,466,000	37,460,000	56,820,000	26,970,000	46,625,000	45,360,000	24,310,000	38,280,000	29,540,000	25,850,000	25,115,000	23,825,000

If the reader will take the pains, in the above table from 1906 to 1910, covering a period of five years, he can draw some very interesting conclusions, which we have not the space in this issue to deal with in detail. However, we suggest that you take any one state, for convenience, and if the crop averages pretty evenly during this five-year period, the conclusion for the state would be that the average crop was fair. Whenever you notice that a state shows a continual decrease in yield, it seems that one would be justified in drawing the conclusion that something is wrong with that particular state as an apple-producing section. However, it must be remembered that increased settings in some states may account for an increased production, and until the statistics are available showing the actual number of trees in each state according to the 1910 census it is impossible to estimate the actual average per tree in any one state. In Oregon and Washington the setting previous to the year 1903 was small as compared with the setting from 1903 to date, and the setting from 1903 to date had not materially affected the quantity until the year 1910, as the trees set in 1903 would be only seven years old in 1910. Colorado began setting extensively a little earlier than either Oregon or Washington. Idaho commenced setting in an increased way about the same time as Oregon and Washington. The setting in California has been comparatively small from 1906 to 1910, compared with the Northwestern states. Missouri had more apple trees in 1899 than any other state in the Union, but it does not show that the state increased in yield

FRUIT IMPORTS AND EXPORTS, 1895 TO 1910

	1895	1896	1897	1898	1899	1900	1901	1902	1903	1904	1905	1906	1907	1908	1909
Bananas, bunches—Imports	15,500,000	15,000,000	13,000,000	14,000,000	18,800,000	18,000,000	19,500,000	22,000,000	25,500,000	24,000,000	29,700,000	30,900,000	35,650,000	37,000,000	37,000,000
Nuts—Imports	2,167,000	2,923,000	2,520,000	961,000	1,192,000	1,144,000	840,000	880,000	950,000	600,000	3,350,000	4,000,000	5,400,000	6,300,000	6,150,000
Oranges, boxes—Imports	143,500	483,600	710,000	304,000	600,300	443,500	746,000	522,500	633,800	494,000	671,600	444,400	355,000	607,400	141,000
Plums, prunes, dried, lbs.—Imports	15,186,000	13,680,000	11,847,000	15,900,000	5,600,000	26,000,000	10,000,000	23,300,000	66,400,000	73,100,000	53,000,000	24,900,000	44,500,000	28,100,000	296,100
Dates, lbs.—Imports	11,855,000	11,900,000	8,910,000	9,630,000	7,284,000	8,800,000	9,900,000	11,000,000	16,500,000	13,200,000	13,100,000	17,563,000	24,346,000	25,000,000	22,000,000
Figs, dried, lbs.—Imports	15,900,000	10,800,000	12,700,000	6,600,000	5,000,000	10,300,000	79,800	71,900	85,900	133,500	76,300	107,500	107,500	18,836,000	15,235,000
Fruit juices, gals.—Imports	16,450,000	33,000,000	30,000,000	3,100,000	4,700,000	2,400,000	3,500,000	2,300,000	4,300,000	4,000,000	7,000,000	9,100,000	9,100,000	5,700,000	7,900,000
Currents, lbs.—Imports	670,000	373,000	638,000	466,000	490,000	483,000	462,000	121,000	598,000	715,000	395,000	344,000	198,000	173,000	88,000
Cider, gals.—Imports	7,086,000	26,700,000	30,800,000	31,000,000	19,300,000	34,900,000	28,300,000	15,700,000	39,700,000	48,300,000	39,300,000	27,900,000	45,700,000	24,200,000	33,500,000
Apples, dried, lbs.—Exports	820,000	360,000	1,500,000	600,000	400,000	520,000	900,000	460,000	1,700,000	2,000,000	1,500,000	1,200,000	1,500,000	1,000,000	800,000
Grapes, cubic ft.—Imports															

FRUIT IMPORTS AND EXPORTS, 1895 TO 1910

The above table will prove very interesting and is deserving of careful study. For instance, take the imports of oranges: In 1895 the United States imported 2,167,000 boxes; in 1909 the importations had fallen to 141,000. In 1897 there were no exports of oranges from the United States, but in 1909 they amounted to 866,800 no exports of oranges from the United States, but in 1909 they amounted to 866,800 boxes. If you will carry out the same deductions with reference to the other fruits mentioned you will find equally interesting information. The deductions you can make as simply as we can make them for you, for when the figures are analyzed it will be found that the table explains itself.

California Fruit, Vegetable and Wine Statistics

From Report of California Development League for 1911

NUMBER AND AGE OF APPLE TREES IN HOOD RIVER

	Top 15 to 25 Grafts	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Yellow Newtown	50,551	39,582	18,728	11,478	5,389	3,286	1,878	1,171	781	448	218	113	55	35	20
Spitzbergen	38,088	29,919	14,572	13,678	6,354	3,918	2,280	1,280	872	487	218	113	55	35	20
Ben Davis	1,055	828	461	257	133	78	50	33	21	13	8	5	3	2	1
Jonathen	3,326	2,000	1,051	572	323	190	116	71	43	25	13	8	5	3	2
Orutley	1,127	700	358	200	116	62	35	21	13	8	5	3	2	1	1
Baldwin	1,883	1,171	608	336	200	116	62	35	21	13	8	5	3	2	1
Arkansas	1,183	781	411	215	116	62	35	21	13	8	5	3	2	1	1
Missouri Black Twig	1,390	853	456	256	141	80	47	28	17	10	6	4	2	1	1
Tompkins Co. King	35	21	13	8	5	3	2	1	1	1	1	1	1	1	1
Hydes Keeper	15	10	6	4	3	2	1	1	1	1	1	1	1	1	1
Starke	100	61	33	20	12	7	4	3	2	1	1	1	1	1	1
Garlo	100	61	33	20	12	7	4	3	2	1	1	1	1	1	1
Minesap	279	185	102	57	35	21	13	8	5	3	2	1	1	1	1
Cravenstein	279	185	102	57	35	21	13	8	5	3	2	1	1	1	1
Whiter Banana	313	200	107	61	35	21	13	8	5	3	2	1	1	1	1
Salome	313	200	107	61	35	21	13	8	5	3	2	1	1	1	1
Red Cheek Pippin	37	20	10	6	4	3	2	1	1	1	1	1	1	1	1
Yakima	25	15	8	5	3	2	1	1	1	1	1	1	1	1	1
Wagener	25	15	8	5	3	2	1	1	1	1	1	1	1	1	1
Northern Spy	711	556	306	181	107	61	35	21	13	8	5	3	2	1	1
Mixed apple orchard	711	556	306	181	107	61	35	21	13	8	5	3	2	1	1
Totals	91,250	77,802	66,198	38,206	33,080	16,509	3,111	10,310	7,975	11,892	3,891	12,217	1,775	1,775	1,775
Grand total	377,676														

EXPORTS by sea of California fruit and vegetables from San Francisco to foreign countries:

	Amount	Value
Prunes, pounds	36,586,765	\$2,117,652
Raisins, pounds	6,146,480	307,133
Apricots, pounds	4,988,215	562,622
Peaches, pounds	3,053,735	132,047
Apples, dried, pounds	1,522,954	121,836
Apples, green, boxes	20,683	41,366
Oranges, boxes	16,694	38,858
Fruits		153,835
Canned fruit, cases	598,630	1,795,890
Nuts		152,479
Beans, cases	33,703	108,672
Onions, cases	26,853	22,929
Potatoes, cases	51,527	40,852
Vegetables, canned		289,788
Vegetables, all other		61,305

Exports by sea of California fruit, vegetables and wine from San Francisco to other states and non-contiguous territory:

To Alaska	Amount	Value
Fruit, dried and green, pounds	835,543	\$ 27,050
Fruit, canned and pressed, cases	758	32,198
Nuts		8,291
Dairy produce		129,270
Vegetables		14,403
Wine, cases	8,485	7,115
To Tutuila		
Fruit, dried and green		38
Fruit, canned, cases	880	3,641
Dairy products		283
Vegetables		1,571
Wine, gallons	146	165
To Atlantic States		
Fruit, dried, pounds	23,372,837	918,225
Fruit, canned, cases	371,221	1,113,663
Wine and brandy, gallons	8,421,288	2,575,592
Beans, pounds	11,172,251	670,335
To Hawaii		
Fruits, green, dried and canned, pounds	4,123,045	225,957
Dairy products		379,172
Vegetables		220,202
Wine, gallons	866,311	350,859
To Oregon and Washington		
Fruits, green, dried and canned, pounds	9,879,000	765,000
Vegetables		900,000
Dairy produce		150,000

The shipments of citrus fruits from California for the season November

1, 1909, to October 31, 1910, while nearly 9,000 carloads less than the one ending 1909, were yet greater than in any year previous. They totaled 33,099 carloads, of which 25,331 carloads of oranges and 4,674 carloads of lemons went from south of Tehachapi. The balance, 2,789 carloads, went from Central and Northern California. The Tulare district sending 2,220 carloads of oranges and 110 carloads of lemons; the northern district furnished the rest, 439 carloads. The shipments were by freight and exclusive of what was marketed within the state and those shipped East by express. The development of the citrus industry in California, which now amounts to between 13,000,000 and 18,000,000 boxes, is nearly three times as great as all the other states combined. The fruit distributing associations and others furnish statistics of shipments of deciduous fruits to Eastern markets for the year 1910, as given in the table herewith. As the varieties are shown they add to the value of the tables of shipments. The figures are for actual carloads without regard to tons in a car. The minimum fixed by the railway companies now is fifteen tons, but a carload is often thirty tons. Shipments from north of Tehachapi, 1908-10:

Varieties	1908	1909	1910
Cherries	208 1/4	250	250
Apricots	231 3/4	210	290
Peaches	1,980 1/4	2,599	2,518
Plums and prunes	1,763	1,526	1,552
Pears	2,701 1/2	2,638	2,361
Grapes	3,816 1/4	5,880	4,948
Apples	2,216	2,188	2,153
Totals	12,917	15,261	14,072

TABLE A—OUTPUT OF DRIED FRUITS, IN TONS, NOT INCLUDING PRUNES AND RAISINS, FOR THE YEARS 1900 TO 1910

Year	Peaches	Apricots	Apples	Pears	Plums	Nectarines	Grapes	Figs
1900	17,170	14,000	3,150	7,275	1,950	435	240	2,000
1901	14,755	7,776	3,225	3,290	1,725	317	180	3,260
1902	25,210	18,762	4,875	2,625	1,280	455	188	3,625
1903	16,075	10,500	1,800	2,325	1,435	317	205	3,000
1904	11,500	8,500	1,500	1,750	1,150	210	170	2,850
1905	17,500	19,250	3,250	1,750	930	185	193	3,625
1906	11,250	3,250	2,750	3,500	1,100	170	200	3,375
1907	12,000	1,500	1,500	500	750	137	188	3,000
1908	22,500	19,000	3,000	1,200	1,000	350	1500	3,000
1909	20,000	14,500	2,500	1,250	500	375	325	3,500
1910	25,000	16,000	3,100	1,000	375	250	350	3,775

TABLE B—IMPORTS AND EXPORTS OF CALIFORNIA RAISINS AND OTHER CURED FRUITS AND ORANGES, 1905 TO 1910

	1905	1906	1907	1908	1909	1910
Imports						
Raisins, pounds	11,511,347	4,537,643	9,927,771	4,875,693	5,219,649	3,022,918
Exports						
Raisins, pounds	3,978,645	9,749,690	4,720,606	7,084,178	8,363,845	15,547,074
Apricots, pounds	13,616,010	3,268,457	1,540,471	14,463,948	13,644,135	18,366,055
Peaches, pounds	700,902	1,819,863	1,354,317	1,296,095	2,843,968	4,946,406
Prunes, pounds	34,820,748	31,777,704	37,674,800	18,087,319	83,128,101	64,470,370
Oranges, boxes				714,365	952,869	962,229

TABLE C—OUTPUT OF CALIFORNIA CANNED FRUIT AND BERRIES, IN CASES, FOR THE YEARS 1908, 1909 AND 1910

	1908—All Grades		1909—All Grades		1910—All Grades	
	2 1/2s and 3s	8s (gals.)	2 1/2s and 3s	8s (gals.)	2 1/2s and 3s	8s (gals.)
Apples	6,100	31,600	6,200	31,600	6,280	70,550
Apricots	1,035,600	125,650	563,660	100,450	554,530	198,630
Blackberries	43,250	44,300	22,625	27,330	26,425	35,600
Cherries, Royal Ann	100,700	5,000	110,250	7,450	123,240	13,050
Cherries, black	39,200	1,525	16,700	1,375	18,110	1,510
Cherries, white	52,100	3,630	51,640	4,520	33,410	5,875
Grapes	37,620	7,925	20,105	4,365	39,285	6,360
Loganberries	1,029	1,371	3,204	808	6,977	5,662
Nectarines	1,502	171		14		1
Pears	611,500	29,050	466,530	34,910	568,125	51,230
Peaches, freestone	838,400	136,950	401,800	145,375	553,000	195,825
Peaches, cling	1,240,350	87,260	779,725	109,260	1,233,200	163,425
Plums	209,300	30,525	75,450	13,975	65,550	14,810
Raspberries	5,365	585	3,375	215	9,335	791
Strawberries	4,960	820	9,690	890	13,225	848
Other fruits	272	1,053	700	635	2,250	1,400
Total cases	4,227,248	507,415	2,532,829	514,172	3,242,942	765,607
Grand totals		4,734,663		3,047,001		4,008,549

WINTER APPLES PER BARREL, AT WHOLESALE

	Compiled from Sources	
	NEW YORK	CHICAGO
1909	\$3.00 @ 6.00	\$3.50 @ 5.00
1908	2.00 @ 3.00	2.25 @ 5.00
1907	3.00 @ 5.25	3.25 @ 5.50
1906	2.50 @ 4.00	2.00 @ 3.25
1905	1.50 @ 1.25	1.00 @ 1.25
1904	1.25 @ 3.00	1.50 @ 3.00
1903	1.50 @ 3.00	1.50 @ 3.00
1902	1.75 @ 3.00	1.50 @ 3.00
1901	1.50 @ 3.00	1.50 @ 3.00
1900	1.50 @ 3.00	1.50 @ 3.00
1899	1.50 @ 3.00	1.50 @ 3.00
1898	1.50 @ 3.00	1.50 @ 3.00
1897	1.50 @ 3.00	1.50 @ 3.00
1896	1.00 @ 1.75	1.00 @ 1.75
1895	1.50 @ 1.75	1.50 @ 1.75
1894	1.00 @ 1.75	1.50 @ 1.75
1893	2.00 @ 2.50	2.00 @ 2.50
1892	1.50 @ 2.00	1.50 @ 2.50
1891	1.50 @ 2.00	1.25 @ 1.75

While the above table gives but 2,153 carloads as the total shipments of apples from the state for the year 1910, the secretary of the Watsonville Commercial League places the shipments from Pajaro Valley at 4,000 carloads.

Nearly all kinds of deciduous fruits are dried for the market, but prunes, peaches and apricots are the most important. The dried output of all, except figs, varies largely according to the season, the demand of the Eastern market for fresh fruit and the prices offered by the canners. (See Table A.)

Of dried fruits, prunes come next in importance to raisins. Prunes are grown in many counties throughout the state; the largest center of this industry is the Santa Clara Valley. A good many prunes are grown in the San Joaquin and Sacramento Valleys, and also in Contra Costa and Sonoma Counties. The output varies largely in different years. The most reliable figures place the output for 1910 at 45,000 tons, or half the production of 1906. California prune output, 1897-1910:

Year	Tons	Year	Tons
1897	48,840	1904	67,500
1898	45,210	1905	37,500
1899	56,863	1906	90,000
1900	87,000	1907	40,000
1901	40,800	1908	25,000
1902	98,500	1909	77,500
1903	82,500	1910	45,000

The accompanying exhibit is of some interest in this connection as showing the trend of trade in dried fruits. (See Table B.)

The quantity of fruit which is exported depends to a certain extent on the size of the crop. For example, the prune crop for 1910 is estimated at about 74,000,000 pounds, as compared with 150,000,000 the previous year, which was one of the largest on record. The apricot crop also varies greatly.

The canning of fruit and vegetables is an important industry in California, and the yearly output of canned goods is very large. The aggregate number of cases of all kinds of fruit and berries canned in 1909 was nearly a million and three-quarter cases less than in 1908, but was larger than for any previous year. The demand for fresh fruit at home and for shipping takes a large quantity of fruit that would otherwise go to the canner.

The accompanying exhibit, by courtesy of the "California Fruit Grower," is made of the various kinds of fruit canned in 1908, 1909 and 1910. (See Table B.)

It is given by same authority that the aggregate amount of canned fruit and berries for 1910 amounted to 4,058,549 cases.

The following table shows the production of canned fruits during the last ten years:

Year	Cases	Year	Cases
1901	2,677,082	1906	3,109,225
1902	2,252,790	1907	2,982,985
1903	2,783,504	1908	4,734,663
1904	2,840,614	1909	3,047,001
1905	3,283,296	1910	4,008,549

California is easily the most important factor in viticulture in the United States, and grape culture is one of the most widespread industries in the state, 342,519 acres, according to the State Board of Equalization, being devoted

to the industry, of which 160,573 acres are in wine grapes, 128,217 acres in raisin grapes and 53,729 acres in table grapes, which is being increased every year, especially of table grapes. All varieties of the European grapes are included, besides many California developments therefrom. The annual value of the grape product, including table grapes, dried grapes and raisins, and wine and brandy, aggregates over \$25,000,000. The shipments of table grapes out of the state by rail for 1910 amounted to 4,948 carloads. The center of the raisin industry is in Fresno County, although raisins are produced in other parts of the state. The crop varies from year to year, as the appended table shows; that for 1910 exceeds the average of the six preceding years. California raisin crop for fourteen years:

Year	Tons	Year	Tons
1897	46,852	1904	37,500
1898	40,365	1905	43,750
1899	35,784	1906	47,500
1900	47,167	1907	60,000
1901	37,125	1908	60,000
1902	54,375	1909	70,000
1903	60,000	1910	56,000

Following is the raisin product, in pounds, of twelve California counties for 1909:

Fresno	83,404,000
Tulare	20,000,000
Kings	18,000,000
Sutter	4,500,000
San Bernardino	3,600,000
San Diego	3,200,000
Madera	2,400,000
Yolo	2,000,000
Kern	1,100,000
Colusa	900,000
Los Angeles	600,000
Riverside	296,000

Total crop 140,000,000

The above figures show that Fresno County now produces about sixty per cent of the California raisin crop, and nearly twice the quantity produced by Spain, which produces from 15,000 to 30,000 tons and has held the lead for centuries. It was in 1892 that the California raisin crop first equaled that of Spain, and it has been increasing the difference ever since.

Fresno County is the center of the seeded raisin industry, where it originated. The following figures show in tons the wonderful increase in this popular form of raisin during the last fourteen years:

Year	Tons	Year	Tons
1896	700	1903	18,000
1897	3,500	1904	18,000
1898	7,000	1905	21,000
1899	12,000	1906	24,000
1900	14,000	1907	26,000
1901	14,000	1908	24,000
1902	16,000	1909	28,000

The above figures are only approximate.

The aggregate wine and brandy production for 1910, with an excess of 500,000 gallons in case of dry wine and of 500,000 gallons in case of brandy, was more than for 1909, which exceeded all previous years. The production in 1909 of sweet wine was the greatest in the history of the industry by 2,500,000 gallons, and 1910 kept pace with it. The output of dry wine was well above the normal by near 7,000,000 gallons. The following table shows the product of wine and brandy in gallons for the last fourteen years:

Year	Dry Wines	Sweet Wines	Brandy
1897	28,736,400	5,197,500	1,442,468
1898	10,750,000	7,779,000	1,250,000
1899	15,103,000	8,330,000	1,699,035
1900	16,737,260	6,940,300	3,256,513
1901	16,473,731	6,270,300	1,688,482
1902	28,224,146	14,835,146	4,564,173
1903	21,900,500	12,670,356	1,972,000
1904	15,589,342	13,571,856	4,420,839
1905	20,000,000	10,700,000	1,250,000
1906	26,000,000	15,000,000	1,345,000
1907	27,500,500	15,500,000	1,500,000
1908	22,500,000	14,750,000	1,750,000
1909	27,000,000	18,000,000	2,000,000
1910	27,500,000	18,000,000	2,500,000

After 1904 brandy used in fortifying sweet wines was excluded.

California wines have a wide and growing market. The railroad shipments go mainly to Eastern points, while those by sea go to the four quarters of the world. In this connection the following exhibit of exports of wine by sea, taken from the Wine and Spirit Review, is of interest:

	Gallons	Value
1908, to 12 countries	4,250,799	\$1,657,089
1909, to 23 countries	7,440,294	2,386,111
1910, to 26 countries	9,866,539	3,162,600

Summary of the values of fruit products for 1910 marketed by the producer and for the most part shipped out of the state, compiled from data gathered from the transportation companies and other authoritative sources:

Orchard Products	Value
Fresh deciduous fruits	\$15,479,200
Citrus fruits	32,790,000
Dried fruits, including	
prunes	17,793,000
Canned fruits	10,000,000
Olives and olive oil	2,200,000
Nuts	3,375,000
Vineyard Products	
Table grapes	4,452,200
Raisins	4,640,000
Wine and brandy	25,500,000
Total	\$116,229,400

[Editor's Note.—Special attention is called to the volume of business done by California in dried fruits and canned fruits, amounting to \$27,793,000. This should be sufficient evidence to prove beyond question that Oregon and Washington, Idaho and other states in the Northwest are far behind the times in the matter of canning and drying. The Northwest needs canneries and evaporators, and it needs them badly, and the fact that in California this part of the industry amounts to nearly \$28,000,000 certainly should be sufficient evidence.]

EMBRACING the three Counties of Kittitas, Yakima and Benton, the fruit tree census of this famous section shows up as follows: Total number fruit trees 3,330,726, distributed as follows: Kittitas County, 304,206 trees, 4,129 acres; Yakima County, 2,271,538 trees, 28,750 acres; Benton County, 754,892 trees, 8,461 acres.

Total number of trees 3,330,726, divided as follows: Apple, 1,956,680; pear, 499,809; peach, 751,601; miscellaneous, 132,636.

Of the apple trees, the number according to age is as follows: Over six years, 336,554; five years, 106,503; four years, 159,603; three years, 390,299; two years, 496,965; one year, 466,766.

There are in these counties 127,009 acres irrigable, but not in cultivation, a large portion of which can be put to fruit.—From report of Mr. E. F. Benson, secretary of state.

Fruit Tree Statistics of the Famous Yakima Valley

From Yakima Herald, August 12, 1911

A BROADER idea of the value of the fruit trees in the Yakima Valley was obtained Friday by a conservation with J. H. Robbins, general manager of the Yakima Valley Fruit Growers' Association. By Yakima Valley is meant all the fruit growing country in the eastern part of Kittitas County, and all of the fruit lands of Yakima and Benton Counties. Mr. Robbins places the number of fruit trees in the above region at 3,500,000, and their value at ten dollars per tree. He acknowledges that the number of trees is probably much greater than he mentioned, and that their value is much more. Those figures were given merely as a rough basis to show up how valuable the fruit industry has become in this part of the state, while other statistics can easily be obtained to show that it is growing by leaps and bounds. From figures compiled and read at the meeting of the State Horticultural Society held at Prosser last January, the number of fruit trees in the first mentioned region was placed at 3,330,726. No person who is well informed will dispute that there were not more trees set out in this region last spring than would swell the number to more than 3,500,000, for the records of the nurseries will verify the additional number. From the foregoing it would appear that Mr. Robbins estimates the value of the fruit trees alone at \$35,000,000. The number of acres in orchards last January was placed at 41,340, which has been increased to nearly 50,000 acres by this time. Adding the value of the land to that of the trees would make a stupendous total.

To handle the selling and transportation business of such an immense business as that of fruit raising on a gigantic scale, such as partially outlined above, requires a strong company. Right here is where Mr. Robbins gave out some information that may be of profit to those who read it, and it may be of interest to many who have never given the subject much thought. The Yakima Valley Fruit Growers' Association has at the present time fourteen district associations, Broadway having been added within the past few weeks. There are approximately four hundred horticulturists who are signed up members of their different local associations. The central body is composed of two delegates from each local. There is nothing new or original in the plan of organization. It is trying no experiment on fruit growers. It is based on the unit system, the same as that governing some of the California organizations, which have been in successful operation for more than twenty years. The local organizations thresh out their own problems at home, and no single association can cover whole districts and keep its members in harmony. The orchardists of the Spokane district paid the Yakima Valley Fruit Growers'

Association a compliment last week by resolving to organize along similar lines. They are to hold another meeting today, Saturday, to proceed with their organization. Inasmuch as it will be impossible for them to get into shape to handle their own fruit this year, it is believed that they will turn it over to the association here to sell for them, thus becoming for purposes of protection members of this body during the time that will necessarily elapse while they are getting ready for business. In addition to the members who reside in Washington, the local organization has been asked to handle the crops for fruit growers of both Idaho and Oregon. The Idaho fruit men who have come in will form a district association as soon as they possibly can incorporate, and will then be regular members of the association, the same as though they were located

in the Yakima Valley. One feature of the plan of operating the Yakima Valley Fruit Growers' Association, as emphasized by Manager Robbins, is that the work is divided into departments, the head of each of which is master of the work in that line. C. C. White has charge of the sales, with title of sales manager. J. T. Roman is traffic manager. Both of these gentlemen have had years of experience and know their business. Mr. Roman handled 25,000 cars of fruit last season, 13,000 of which were of the cold storage variety. As Robert E. Strahorn, vice-president and manager of the O.-W. R. R. & N. Company, predicts that within the next five or six years this region will be turning out not less than from 25,000 to 30,000 carloads of fruit annually in normal years, it is easy to be seen that it will require considerable ability and a great deal of labor to satisfactorily handle the marketing of the fruit, including the transportation and selling features.

Estimate of Apple Crop this Year

From National League Bulletin, August 1, 1911

SUMMING up the various figures and guesses regarding this season's apple crop, taken in conjunction with figures furnished by the United States government, it would appear that the crop will be around 28,600,000 barrels, as compared with about 23,800,000 for last seasons' crop.

The crop in the Hudson River Valley is variously estimated at from twenty-five to fifty per cent of a normal crop. The drop has been heavy, and recent storms and high winds have done great damage. Quality, however, promises fine both in the Hudson Valley and Western New York.

Over 3,000,000 barrels are expected from New England States, estimated about as follows:

Vermont	474,300
Massachusetts	492,000
Rhode Island	144,000
Connecticut	515,000
Maine	880,000
New Hampshire	524,000

Other estimates show the following number of barrels from the states named:

New York	3,700,000
West Virginia	600,000
Pennsylvania	2,000,000
Ohio	1,940,000
Illinois	1,936,000
Michigan	1,774,000
Kentucky	1,030,000
Iowa	931,000
Delaware	125,500
Maryland	296,500
Virginia	387,500
Wisconsin	634,000
Arkansas	251,000
Missouri	344,500
Kansas	116,000
Indiana	693,000
Tennessee	725,000

The box apple output is shown at over 13,000,000 million boxes. California is expected to furnish about 5,000,000 boxes, Washington 300,000, Colorado about 2,500,000, Oregon 1,100,000 and the balance coming from New Mexico, Idaho, Utah and Montana.

[Editor's Note.—By comparison of the statistics compiled by the editor, which are shown elsewhere in this edi-

tion, you will note a big difference in the output of box apples. California is put down for 5,000,000 boxes, and our estimate is 1,800,000. However, this may be an under-estimate, and they may possibly go to 2,400,000. Washington is put down for 300,000 boxes, and our estimate is 1,800,000. Colorado is down for 2,500,000; our estimate is 1,800,000. However, it is possible that Colorado may exceed this figure. Oregon is put down for 1,100,000 boxes; our estimate is 720,000. The total of the above estimates is 13,000,000, while our estimated total is 6,960,000. It is apparent there is quite a difference. It remains to be seen who is correct. However, we wish to say in reference to our estimate, which may account for the discrepancy, that we only deal with the number of carloads actually shipped out of the above named states, that is, California, Colorado, Utah, Montana, Idaho, Washington and Oregon. Statistics lately compiled indicate that about 16,000 carloads were shipped from the above states last year. The Eastern estimate of the crop shipped from the above named states in 1910 was 18,000 cars. Of those there are only two, Colorado and California, which are claiming over fifty per cent of their crop, which would be 9,000 carloads. If Colorado ships 2,000 carloads more than our estimate of 3,000 and California ships 1,000 more than our estimate, which, we think, will be the limit, it will mean about 12,000 carloads for this year.]

WANTED — Employment by a young man, single, an agricultural college graduate, a specialist in fruit growing. Will accept small wages to start. Address R. W. M., 2219 H Street, Bellingham, Washington.

Apple and Peach Statistics for the State of Utah

Compiled by State Horticultural Commission, Salt Lake City, Utah

REPORT OF FRUIT TREES PLANTED IN UTAH SPRING OF 1911

Counties	Plums and						Totals
	Apples	Peaches	Cherries	Pears	Apricots	Prunes	
Utah	145,767	58,779	11,927	5,175	110	2,749	224,507
Box Elder	135,000	45,000	8,400	2,400	4,800	4,500	200,100
Salt Lake	58,666	20,250	18,508	12,643	428	2,182	112,677
Weber	31,254	17,644	5,376	500	4,746	1,014	60,534
Cache	23,300	3,000	2,400	720	240	1,200	30,860
Washington	450	24,000	.....	360	240	150	25,200
Emery and Grand	16,200	31,200	840	5,160	120	600	54,120
Davis	11,743	3,560	2,976	.....	841	178	19,298
San Pete	17,199	675	90	480	240	.....	18,585
Tooele	9,000	3,030	3,275	275	65	300	15,945
Millard	3,285	1,688	30	900	30	413	6,346
Carbon	2,640	1,700	150	1,200	.....	100	5,790
Rich	2,093	.....	480	390	120	300	3,383
San Juan	900	1,500	120	240	60	300	3,120
Iron	428	206	73	43	19	21	790
Morgan	270	.....	120	60	.....	75	525
Summit	270	.....	.....	60	.....	19	349
Totals	458,366	212,232	54,765	30,606	12,059	14,101	782,129
Estimate of other counties not reported	.....	.....	.....	.....	.....	.....	10,300
Grand total	.....	.....	.....	.....	.....	.....	792,429

The growing importance of the fruit industry in Utah is emphasized in the above report of the fruit trees planted in the spring of 1911.

About fifty-eight per cent of the total area is planted to apples; about twenty-seven per cent is to peaches, and the balance to cherries, pears, plums and prunes and apricots, in the order named. Large gains over 1910 were made in Box Elder, Salt Lake, Cache, Washington, Tooele, Millard, Rich, San Juan and Carbon Counties. Over the state as a whole, however, there is a slight decrease in 1911, compared with 1910, but a considerable increase over every other year in the history of the state.

Fruit Crop Report—From the reports submitted to this office it is evident that the commercial shipments of fruit in

Utah will exceed last year. Following is the estimate of the 1911 crop, as compared with the preceding year:

Apples	1911	1910
Peaches	350	337
All other, including pears, prunes and small fruits	850	805
Totals	300	276
Totals	1,500	1,418

While the crop is lighter on the trees than last year, still the orchards on an average have had better spraying, pruning and cultivation than in former years, consequently the fruit will be of better quality and size. This fact, together with the increased area coming into bearing, will make the output larger than last year.

The prospect of prices is also considerably better than the year of 1910, and the net returns to the grower from this year's crop will exceed last year.

Apple Production of the Pacific Coast

BELOW we give the apple production of six Pacific Coast states in carloads for 1910, and the estimated production in carloads and boxes for 1911:

Counties	1910	1911	1911
	Carloads	Carloads	Boxes
Oregon	2,025	1,200	720,000
Washington	6,170	3,000	1,800,000
Idaho	1,500	1,000	600,000
California	4,000	3,000	1,800,000
Colorado	1,500	3,000	1,800,000
Utah	340	400	240,000
Totals	15,535	11,600	6,960,000

Eastern reports credited the above states with 18,000 carloads last year. As a rule districts throughout the country are not claiming over from forty to fifty per cent of last year's crop. Colorado, and possibly California, may overrun the estimates given. The general average estimate being fifty per cent of last year's crop, if Eastern statements are correct would mean having shipped 18,000 carloads last year, and if the growers are correct in their fifty per cent estimates that we would have 9,000 carloads. However, a greater production than fifty per cent in some sections justifies us in the belief that 12,000 carloads will be as near correct as it is possible to determine at the present time.

We wish everybody to understand, however, that this is simply an esti-

mate and only refers to the number of carloads that are shipped out of the respective states mentioned above, and does not include the amount used in home consumption in any one of the states, and we wish it understood that we realize the difficulty of making reliable estimates, and it is much harder to get good data from some states than others for reasons too numerous to mention. While we are perfectly sincere in this estimate we must admit that estimates to a great extent are more or less a matter of guess work, and it is not expected or intended that these figures should influence the grower or the buyer, and we cannot refrain from adding that values are not absolutely dependent upon the relations of supply and demand in the United States in the fruit business. European markets are important factors in reference to price, and the manner in which fruit is handled also has much to do with the prices that are paid. For instance, the Bartlett pear crop, while we do not know the output this year, did not vary materially from the output last year from the Northwest states and California, and owing to the fact that growers refused to take cannery offers nearly all of the

crop was sold as fresh fruit, which apparently seemed to crowd the market below its consuming capacity at good prices. Whether or not we are right is a question, but it seems that if the California pear growers had sold a portion of the crop to the canneries and shipped a proper proportion of the crop as fresh fruit that the market on Bartlett pears would not have been so low, and that the California dealers would have realized a great deal more net money.

RETURNING from an exhaustive study of crop conditions in all parts of the state, F. A. Huntley, state horticulturist, announced that this year's fruit crop would be from 40 to 50 per cent as large as last year, when there was an abnormal yield in all varieties. His estimate to Governor Hay, he said, would show Washington's 1911 fruit harvest to total 4,225,000 boxes valued at \$5,765,000. The value of the 1910 crop was \$15,000,000 and the 1909 yield netted the growers \$6,000,000.

His detailed estimate of the 1911 crop follows: 2,000,000 boxes of apples at \$1.50 a box, totaling \$3,000,000; 350,000 boxes pears at \$1.50, adding \$525,000; 500,000 boxes peaches at 50 cents, bringing \$250,000; 200,000 boxes of plums and prunes at 60 cents, bringing farmers \$120,000; 200,000 boxes cherries at \$1, aggregating \$200,000; 300,000 crates strawberries at \$2, totaling \$600,000; 475,000 crates raspberries and blackberries at \$2, bringing \$590,000, and 400,000 baskets grapes at 60 cents, yielding \$120,000.

ORCHARD ACREAGE of the State of Washington December 31, 1908. (This includes acreage estimates in 1906, to which has been added the nursery stock distribution since that time.) From report of F. A. Huntley, horticultural commissioner:

Counties	Pears	Apples
Adams	18	100
Asotin	342	1,184
Benton	296	1,622
Chehalis	25	328
Chelan	535	13,252
Clallam	9	100
Clarke	133	381
Columbia	406	1,326
Cowlitz	208	2,439
Douglas	126	1,464
Ferry	45	244
Franklin	25	138
Garfield	86	737
Island	75	810
Jefferson	74	104
King	232	1,591
Kitsap	273	2,368
Kittitas	60	898
Klickitat	55	9,554
Lewis	33	1,205
Lincoln	80	645
Mason	28	167
Okanogan	178	2,548
Pacific	9	63
Pierce	259	4,263
San Juan	48	647
Skagit	44	992
Skamania	22	369
Snohomish	69	1,245
Spokane	392	10,194
Stevens	176	2,936
Thurston	24	1,267
Wahkiakum	6	224
Walla Walla	189	1,064
Whatcom	71	1,758
Whitman	313	3,405
Yakima	5,719	27,938
Miscellaneous	140	2,190
Totals	10,823	101,766

Combined acreage of all fruits in Washington, 206,617 acres.

Fruit Production and Value for State of Oregon

From Chamber of Commerce Bulletin, Portland, Oregon

OREGON as a fruit state is rapidly forging to the front. The state's fruit bearing area was about 40,000 acres; 125,000 acres were planted during the past five years. An ideal climate, soil of great fertility and variety serve to make the production in Oregon of high grade fruits. Hood River took the sweepstakes at the National Apple Show, Chicago, for best apples in 1910.

The fruit yield for 1910, as estimated by the president of the State Board of Horticulture, was as follows:

	Value
Apples, 2,650,000 boxes.....	\$2,500,000
Pears, 292,000 boxes.....	420,000
Peaches, 970,000 boxes.....	485,000
Cherries, 4,600,000 pounds.....	200,000
Dried prunes, 28,000,000 pounds.....	1,680,000
Fresh prunes and plums, 300,000 crates.....	195,000
Apricots, 15,000 boxes.....	10,000
Grapes, 4,500,000 pounds.....	135,000
Strawberries, 10,500,000 pounds.....	577,000
Blackberries, 1,750,000 pounds.....	75,000
Raspberries, 2,250,000 pounds.....	105,000
Loganberries, 4,000,000 pounds.....	165,000
Currants, 425,000 pounds.....	25,500
Gooseberries, 500,000 pounds.....	20,000

Other fruits.....	35,500
Nuts, 250,000 pounds.....	35,500
Total.....	\$6,662,500

[Editor's Note.—You will note the total output of fruit for Oregon in 1910 was \$6,662,500. We have not at hand the estimate for Washington or Idaho, but probably the three combined would be somewhere near \$20,000,000. Now, these three states have a large fruit area. Please note the volume of business done in the fruit line, recorded in this edition under another article entitled, "California Fruit Statistics From a Report of the California Development Board of 1911," which shows the total output of fruit from California was \$116,229,400. Your attention is called to this fact to assure you what is in store for the fruit industry of the Northwest. The possibilities are certainly great because the Northwest is a wonderful country for fruit, excelled by no other section in the Union.]

Condition of the Fruit Crop in Utah

By J. Edward Taylor, Utah State Horticultural Inspector

FROM the commercial standpoint the present prospects are that Utah will this season produce one of the largest fruit crops in her history. While it is true that there has been considerable damage in some sections from frost, yet the state's output for commercial purposes will exceed the crop of 1910 by about two hundred cars. Most of this gain will be in peaches. The frost did very little damage to the apple crop in any section, but there will not be any very large increase in the production

of this crop. While there is a larger area coming into bearing this is offset by the light crop in the orchards which produced heavily last year.

Commercial shipments for 1910: Apples, 338; peaches, 805; pears, 30; all others, including small fruits, 245; a total of 1,418 cars.

Commercial shipments for 1911 (estimated): Apples, 350; peaches, 1,000; pears, 30; all others, including small fruits, 250; a total of 1,630 cars.

On American continent they are successfully grown through fifty degrees of latitude from Tampico, Mexico. Twenty-five degrees north to Asunción in Paraguay. In the tropic of Capriover three thousand miles in width—cultivation is restricted, however, to the eastern coast line on account of rainfall. Will produce maximum only with one hundred inches of annual rainfall or more. Most successful in southern coast of the Mexican Gulf, Puerto Banios section of Guatemala, Puerto Cortes district of Nicaragua, Bocas del Torro region of Panama, Puerto Simon district of Costa Rica, Bluefields district of Nicaragua, Columbian Province of Santa Marta, certain portions of Cuba, Jamaica, Dominican Republic, Haiti, Dutch Guiana. Is immune from insect pests and seedless. Planted in rows twelve feet apart will bear about one year from planting and will grow to a height of fifteen to thirty-five feet. Four suckers are allowed to grow, which are pruned to be in four stages of development. But one bunch grows to the stalk, and two hundred hills are allowed to an acre. Average yield about two hundred bunches to the acre. Cost of production ten to fifteen cents per bunch, sells at shipping point for thirty cents per bunch; net profits average about fifty dollars per acre. Land in Mexico at ten to fifteen dollars; clearing and planting, forty to fifty dollars per acre.

THE following letter is probably one of the most significant statements ever published in reference to the future of the fruit industry. If the consumption of fruit in forty-three years increased to 2,000 per cent while the population only increased 270 per cent it certainly looks very favorable for the fruit industry, and particularly so for the apple business, for the reason that during the last sixteen years the crop has gradually decreased:

Corvallis, Oregon, August 4, 1911.
Mr. J. C. Skinner, Hood River, Oregon.

My Dear Mr. Skinner: Your letter to President Kerr, which came during my absence, has been duly referred to this division. In regard to your inquiry will state that taking the period from 1850 to 1897 we find the production and consumption of fruit increased 2,000 per cent, while the population during that time increased 270 per cent. Despite this wonderful increase of fruit production we find that the prices today are higher than in 1850. This must mean that the people are using fruit much more generally than they formerly did. Of course this is especially true with apples and oranges. Fifty years ago there were no fruit sections. Now there are large areas devoted to single crops, such as apples, pears and oranges. Yours sincerely,
C. I. Lewis, chief of division of horticulture Oregon Agricultural College.

United States Pear Production 1890-1900

From United States Government Census

	1890 Bushels	1900 Bushels			
Alabama.....	22,902	22,656	Tennessee.....	49,923	43,609
Arizona.....	535	13,197	Texas.....	17,034	166,418
Arkansas.....	12,995	24,503	Utah.....	6,198	59,982
California.....	577,444	1,912,825	Vermont.....	16,101	10,239
Colorado.....	2,441	19,272	Virginia.....	51,553	88,400
Connecticut.....	25,862	41,485	Washington.....	26,868	78,236
Delaware.....	26,029	156,208	West Virginia.....	15,406	19,475
District of Columbia.....	530	468	Wisconsin.....	4,071	1,540
Florida.....	34,255	83,584	Wyoming.....	.....	3
Georgia.....	113,868	49,497	Totals.....	3,064,375	6,625,417
Idaho.....	3,542	25,324			
Illinois.....	57,090	113,745			
Indiana.....	157,707	231,713			
Indian Territory.....	.....	2,971			
Iowa.....	7,812	5,014			
Kansas.....	18,891	21,978			
Kentucky.....	118,850	76,940			
Louisiana.....	3,993	29,405			
Maine.....	13,141	11,200			
Maryland.....	60,292	301,702			
Massachusetts.....	71,559	89,011			
Michigan.....	191,099	170,702			
Minnesota.....	96	226			
Mississippi.....	18,531	36,923			
Missouri.....	58,683	58,449			
Montana.....	2	24			
Nebraska.....	1,114	979			
Nevada.....	811	903			
New Hampshire.....	19,288	19,341			
New Jersey.....	80,664	790,818			
New Mexico.....	1,526	14,777			
New York.....	588,767	960,170			
North Carolina.....	33,910	25,251			
North Dakota.....	.....	1			
Ohio.....	279,831	244,565			
Oklahoma.....	.....	1,968			
Oregon.....	106,383	112,225			
Pennsylvania.....	144,534	434,117			
Rhode Island.....	10,037	12,452			
South Carolina.....	9,244	20,439			
South Dakota.....	3	157			

THE following is a synopsis of the important features of the banana business as collaborated by Franklin Adams, editor Pan-American Union, in May, 1911:

Three dozen per capita—consumption for 1910. Consumption doubled in the last ten years. One acre will produce 17,000 pounds of bananas; this is one and one-third times as much as corn, three times as much as wheat, two and one-third times as much as oats, three times as much as potatoes, four times as much as rye. Chemical composition of bananas same as potatoes. We consume the common yellow Guineo. There are in all forty species. First importation to United States in 1804.

The Apple Production in Barrels for a Decade

THE number of barrels of apples produced in the United States each year from 1885 to 1910 follows:

Year	Barrels	Year	Barrels
1885	60,500,000	1904	45,360,000
1886	69,000,000	1905	24,300,000
1887	41,000,000	1906	38,280,000
1888	28,500,000	1907	29,540,000
1889	58,500,000	1908	25,850,000
1900	57,000,000	1909	25,415,000
1901	26,970,000	1910	23,825,500
1902	46,625,000	1911*	28,600,000
1903	42,626,000		

*Estimate on Aug. 1.

The above total certainly presents a field that justifies a great deal of thought and investigation. From the year 1896 to the present date it is quite evident that the crop of apples has been greatly decreasing, the present crop being only about fifty per cent of that year. There must be some cause, because during this period there was a large increased setting. On the other hand, it is probably true that a great many orchardists who averaged less than a bushel to the tree had dug up their orchards. Many such cases are reported. Lack of care, disease and

climatic conditions may be other factors. Whatever the causes may be it is evident that the crop has decreased, which again brings us to the final conclusion that many districts in the apple industry which do not pay will go out of business, and we believe the law of supply and demand, or call it nature, if you will, will regulate the quantity of apples necessary to meet the market demands. Should the production be increased sufficiently in quantity to lower prices then it would become a survival of the fittest, which means if over-production does come that it would be simply temporary.

ORANGES.—California orange output: 1905-1906, 22,175 cars; 1906-1907, 23,986 cars; 1907-1908, 24,538 cars; 1908-1909, 31,895 cars; 1909-1910, 30,093 cars. About 384 boxes to car.—Pacific Fruit World, November 5, 1910.

Florida orange production: 1906, 3,463,357 boxes; 1907-1908, 4,314,027

boxes; 1908-1909, 5,000,100 boxes; 1909-1910, 6,000,000 boxes, approximate; 1910-1911, 3,750,000 boxes, approximate.—Biennial reports Florida Commissioner of Agriculture and Florida Fruit and Produce News.

We cannot help but draw a conclusion from the above statement. A few years ago Florida was the only producing orange section in America, and in 1910-11 produced 3,750,000 boxes. A few years ago 1,400 cars was considered an over-production in the orange output from California. During the season 1909-1910 the output was 30,093 cars. This shows an immense increase in Southern California from 1,400 cars to 30,000 cars in a very few years, while the Florida output has remained nearly the same, yet there is no over-production in oranges. At 384 boxes to the car the orange output from California would mean 11,555,712 boxes, compared with the Florida production during the same year of 6,000,000 boxes, or about twice as much. In the season 1910-1911 the California output would be about three times as great.

Apple Production in Western United States

Paper by S. A. Beach, read at meeting of National Apple Shippers' Association, August 4, 1910

WE are asked to consider at this time apple production in the Western United States with regard to its present status and future development. The territory as outlined extends from Lake Michigan, the east boundary of Illinois, and the Mississippi River westward to the Pacific ocean, and from Canada to Mexico. It extends about nineteen hundred miles east and west, seventeen hundred miles north and south, and comprises over sixty per cent of the area of the United States. It is drained by the largest rivers of the continent. It includes broad fertile valleys, wide extending plains, elevated plateaus and vast ranges of lofty mountains, with their accompanying foothills. It includes narrow coast valleys, which are continually veiled with fogs and low-hanging clouds, and also the great desert and semi-arid regions, portions of which already have been brought under irrigation, while other portions are rapidly being included within the irrigated areas. An extensive and rapidly growing literature on the subject of apple growing in this Middle and Far West already abounds in reports, bulletins and other publications of the various state experiment stations, the United States department of agriculture, state and district horticultural societies, fruit growers' associations, organizations of shippers and dealers in fruit, commercial clubs, railroad companies, newspaper and magazine articles, horticultural periodicals and books. It is evident that only a brief outline of this subject can be here presented.

First notice what states and sections of this region are engaged in apple growing and their relative importance. That portion of this territory in which

the apple production reached one thousand bushels per county, as mapped in the United States census report for 1900, may be approximately outlined as including the southern half of Wisconsin, the southeastern quarter of Minnesota, the southeast corner of South Dakota, Illinois, Iowa, Eastern and Southeastern Nebraska, Missouri, Eastern Kansas, Arkansas, excluding the southeast corner, Eastern Oklahoma, Northern Louisiana and the northeast corner of Texas, a few widely separated localities of comparatively limited extent in the mountain regions of New Mexico, Colorado, the Black Hills, Montana, Idaho, Utah, Arizona and a practically continuous area from Southern California northward along the coast and interior valleys of Western California and Oregon through the Puget Sound region and the valley of the Columbia River to the Canadian line. Doubtless the census report for 1910 will show that during the last decade apple growing has been extended considerably beyond the limits here outlined.

It is well to note that in thus defining the apple regions of this part of the continent the unit of production adopted as a basis is not large. The crop of one thousand bushels which would be required in order to bring a county within this category could be borne on one hundred trees yielding ten bushels per tree. However, the fact that so small a yield as this brings a county within the so-called apple regions of the country serves to call attention all the more emphatically to the practical absence of apple orchards in vast areas extending from the Gulf Coast of Texas and from Mexico and Southern California northward through the plains and mountains to the north-

ern boundaries of the continent, which are shown on the above mentioned map as being excluded from apple growing territory. Turning now to a consideration of individual states, it is found that when ranked according to the yield of apples reported in the 1900 census they stand in the order given below:

States	Bushels
1, New York	24,111,257
2, Pennsylvania	24,060,651
3, Ohio	20,617,480
4, Virginia	9,835,982
5, Illinois	9,178,150
6, Michigan	8,931,569
7, Indiana	8,620,278
8, West Virginia	7,495,743
9, Missouri	6,496,436
10, Kentucky	6,057,717
11, Tennessee	5,387,775
12, North Carolina	4,662,751
13, New Jersey	4,640,896
14, Connecticut	3,708,931
15, California	3,488,208
16, Kansas	3,214,407
17, Maryland	3,150,673
18, Iowa	3,129,862
19, Massachusetts	3,025,436
20, Arkansas	2,811,182
21, New Hampshire	1,978,797
22, Maine	1,421,773
23, Nebraska	1,343,497
24, Vermont	1,176,822
25, Washington	728,978
26, Oregon	873,980
27, Alabama	719,175
28, Delaware	702,920
29, Georgia	670,889
30, Texas	591,985
31, Rhode Island	339,445
32, Wisconsin	303,373
33, Colorado	257,563
34, South Carolina	251,728
35, Mississippi	249,035
36, Idaho	223,662
37, Indian Territory	222,565
38, Utah	189,882
39, New Mexico	142,332
40, Minnesota	120,143
41, Oklahoma	111,235
All other states	158,463

Total for United States.....175,397,626

Perhaps the best available statement of the crops in more recent years is that published by the American Agriculturist in its year book. It reports the yields for 1905, 1907 and 1909, as given in bushels, in the following table:

New England States			
	1905	1907	1909
Maine	1,890,000	5,100,000	2,250,000
New Hampshire	1,500,000	2,400,000	1,200,000
Vermont	1,050,000	2,250,000	600,000
Massachusetts	1,575,000	1,800,000	1,080,000
Rhode Island	300,000	300,000	300,000
Connecticut	1,350,000	1,200,000	600,000
Totals	7,665,000	13,050,000	6,030,000
Middle States			
New York	9,990,000	13,950,000	10,200,000
New Jersey	2,250,000	1,200,000	900,000
Pennsylvania	6,300,000	9,000,000	4,800,000
Delaware	450,000	450,000	450,000
Ohio	2,850,000	5,400,000	3,150,000
Michigan	5,400,000	5,700,000	5,350,000
Wisconsin	300,000	600,000	750,000
Totals	27,540,000	36,300,000	25,800,000
Central Western States			
Indiana	1,530,000	1,800,000	1,350,000
Illinois	1,575,000	2,550,000	1,800,000
Missouri	1,200,000	1,200,000	1,620,000
Kansas	1,080,000	375,000	825,000
Nebraska	600,000	420,000	1,050,000
Iowa	1,095,000	1,050,000	1,500,000
Arkansas	1,650,000	900,000	1,050,000
Totals	8,730,000	8,595,000	9,195,000
Western States			
Colorado	720,000	750,000	1,350,000
Idaho	300,000	600,000	300,000
Utah	270,000	450,000	300,000
Montana	75,000	150,000	180,000
California	2,850,000	3,000,000	3,300,000
Oregon	1,200,000	1,650,000	750,000
Washington	1,170,000	1,425,000	1,125,000
Totals	6,585,000	8,025,000	7,305,000
Southern States			
West Virginia	2,700,000	1,950,000	1,350,000
Virginia	3,600,000	2,100,000	1,800,000
Maryland	1,500,000	900,000	825,000
Kentucky	5,100,000	4,500,000	3,600,000
Tennessee	3,600,000	3,900,000	3,300,000
Totals	16,500,000	13,350,000	10,875,000
U. S. crop	72,930,000	88,620,000	68,205,000

A statement of the rank of the Western states, according to their yields as reported in the census year of 1899, is presented below for comparison with their rank, based upon the combined averages for the years 1905, 1907 and 1909, as shown in parallel column. Rank of Western states in apple production in 1899, as compared with rank for 1905-7 combined:

1899		1905-7-9	
5, Illinois	8, California	11, Illinois	16, Missouri
9, Missouri	16, Missouri	18, Washington	19, Iowa
15, California	20, Oregon	21, Arkansas	24, Colorado
16, Kansas	23, Nebraska	25, Kansas	26, Nebraska
18, Iowa	26, Washington	27, Wisconsin	29, Idaho
20, Arkansas	30, Texas	30, Utah	
23, Nebraska	32, Oklahoma (and L.T.)		
25, Oregon	33, Wisconsin		
26, Washington	34, Colorado		
30, Texas	37, Idaho		
32, Oklahoma (and L.T.)	38, Utah		
33, Wisconsin	39, New Mexico		
34, Colorado	40, Minnesota		

This shows that many of these states have changed considerably since 1900 in their relative rank in apple production. Generally speaking the states of the Far West have advanced and those of the Middle West have dropped. Thus it appears that since 1899 California has advanced in rank from 15 to 8, Washington from 26 to 18, Oregon from 25 to 20, Colorado from 34 to 24, Idaho from 37 to 29, Utah from 38 to 30 and Wisconsin from 33 to 27, while Illinois drops from 5 to 11, Missouri from 9 to 16, Kansas from 16 to 25, Nebraska from 23 to 26, Iowa from 18 to 19 and Arkansas from 20 to 21.

That portion of this region which is here considered under the head of the Central West is comprised of Wisconsin, Illinois, Missouri, Arkansas, Kansas, Nebraska and Iowa. Under the heading of the Far West are grouped



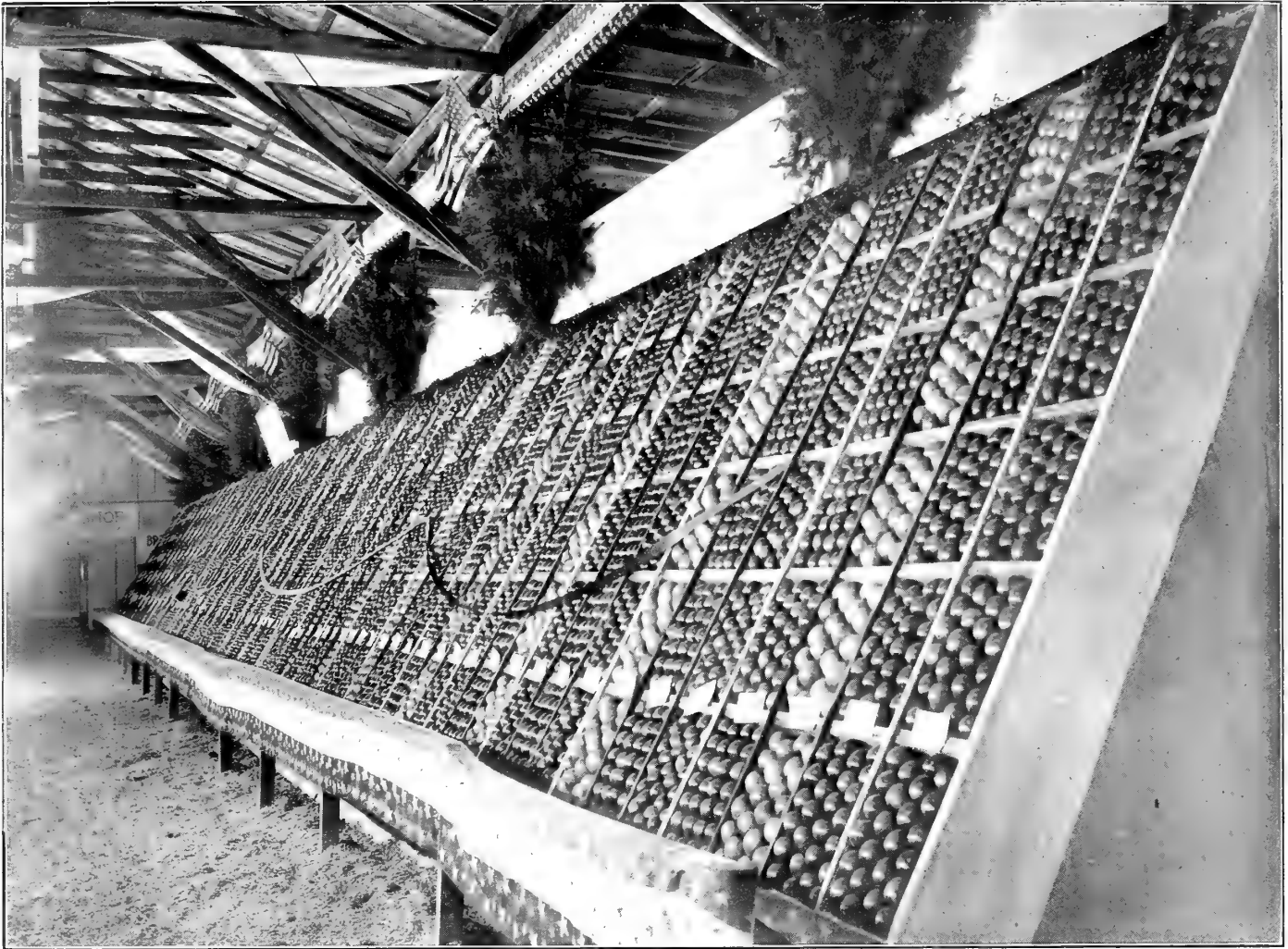
Exhibit of the Bitter Root Valley Irrigation Company at the United States Land and Irrigation Exposition in 1910 at Chicago, illustrating in a small degree what this show will be this year at the Coliseum, Chicago, Illinois, November 18 to December 9

Colorado, Idaho, Utah, Montana, California, Oregon and Washington. These are the principal apple producing states of this great region. The above mentioned reports show that of the total crop of the United States the Central West produced 20 per cent in 1899, 10.3 per cent in 1905, 8.3 per cent in 1907 and 12.5 per cent in 1909. The Far West yielded 3 1-3 per cent of the total crop in 1899, 9 per cent in 1905, 9 per cent in 1907 and 10.7 per cent in 1909. The Central West and Far West groups combined produced 23 1-3 per cent of the total crop in 1899, 19.3 per cent in 1905, 17.3 per cent in 1907 and 23.3 per cent in 1909. It is hardly necessary in this audience to call attention to the fact that neither the present status nor the prospective importance of the apple industry in this region is fully indicated by these statements concerning the aggregate amount of its crop production. In certain parts of this territory the apple industry has reached the highest stage of development yet attained both in methods of handling, grading, packing and marketing the crop. Because they have excelled in these particulars certain districts of really small area have become world renowned as apple growing regions.

Although the Baldwin drops out of sight west of Lake Michigan till the valley of the Columbia River is reached in Central Washington, and even there does not take the lead as it does in the East, nevertheless it is convenient to speak of the region lying north of the Ben Davis region in the East as Baldwin territory. The varieties more or less associated with it in the East are Rhode Island Greening, Esopus Spitzenberg, Jonathan, Yellow and

Green Newtown Pippins, Monmouth or Red Check Pippin, Tompkins King, Maiden Blush and Northern Spy. These all reappear with the Baldwin in portions of Washington and Oregon, but their relative importance is changed, as we shall see later. In general it may be said that the Ben Davis and its associates show an adaptation to regions in the West corresponding to those which obtain in the East, and generally are of leading importance in the more southern districts or lower altitudes, the Baldwin and its associates becoming more prominent farther north or in higher elevations, while the Wealthy group flourishes still farther north or in still more elevated regions. Baldwin being eliminated in the Middle West, the Wealthy region there borders directly upon the Ben Davis territory.

The apple districts of Central and Southern Illinois, Southern Iowa, the Ozark region of Missouri and Arkansas, Southern Nebraska, Eastern Kansas and Oklahoma all fall within what may be designated as the Ben Davis belt, for the reason that this variety is here the dominant commercial apple. The Gano and Black Ben Davis are evidently bud sports, or possibly seedlings of the Ben Davis, because they very closely resemble that variety both in tree and in fruit. They are distinguished from it chiefly by having the fruit more highly colored. Speaking broadly, Ben Davis, Black Ben Davis and Gano probably make up about half of the entire apple crop of the West. Probably next in importance rank the Jonathan and Winesap, with Winesap perhaps in the lead. Then in smaller quantities could come Grimes, Rome Beauty, Willow Twig, Missouri Pippin, Winkler and Ralls Genet. York Imperial is gaining ground. Among the newer varieties



M. Horan's Sweepstake Car at the National Apple Show at Spokane in 1908

The Fourth Spokane National Apple Show will be held November 23-30, where twenty to twenty-five carloads will probably be exhibited. This will give you some idea of the immensity and importance of this show.

which appear worthy of mention for the Ben Davis region is the Stayman, which unfortunately is more often called Stayman Winesap, thus tending to confuse it with the old Winesap, from which it is quite distinct. Delicious, which originated in South-central Iowa, is also attracting the attention of planters. This is also making a good record in many places along the southern portion of the Wealthy territory. South of the Ben Davis district, from the Gulf States westward to California, the apple, except in high elevations, is of inferior texture and flavor, and often the trees are short lived and unproductive.

Northern Illinois, Wisconsin, the north half of Iowa, Minnesota and Southeastern Dakota fall within what may be well designated as the Wealthy territory. The leading varieties of the Ben Davis belt extend into the Southern portion of the Wealthy territory, but find their best development farther south. Among the more important varieties, in addition to the Wealthy, which are attaining commercial recognition in this region are Duchess of Oldenburg, Northwestern Greening and Salome. Colorado Orange, although as yet but little known, is proving a good storage apple and an excellent keeper

as grown in this region. The tree is making a good record for hardiness and productiveness as far north as Northern Iowa. Other varieties of more or less local importance are Malinda, Windsor, Black Annette, Patten Greening and Charlamoff. In the mountain states Mackintosh and other Canadian varieties reappear in the Wealthy territory.

The apple districts of the Central West, with their leading varieties and new plantings, may be summed up as follows: Wisconsin—In Wisconsin apples are grown mostly in small plantings about the homesteads rather than in commercial orchards. Production is gradually increasing. During the last decade the state has advanced somewhat in relative rank. It still leads Idaho and Utah, but at present its apple crop is chiefly important in supplying summer and fall apples to local markets rather than in contributing to the general market stock of winter fruit. Its varieties are those associated with Wealthy. Illinois—Among the Western states Illinois ranks in production next to California. Winter injury or injury to blossom buds by late spring freezes has for several years seriously cut down the general crop. Insects and diseases are being con-

trolled by some of the more progressive orchardists. Orchard tillage would doubtless be more generally practiced if there were greater surety of the setting of a crop without frost injury. Central and Southern Illinois grow Ben Davis and the varieties associated with it. Under present conditions planting is not being much extended. Missouri—The principal apple districts in Missouri are found in the Ozark country of Southwestern Missouri and the loose soils along the Missouri River, particularly in Northwest Missouri. In general planting is not active. The leading varieties include Ben Davis, Black Ben Davis, Gano, Winesap, Jonathan, Grimes, Missouri Pippin, Ralls Genet and Ingram. If Missouri orchards should yield to their full capacity an immense crop would be produced, but, as in the case of Illinois and other adjoining states, unfavorable climatic conditions have for several years materially shortened the crop production. Planting is not generally being extended. Arkansas—The apple districts of Arkansas are largely found in the northwest third of the state, particularly in the two northwest counties of Benton and Washington, which have from 6,000,000 to 7,000,000 trees planted. There is also an undeveloped



Exhibit at the Hood River Apple Show in 1910. Made from the Upper Part of Hood River Valley. This will give some conception of what the show will be this year, the dates of which are November 8, 9 and 10, at Hood River, Oregon

west-central region. The older plantings include about 90 per cent Ben Davis, Mammoth Black Twig and Winesap. Later plantings include Gano, Black Ben Davis, Jonathan, Grimes, Winesap, Stayman Winesap, Collins, King David and Delicious. Arkansas has enough apple trees of bearing age to produce a very large crop, but, as in Missouri and Illinois, the unfavorable climatic conditions in recent years have proven a rather serious handicap to the development of orchard interests, and generally speaking planting is not being extended at present. Minnesota—Apple culture in Minnesota is now mostly confined to the southeast quarter of the state, which, like Northern Iowa, Southern Wisconsin and Southeastern South Dakota, falls within the Wealthy belt. From Minneapolis southward to the Iowa line many farm orchards are found, and some commercial plantings, but they do not produce enough apples to supply the local markets. Planting increases slowly. Probably it will assume greater importance when more desirable, hardy, late-keeping varieties are developed. Iowa—In amount of crop produced Iowa now ranks next below Washington. Northern Iowa is beginning to make shipments in car lots, including such varieties as Wealthy, Duchess of Oldenburg, Patten Greening and Northwestern Greening. Commercial orchards are scattered throughout the state. Passing southward the amount of the apple crop increases and becomes most important in Southern, and particularly in Southwestern Iowa, where Grimes and Jonathan of excellent quality are grown along with Ben Davis and other Missouri varieties. It is stated that one station in Southwest Iowa shipped over six hundred carloads of apples in 1909. Planting is not active, but Iowa may be expected to gradually increase the quantity and improve the quality of its apple crop. Nebraska—Nebraska grows apples in the eastern third of the state, and with irrigation in some localities farther west. The varieties are chiefly those of the Iowa and Mis-

souri lists grown in the same latitudes. It has some important commercial orchards. Kansas—Kansas apple districts are found from Topeka northward to Nebraska and northeastward to the Missouri River, and in the valley of the Arkansas River from Hutchinson to the Oklahoma line. In recent years the most fruit has been grown in the Arkansas Valley. The varieties now chiefly planted are York, Jonathan and Grimes. Older plantings have many Ben Davis, Gano and Missouri Pippin. Oklahoma and Texas—In Oklahoma and Texas the apple is not of much commercial importance. It is attracting some attention in the Red River section and in West Texas, where the altitude reaches 2,000 feet. Here Ben Davis, Missouri Pippin and Arkansas Black are grown.

Speaking in general terms planting is far more active in the Far West than in the Central West. Also crop production is there increasing much more rapidly, and methods of orchard management and of handling and marketing the crop have been brought to a higher degree of perfection. The general drawbacks in the Central West are, first, the liability of loss from unfavorable climatic conditions, and, second, the conservative attitude of the average grower resulting from lack of confidence in the reliability of the apple crop. Winter injury to trees and buds, the occasional freezing of the crop on the trees in autumn and the more frequent destruction of buds and blossoms by late spring frosts all combine to produce this lack of confidence. Drought, too, is a more important climatic factor in this region than it is in either the Far West or the East. Despite these really formidable drawbacks, commercial apple growing surely will increase in the Central West. The immediate increase will be gradual, but later on it will be more rapid. Freezes are being fought successfully by orchard heating. Insects and diseases can be controlled. Good soil, plenty of sunshine, dry air, generally favorable weather for apple pick-

ing and proximity to good markets are all advantages which help to offset the drawbacks. Drought can be met by better systems of orchard soil management. Varieties better adapted to this region than some of the old standard sorts are being introduced and considerable interest is developing in the matter of originating improved new varieties through the plant breeding work of experiment stations and horticultural societies. Minnesota has a farm of eighty acres devoted to this particular purpose and other states are doing considerable work of this kind. On the whole the apple outlook for the Central West is encouraging.

Apple districts of the Far West, with their leading varieties and new plantings, are as follows: Wyoming—Some orchards in Wyoming are already in bearing and a considerable number of others are being planted, but apple growing here is in its infancy. No shipments are made, for local markets take all the crop. Colorado—In apple production Colorado ranks as the most important of the inter-mountain states. The leading sections are Grand Valley, North Fork, Uncompagne Valley, Montezuma County and Canyon City. In the older orchards Ben Davis is the chief variety, but the newer plantings are largely of Jonathan, Rome, Winesap and Gano, with lesser amounts of Grimes, Winter Banana, Delicious, King David and others. The drawbacks include winter killing and dying of trees, late spring freezes and the common insect and fungous diseases. Orchard heating receives much attention. Spraying is very thorough. The former method of continuous clean culture is being modified by the use of some such shade crop as red clover. Utah—Utah grows apples commercially in the Cache Valley, on the west side of Bear Valley, in the Utah Valley, in the Sand Ridge region south of Ogden, and to a lesser extent in other parts of the state. Less than 20 per cent of its trees have come into bearing. The new plantings include more Jonathan and Gano than all other kinds combined. They also have Ben Davis, Winesap, Rome, York, Missouri Pippin and Winter Banana. New Mexico—New Mexico apple districts include the Rio Grande Valley from north of Albuquerque to the Texas line, the Roswell district in the Pecos Valley and the Farmington district in San Juan County. The leading older varieties are Ben Davis, Arkansas Black, Mammoth Black Twig, Gano, Winesap, Jonathan, White Pearmain, Rome, Missouri Pippin and Akin. More recent plantings include Black Ben Davis, Delicious, Oliver, Stayman Winesap and Ingram. Interest in apple planting increases. The Roswell district leads with about 1,500 acres in bearing, and in addition is planting about 1,000 acres annually. Arizona—The drawbacks in this state aside from distance from markets are root rot, codling moth and excessive heat. There are only about 1,000 acres of apple orchards in the state. California leads the West in apple production. The area now

approximates 40,000 acres, about two-thirds of which has reached bearing age. In 1909 the output was about 5,000 cars. The leading sections are the southern part of Santa Cruz County, the northern part of Monterey County, Sonoma County, Mendocino County, along the coast, and the foothills of the Sierras. The varieties vary in different regions. They include Newtown, Bellflower, White Pearmain, Gravenstein, Red Astrachan, Rhode Island Greening, Esopus Spitzenberg, Missouri Pippin, Red June, White Astrachan, Jonathan and Ben Davis. Oregon—Oregon's apple districts include Rogue River Valley, in Jackson County; Hood River and Mosier, Grand Ronde Valley, Willamette Valley, Umpqua Valley, in Douglas County; the Milton-Freewater district, in Umatilla County, and certain coast regions, as in Coos County. The most extensive new plantings are in Willamette Valley. The dry air and abundant sunshine favor a good set of fruit, the development of high color and good results from spraying. There is comparative freedom from frost injury. Varieties in the older orchards include Ben Davis, Gano, Rome Beauty, Esopus Spitzenberg, Newtown Pippin, Jonathan, Baldwin, Northern Spy, Gravenstein, York and Tompkins King. The newer plantings are chiefly of Esopus Spitzenberg, Newtown, Rome and Gano, and also include Ortle, Grimes, Arkansas Black and some others. Washington—In Washington apples are largely grown in the Spokane, Walla Walla, Wenatchee and Yakima districts, but other regions are developing. The varieties include those mentioned for Oregon, but with various changes in relative importance in the different districts. Oldenburg, Wealthy and Yellow Transparent also receive recognition from Washington planters. Idaho—Idaho apples are chiefly grown along the Snake Valley, in the southwest and western parts of the state; also in Northern Idaho. The varieties include Jonathan, Rome, Winesap, Ben Davis and others of the Washington list. Planting is active, particularly under irrigation. It is not uncommon to find new orchard projects of several hundred acres each.

There is reason to expect a satisfactory increase in apple production and improvement in quality of the stock put upon the market in the Far West. The latter will result from better methods of orchard management and of grading and packing. For the next few years Oregon promises an increase in production of from 10 per cent to 25 per cent annually, with the standard of quality well maintained. In some Oregon districts the acreage is now three times as great as it was three years ago, and in other places it has doubled during the past year. It is reported that in Washington the plantings are increasing at the rate of about 1,000 acres a year. Colorado reports that between 5,000 and 10,000 acres were added to her apple orchards in 1910. About 7,000 cars of apples were shipped in 1909. The outlook promises a good advance in the quality and

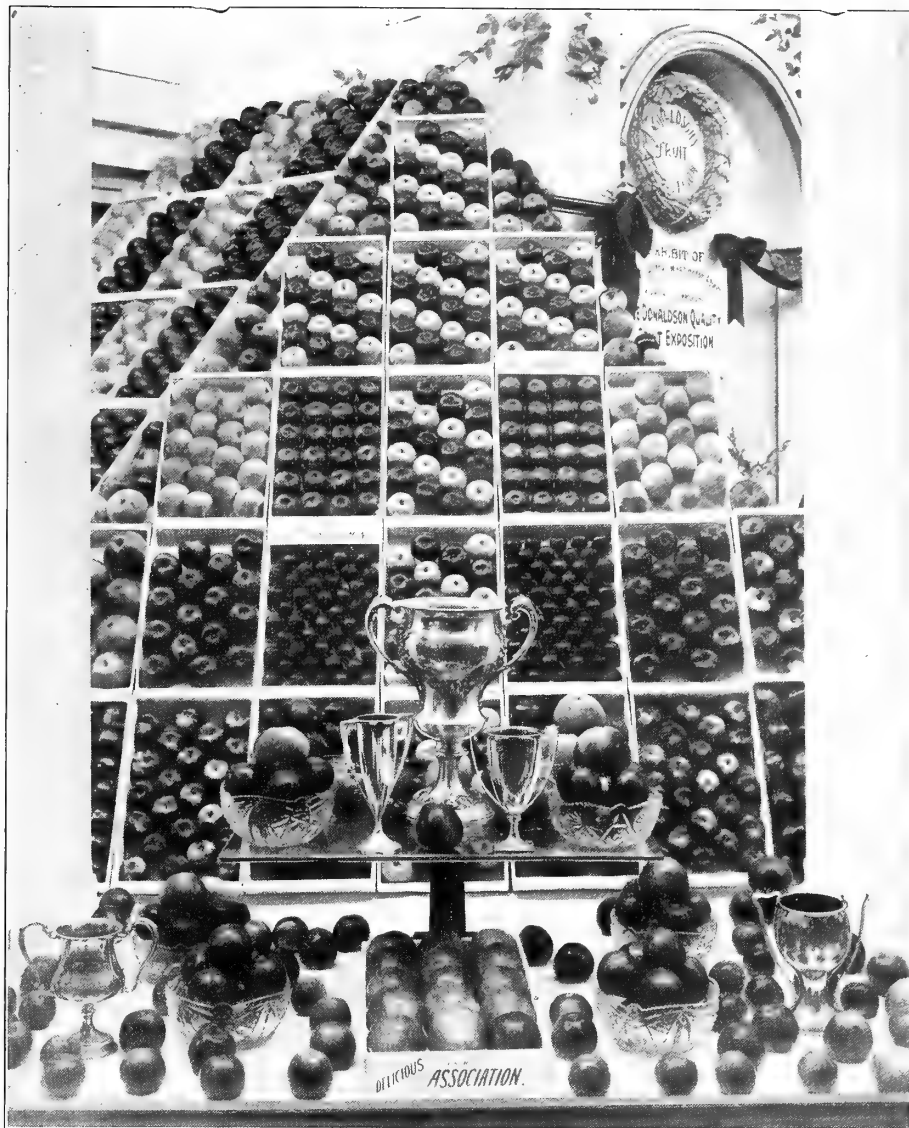


Exhibit of Central Washington and Wenatchee at the Donaldson Fruit Show in 1910. This will give an idea of what the Northwest Land Products Show will be this year at St. Paul Minnesota, at the Auditorium, December 12-23. This show will be a general land products show of the Northwest

quantity of the crop. It has been estimated that this state alone has 1,000,000 acres suitable for apple culture. In Utah the production will probably double within the next three or four years, with the quality constantly improving. In New Mexico and Arizona the orchard area is being extended in some of the elevated districts, although the total acreage is not large. In Idaho and Montana planting in certain districts is active and the outlook is encouraging.

We have seen that for the immediate future doubtless there is to be a gradual increase in apple production throughout the Central West, and a rapid increase in the Inter-Mountain and Pacific Coast states. The question immediately arises, is there danger of over-production? In considering this question we should not lose sight of the inevitably rapid increase in demand. Apple buyers already come every year from Vladivostok, Siberia, to our Pacific Coast states. Some little trade in apples also exists with other parts of the Orient. What this may develop into within the next decade or two it

is hard to predict, but with better facilities for reaching the Asiatic millions the consumption of American apples in that quarter of the globe will naturally tend to increase, and there is a possibility that it may assume large proportions. Alaska grows no apples, but will increase in population with the further development of its resources, and surely will become an important apple market. The opening of the Panama canal will set in motion new currents of trade and stimulate others in a way that may well be expected to increase the demand for the products of all our orchards, including apples. With better facilities for refrigeration and transportation, both continental and oceanic, the outlet for apples in European and other foreign markets will be sufficient to act more and more as a very important factor in giving a steady tone to domestic prices.

One other factor, and possibly the most important, is the home demand. We have today in this country perhaps 90,000,000 of people. It is estimated that our population will reach 117,000,000 by 1920, 142,000,000 by 1930, 170,-

600,000 by 1940 and 200,000,000 or more by 1950. In other words, the next forty years is to see the population of the United States more than double. The outlook for a constant increase in the domestic trade is certainly good. The apple orchards of the continent seldom, or never, all yield to their full capacity in any one season. Consequently the actual crop produced is each year considerably less than the orchard capacity might lead one to expect. Tens of millions of trees of bearing age throughout the country are barren this year, and have been in other years, though, of course, it is not always the same trees that are without fruit. Seldom, indeed, is there a year like 1896, when every apple tree in the

United States seemed to be loaded with perfect fruit. Besides this, it is hardly reasonable to expect that the increase in acreage planted will result in a corresponding increase in crop production. Not all the apple trees which are being planted East and West will reach bearing age, and of those that do grow to maturity many will never come into profitable bearing. In the West particularly the growth in orchard area may be expected for some years to come to be relatively greater than the increase in apple production, because absentee ownership, inexperience in orchard management on the part of the newcomers, planting on unsuitable soils or in undesirable locations and other drawbacks will all combine to

prevent a very considerable percentage of the newly planted trees in that part of the country from becoming an important factor in crop production.

In view of all these considerations it appears that there is a good basis for the unmistakably optimistic feeling among intelligent growers and dealers as to the future of the apple industry in the United States. It is reasonable to expect that in spite of the active increase in planting in many parts of the West the supply of good fruit will not for any considerable period exceed the demand at prices remunerative to both grower and dealer, while the consumer may expect, and doubtless will, more and more demand better grading and better quality of fruit.

Production of Apples East of the Great Lakes

Professor U. P. Hedrick, Horticulturist Experiment Station, Geneva, New York, at Apple Shippers' meeting

THE subject your program committee has given me to discuss, "The Production of Apples East of the Great Lakes," is one peculiarly difficult to consider, as compared with a discussion of the Western apple area. Apples in the East are largely grown to supply local markets, whereas in the apple regions of the West most of the crop is sent to distant markets. Because of this, as a chief factor, the apple sections in the East are far less centralized than in the West, the individual orchards are much smaller, the number of varieties is much greater and the methods of packing and selling are far more diverse. Add to these conditions another, namely, that the orchards in the West are comparatively young—few being past their prime—whereas in the East they range from newly set stock to hoary-headed patriarchs, and it is plain that data is easier to obtain from the West, and is possibly more reliable. I say "possibly more reliable," for I sometimes think that the rosy apples of the West make everything look rosy to our Western brethren, and that it may be that the monstrous figures of acres and trees, carloads and boxes, big apples and dollars reflect the rosiness of the apples, and that Western figures are sometimes just a little colored. In presenting the data that follows I have done my best to overcome the difficulties named, and, with the co-operation of the station horticulturists and the leading fruit growers in the states to be considered, I hope to give you reliable data. In times past I have discovered that there are often great discrepancies between information given by fruit growers and that given by fruit shippers. Now, mine are all fruit growers' data, and you who are mostly fruit shippers have my permission to translate them into fruit shippers' data, up or down, as the conditions of the season's markets may seem, in your judgment, to require.

Coming to my subject, we may as well begin with the New England states and with Maine. Apples are grown to some extent in every part of Maine. They are grown commercially,

however, mainly in the interior river valleys, especially those of the Androscoggin, Kennebec and Penobscot. The Baldwin easily heads the list as a commercial variety in this state, followed in order by Ben Davis, Northern Spy, Gravenstein, King, Stark, McIntosh, Hubbardston, Wealthy and Yellow Bellflower. Pests are numerous and very troublesome. The codling moth, brown tail moth, gypsy moth, railroad worm, curculio and apple scab are the worst of these. Spraying has not been a general practice in the state, but the gypsy and brown tail moths are slowly driving the fruit growers to spray. At present not more than 5 per cent of the commercial orchards are sprayed. Maine apple growers have not awakened to the necessity of tillage. Probably 95 per cent of the orchards are in sod; the cultivated 5 per cent acreage, however, show the value and the necessity of tillage if profitable quantities of apples are to be grown. The number of apple trees in Maine in 1900 was 4,187,781, producing 1,421,773 bushels of fruit. The number now is very considerably greater, the increase having taken place very largely within the past two years. The bearing acreage, however, at the present time is not much larger than 1900, the cold winters during the past decade having destroyed many trees. The outlook for apple growing in this state is promising. There is an awakened interest in the industry, and it should not be very long before Maine will be putting a considerable quantity of handsome, well flavored, long keeping apples on the market.

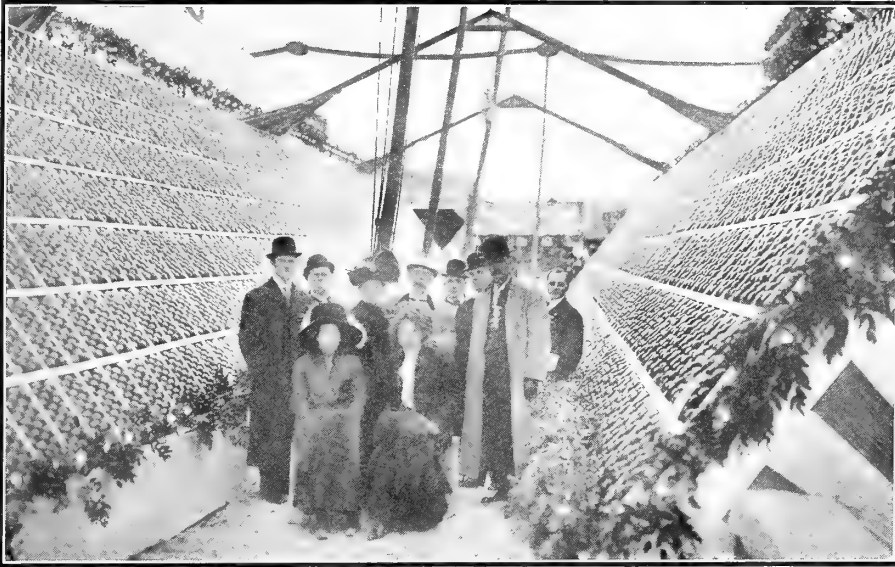
Apple growing in New Hampshire is very similar to the same industry in Maine. In New Hampshire in 1900 there were 2,034,400 trees, producing 1,978,797 bushels of fruit, the leading sorts being Baldwin, Rhode Island Greening, Roxbury Russet, Northern Spy, McIntosh, Yellow Bellflower and King. The Gravenstein can be well grown in this state, as in all parts of New England, and should be grown much more largely than at present.

Apples may be grown everywhere in this state, except in highest altitudes.

The number of trees in Vermont at the last census was 1,675,100, which gave the preceding seasons 1,176,800 bushels of apples. There are three distinct apple regions in Vermont, the most important of which is the Champlain region, stretching up to the St. Lawrence and Canada on the north. The speaker has never seen handsomer McIntosh and Northern Spy apples than come from this region. The second in importance is the upper Hudson River Valley region and the third the Connecticut River Valley. The best orchards and the best orchardists are found in the first region, where, however, there is a great chance for the improvement of both. The land about Lake Champlain, in Vermont, and the adjacent territory in New York ought to be planted wholly to apples, for nowhere can finer apples be grown. The chief hindrance to apple growing in the last two states is the apathy of the people. The farmers are, and have been for generations, general purpose farmers, and few of them are willing to specialize to the extent that is necessary to grow apples profitably.

Apples grow abundantly everywhere in Connecticut, but the fruit of highest color, finest texture and best quality comes from the rocky hills having an elevation of 1,500 feet. The number of trees in 1900 was 1,167,300, having produced 3,708,931 bushels of apples in 1899; large plantings have been made since the date given. The leading varieties are Baldwin, Rhode Island Greening, Roxbury Russet and Northern Spy. Most of the common apple pests are present, to which must be added the brown tail and gypsy moth, but very few spray and few cultivate. There is nothing wrong with the quantity and the quality of the apples grown in Connecticut when properly grown, but until the past two years there seems to have been little interest in the industry.

Apple growing in Rhode Island is but poorly developed, nor does the state offer much for the future, the climate and soil being illy adapted to the cul-



Views of the National Apple Show, Spokane, 1910

Showing a car of Spitzbergs exhibited by C. H. Sproat, Hood River, Oregon, winning the sweepstakes and first prize for Spitzbergs, and a car of Newtowns exhibited by Avery Brothers, Hood River, winning the first prize for Newtowns. This was one of many similar exhibits last year, there being about twenty-five cars on exhibition. The Fourth National Apple Show will be held this year at Spokane, November 23-30, and it promises to be a better show than ever before, and we might add that the National Apple Show of Spokane has never been equaled by any other apple show

ture of this fruit. It is not likely the acreage will soon vary much from that at present planted, which is 213,598 trees, producing 329,445 bushels of apples, chiefly Baldwins, Greenings, Russets and Spies.

In spite of the fact that the people of Massachusetts probably consume more apples than other people on the same area, the state can now hardly be said to grow apples commercially, the number of trees in 1900 being but 1,852,000, with the yield of 3,023,400 bushels of fruit. The amateur fruit grower is probably better developed in Massachusetts than in any other part of the Union, and the people are a home-loving people, so that the great majority of the trees given in the figures above are in home orchards. Apples can, however, be grown very well in almost any part of the state, and particularly so in Worcester County, about Grafton, Salem, Newburyport and Haverhill. The Baldwin is, by all odds, the leading variety, with Greening, McIntosh and the Spy next in importance, though close to Boston Williams' Early, Gravenstein, Wealthy and early sorts are grown considerably. The brown tail, gypsy and codling moths and San Jose scale are the chief orchard pests and do untold damage, still not more than 10 per cent of the orchardists spray; about the same number cultivate. There is a great revival of interest in Massachusetts, and during the past two years many trees have been set.

New York contains more than twice the number of trees, more than twice the acreage and more than double the yielding capacity in apples of the six New England states, and leads all the states of the Union in commercial apple growing. The number of trees in New York in 1900 was 15,054,832, yielding the year previous 24,111,300 bushels. The above figures will be increased in the census just being taken by at least

one-sixth. Apples may be grown profitably in any part of New York, where agriculture is practiced, and commercial orchards are found in practically all parts of the state. There are, however, three chief apple districts, the most important of which is the region about the central lakes and northward to Lake Ontario. The several counties in this great area probably produce more apples than are grown in any region of equal size in the world. The chief asset of this apple belt is the climate, which is comparatively uniform in both temperature and humidity, brought about by the large, deep bodies of water surrounding the region. Here is the home of the Baldwin, the Greening and the Roxbury Russet—all far famed for quality and quantity. The region on both sides of the Hudson, from Long Valley to Lake George, comprises the second most important apple region; added to the three sorts named above, Jonathan, Spitzberg and Newtown Pippin are grown. The high and

rolling land tributary to Lake Champlain and the St. Lawrence River is splendidly adapted to apple growing. Northern Spy, McIntosh and Fameuse grow as well here as these varieties can possibly be grown. As yet this region is little developed, and anyone who has seen the fruit grown here knows that it promises well for the future. Besides the varieties named, Hubbardston, Baldwin, Wealthy, Bellflower, Tolman Sweet, Oldenburg, Gilliflower and other less known sorts are generally grown in all parts of the state. The apple tree in all parts of New York is large, productive and long lived, and the fruit is most excellent in quality, lacking, however, the size and, more important, the handsome color of the apples grown in Western regions. The insect and fungous diseases found in the state are kept fairly well under control in commercial orchards by spraying, and there is a growing tendency to till, prune and otherwise care for the trees. Still the apple in this state, as in all Eastern states, has been grown for over two centuries as an adjunct to the farm, and to neglect the trees is "bred in the bone." Lack of care is the curse of fruit growing in New York, not one-quarter of the orchards receiving anywhere near the attention necessary to grow the best fruit. The outlook, however, is brightening. Apple culture is proving one of the most remunerative crops grown in the state, and with the advent of many growers from the cities and a new generation of growers on the farms, and with the educational work of Cornell University, the three secondary schools of agriculture, the Department of Agriculture and the experiment station, better conditions are everywhere apparent in apple growing in New York. With proper care of the trees now in existence the product of first class fruit might easily be doubled in quantity. The acreage can be multiplied many times in the state, as scarcely a tithe of the apple lands in New York are now planted.

The number of apple trees and productivity of the trees in Pennsylvania are surprising to those who have

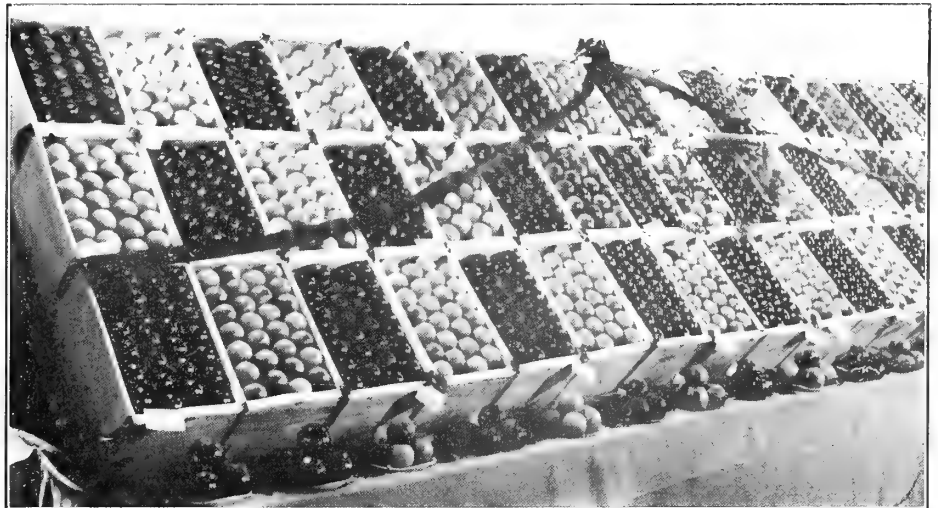
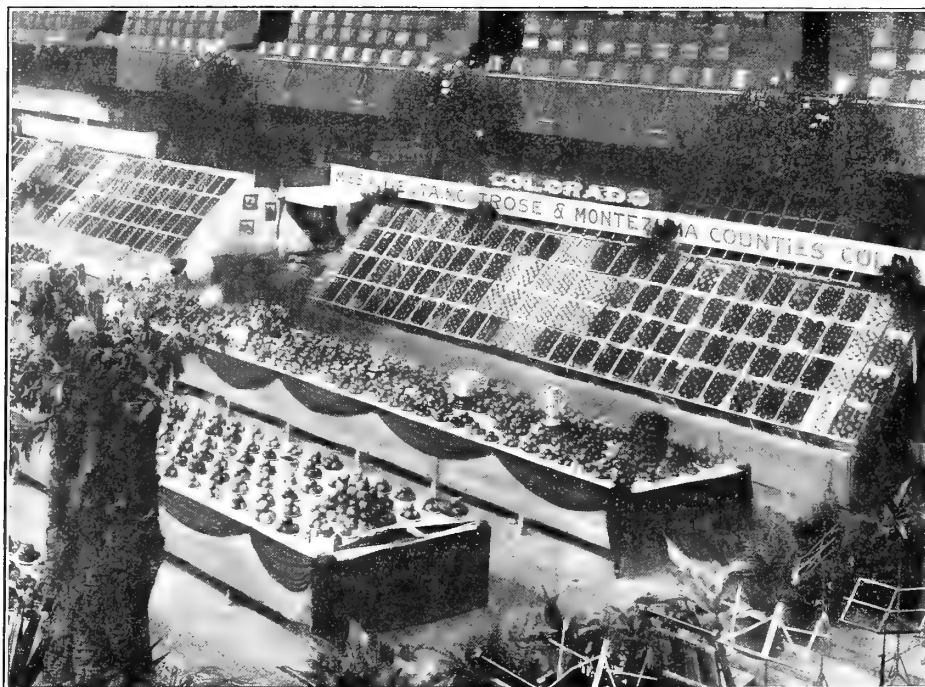


Exhibit at Oregon Apple Show and State Horticultural Meeting in 1910, which will give some idea of what the show will be this year in Portland, Oregon, November 15-17



Prize Winning Colorado and Idaho Apples Exhibited at the National Horticultural Congress at Council Bluffs in 1910. This show will be held this year at St. Joseph, Missouri November 23-December 2, and promises to be conducted on a much larger scale than ever before

not looked at the figures. In 1900 there were 11,774,200 trees, producing 24,060,600 bushels of fruit. We do not usually count Pennsylvania as one of the great apple states, but these figures place it among the leading half dozen. A study of the census report, however, shows that the industry is not specialized and the product is not largely commercialized, the trees being very evenly distributed about the farming communities of the state, and the apples being largely used by the growers and the local markets; still there are several regions in Pennsylvania in which fruit is grown commercially as the Cumberland Valley, especially in Adams and Franklin County, in the territory south of Pittsburg; also that north of Wilkesbarre, particularly Wyoming County. Somerset County, in the southwest, is also a producing region of growing importance. In the southern districts York Imperial, Ben Davis, Grimes Golden, Winesap and Rome Beauty are particularly well adapted to climate and soil; in the northern parts of the state Spy, Baldwin and King are largely grown, with liberal sprinklings of Greenings, Winesaps and a few Bellflowers. The diseases are not well under control owing to the fact that few of the orchards are commercial plantations. The trees are not well cared for in other respects as in tillage and pruning. In some parts of Pennsylvania there is a veritable boom in apple growing, and the number of trees has greatly increased since the 1900 census. There is an abundance of cheap lands admirably adapted to the growing of apples, and near local markets which want apples and can pay for them. Pennsylvania is destined to be one of the great apple states of the Union, but the mining and manufacturing towns of the state will probably consume all the fruit produced.

and more for years to come, if the product is properly marketed.

New Jersey is famous for its early apples, and most of the commercial orchards of the state are planted with early varieties, as Yellow Transparent, Early Williams and Starr, followed by Maiden Blush and Wealthy; for late sorts Winesap, Rome Beauty, Ben Davis and York Imperials are largely grown. The total number of trees for the state is 1,810,800, producing 4,640,900 bushels of fruit. The orchards are chiefly located in Gloucester, Camden and Burlington Counties, in the southern part of the state, though there are good orchard locations in the northern counties, especially Hunterdon. Fruit trees in New Jersey have suffered terribly with the scale, and apple growers have very generally been forced to spray. The land is for most part light, so that all fruits must be cultivated if large yields are secured. Fruit growing is just beginning to recover from the terrible onslaughts of San Jose scale, and tree planting is more and more common.

The conditions of apple growing in Delaware do not differ materially from those prevailing in New Jersey. The last census gives the number of trees as 567,618, producing 702,900 bushels of apples. Practically all of the commercial orchards in this state are in what is known as the Camden and Wyoming districts in northern Kent County and in northern Sussex County. Such apples as are grown in other parts of the state are used by the growers; the soil is light and the climate mild in Delaware, giving particularly advantageous conditions for the growing of early apples, of which Yellow Transparent, Early Ripe, Fourth of July, Williams and Red Astrachan are the leading varieties; the late sorts are the same as those named for New Jersey.

The pests are the same as in the Northern states, with one exception, namely, the bitter rot, which begins to creep in from the South, and is possibly the worst foe the apple grower in Delaware has to contend with. The blight, too, does rather more damage than farther north. Apple growers must spray, as San Jose scale is everywhere and the sandy soils compel rather careful cultivation. One of my correspondents in this state reports that the increase in bearing trees since 1900 is probably about 5 per cent, but he estimates that in non-bearing trees it is possibly 1,000 per cent, since thousands of acres have been set out every year during the past few years. He further states that Delaware is to be known as an apple state instead of a peach state in the years to come, and that the apple outlook is brighter than for any other crop in the state.

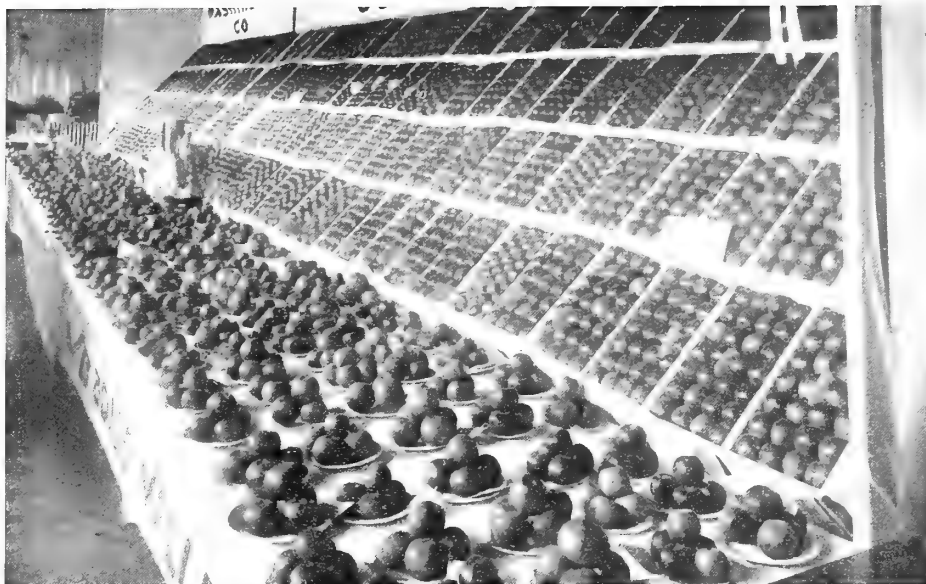
The apple regions of Maryland are found in the northern two-thirds of the eastern shore, the northern portion of the state and in the highlands of Western Maryland. In the first regions the soil and conditions are practically those given for Delaware; in the north and west the soils are heavier, with clay and gravel loams predominating; on the eastern shore the varieties grown are those named for Delaware, but in the other portions of the state the York Imperial and Ben Davis are more largely grown than any other varieties, followed by Stayman Winesap, Grimes Golden and Rome Beauty. The usual pests are to be found, to which must be added the "bitter rot." Commercial orchardists very generally spray and cultivate their orchards; home growers seldom do so. Apples are being largely planted in Maryland, and the 1,824,200 trees given in the 1900 census can now probably be increased by 25 per cent, while the productive capacity given in the same census of 3,150,700 bushels might possibly be increased by 5 per cent.

Apple culture in America began in Virginia. Plantings of apples were made on the Jamestown Island in 1607. The London Company imported many scions in 1672, and before 1700 orchards of considerable size had been planted. Among the famous orchards of Virginia is the one at Monticello, planted by Thomas Jefferson, fruit from which won supremacy in the New World. Virginia is separated into six physical divisions, known as Tidewater, Middle Virginia, Piedmont, The Valley, Blue Ridge and the Appalachian Region. The apples which have won renown for this state are for most parts grown in The Valley and the Piedmont divisions. Piedmont, with an altitude of about 1,000 feet, with a dark red clay soil, is famous the world over for its almost perfect Albemarle and Winesap apples. Orchards in coves, on hillsides barely tillable, yield fabulous returns, individual trees having often produced in one season \$100 worth of Albemarle Pippins. The Valley, however, leads in apple production so far as quantity is concerned. The soil is limestone, espe-

cially adapted to the growing of York Imperials and Ben Davis, though such sorts as Early May, Red June, Early Harvest for the earlies, and Sweet Bough, Maidens Blush, Pennock, Fallawater, Smokehouse and Winesap are also largely grown here. The total number of trees for the state is 8,190,000, which produced in 1899 9,836,000 bushels of fruit. Orchard pests are numerous and are not under control; cultivation, except in the best kept commercial orchards, is as yet scarcely known; even in the famous Piedmont orchards, which produce the wonderful Albemarle Pippins, the trees are poorly cared for. As in the states to the north, there is at present a revival in apple planting and thousands of young trees are being put out.

West Virginia is forging to the front in the production of apples, the chief regions being known as the Northern Panhandle and the Eastern Panhandle. The great apple of the Northern Panhandle is the Willow Twig, followed by the Ben Davis and Rome Beauty; in the Eastern Panhandle the York Imperial, Ben Davis, Grimes Golden, Winesap and Mammoth Black Twig are planted in about the order given. Spraying has become quite general in the Eastern Panhandle, but is not practiced much in the northern. Orchardists, however, have made very great advances in spraying in this state in the last few years. As in Virginia, cultivation is not making headway. The fact that the orchards are mostly on hilly ground makes it impossible to cultivate many of the orchards in this state. The only figures available for apple growing in West Virginia are those of the 1900 census, which give 5,441,100 trees, producing 7,495,700 bushels of fruit in 1899.

We do not usually think of North Carolina as an apple state, and yet the census figures place it away above the average among the states of the Union in apple production. These figures are for 1900: 6,438,900 trees, producing 4,662,700 bushels of fruit. The apple orchards of the state are for most part



Southern Idaho Apples on Exhibition at the National Horticultural Congress at Council Bluffs in 1910, which will give some idea of what the show will be this year at St. Joseph, Missouri, November 23 to December 2

in the western mountains of North Carolina, where the soil and climate is much the same as in West Virginia; the leading varieties are Winesap, York Imperial, Rome Beauty and Ben Davis. Spraying and cultivation are practiced, but to a limited extent. Many orchards are being set and apple growing is becoming popular in the regions adapted to it.

Apples are not largely grown commercially in South Carolina, although in the Piedmont and Alpine regions, ranging in elevation from 400 to 3,000 feet, apples can be grown in tempting variety. The fertile valleys and mountain coves in these regions, under the manipulation of skillful hands and a competent head, would make apple growing profitable, even this far south. The latest figures give the number of trees as 694,700, producing but 251,700 bushels of fruit, most of which is, of course, consumed by the growers.

It is scarcely to be believed that Georgia contains more apple trees than

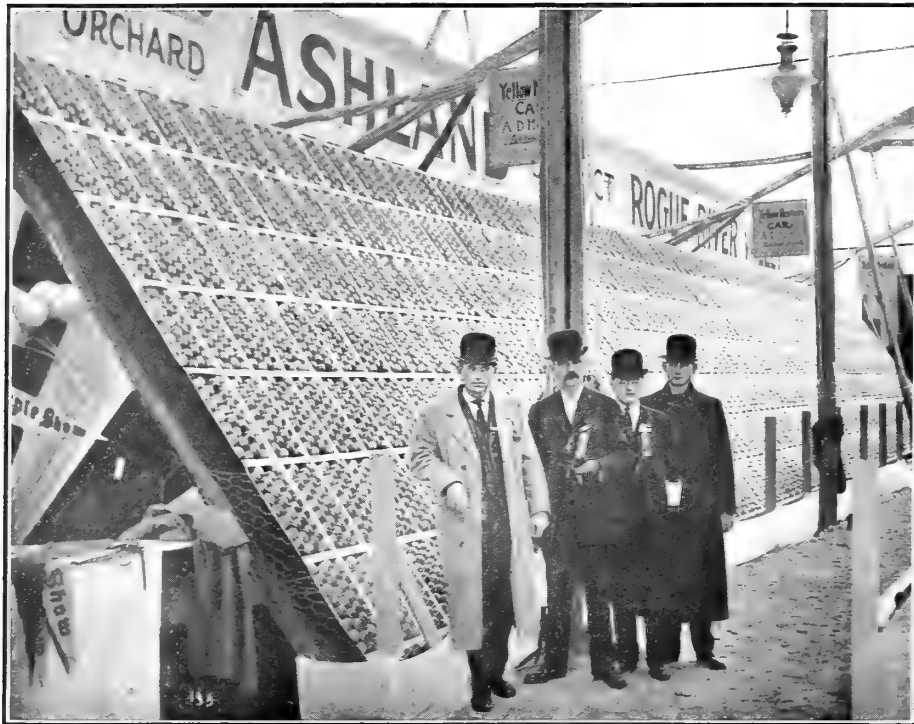
the average New England state, yet such is the case, the number being 2,036,000 trees, a larger number than in any New England state, excepting Maine. The production, however, for the year in which the census was taken was low, being but 670,900 bushels. All the commercial orchards of apples are in what is known as the Tennessee dip, where in the mountain coves apples thrive as well as in any of the states in the North, Pickens, Gilmer, Murray and Fannin Counties being famous for their apples. In some of the mountain coves of this state neither insects nor fungous pests named for the Northern states, are to be found. For most part the apple orcharding in this state is crude and primitive so far as care of the trees is concerned. For summer apples Red Astrachan, Yellow Transparent, Early Harvest and Red June are grown; the leading winter apples are Ben Davis, Winesap, Rome Beauty, Terry, Yates and Arkansas Black. In the counties named apple growing ought to succeed, as the local markets are excellent, with Cuba, Mexico and South America promising well for outside markets. Labor here, as in all of the Southern states, is comparatively cheap. Some of the men who have been growing peaches in Georgia are now turning their attention to apples, expecting greater certainty in the growing of this fruit than with the peach.

Alabama is not often counted among the states producing apples, nevertheless it has 2,015,700 trees, producing 719,200 bushels of fruit. The number of trees is about the same as in New Hampshire, but the yield is less. The apple region of Alabama is a continuation of that of Georgia, and the conditions noted for the latter state hold in Alabama.

Quite surprising are the apple figures of Tennessee, this state having 7,714,000 trees, producing 5,387,800 bushels of fruit. Apples are grown in all parts of the state, except in low river bottoms.



Commercial Exhibit of Apples and Canned Goods from Utah, at National Land and Irrigation Exposition, Chicago, in 1910, showing one of a thousand or more features that will be on exhibition at this show this year at the Coliseum Chicago, Illinois, November 18 to December 9



Splendid Carload of Newtowns Exhibited by A. D. Hellam, Ashland, Oregon, Winning the Second Prize at the National Apple Show at Spokane in 1910. The dates for this year's show are from November 23 to November 30

The sorts commonly grown are Ben Davis, Rome Beauty, Winesap and York Imperials, though many varieties less well known are to be found in what are practically all home orchards. The insects and diseases are those common in the apple, to which may be added, as in all Southern states, the dreaded scourge, bitter rot. Spraying and cultivation are hardly practiced and there are but few commercial orchards. There seems to be an awakened interest in apple growing in this state, but not much may be expected in commercial channels from apples grown in Tennessee for some time to come.

Northward from Tennessee apple growing becomes more and more important, Kentucky having 8,757,200 trees, producing 6,053,700 bushels of fruit. The apple sections of this state are in the northern part, about the cities of Cincinnati, Louisville and in Oldham, Trimble, Meade, Breckenridge and Harden Counties. There are possibilities also of growing apples in the eastern portion of the state. The best apples in Kentucky are grown in the hilly regions, on thin and rather stony soil. The leading varieties are Ben Davis, Rome Beauty, Winesap and York Imperial. Correspondents in this state doubt whether three per cent spray, and probably not that many cultivate. The increase in orchard plantings has not been large during the past ten years. Local prices are high, and there are no reasons why Kentucky ought not at least to supply its own markets with fruit, which it does not now do.

Ohio probably ranks third or fourth in the production of apples in the United States, the number of trees being 12,952,600, producing 20,617,500

bushels of fruit. Apples are grown in all parts of the state, but the chief regions for commercial plantations are in the northern part, near the lakes and in the hilly southern portions of the state. The varieties grown in Northern Ohio are Baldwin, Greening, Northern Spy and Rome Beauty; in the southern region Rome Beauty, York Imperial, Jonathan, Grimes Golden and Winesap. The pests in the northern part of the state are the same as those in all the Northern states; in the southern they are practically the same as in all Southern states. Commercial apple growers, of course, spray. Home orchards, which contain the great majority of the trees in the state, are seldom sprayed; both home and commercial plantations are largely in sod, Ohio being the one state in the Union in which fruit growers are very generally taught that apples and sod go well together. There has been little increase in bearing orchards since 1900, but there has been a number of new plantings made since that time. It is probable that Ohio does not now produce nearly enough apples to supply the home consumption, but it is not likely that this condition will last longer than the time when the present plantations come into bearing.

Indiana is another of the states which has a surprisingly large number of apple trees, the great majority of which, however, are in home orchards. The last census gave as the total number 8,624,600 trees, producing 8,620,300 bushels of fruit. The plantations being well distributed over the state, although if commercial apple growing ever attains importance in Indiana, as it must in time, it will be in the northern third and the southern third of the state. The varieties grown in these two

parts are essentially the same as those grown in Northern and Southern Ohio; the pests, too, are the same as noted for that state; spraying is carried on in most of the commercial orchards, but the spray outfit is seldom seen in a home plantation in Indiana, nor is the cultivator an orchard implement of much use in this state. There seems to be a veritable boom in apple planting in the southern part of the state, and it is likely, if success attends the present efforts and the planting continues, that Southern Indiana will soon be a considerable factor in the apple markets of the country.

Michigan, as all know, is usually counted as one of the apple growing states of the North, the region in which this fruit grows covering the southern peninsula. Nature certainly intended this state for the apple, and only the apathy of the people tilling the soil has kept it from being a greater factor in the apple markets than it now is. About half the people in Michigan are descendants of settlers from New York, and since the climate and soils are much the same, practically the same varieties are grown here as in the older state, but on the whole orcharding is not as far advanced as in New York. Spraying is not as well performed and the operation is less common. Comparatively few, outside of the peach belt, cultivate their apple orchard, and in other ways the plantations are somewhat neglected. Recent freezes in the peach belt have driven many who formerly grew peaches to the growing of apples, and the industry seems to have an impetus from other causes in other parts of the state than the peach belt, so that during the past few years a great increase has been made in the number of trees. It is doubtful if the bearing capacity is not greater now than ten years ago, when the figures were 10,927,900 trees, producing 8,931,600 bushels of fruit.

Finally, the grand total number of apple trees in the twenty-two states under discussion was 116,990,973 in 1900, producing the year previous 141,833,872 bushels of fruit. It is doubtful, from the information that I can gather, whether the bearing capacity in these twenty-two states has been greatly increased during the past ten years, but it is probable that the number of trees has greatly increased in spite of the fact that many of the old orchards are going out. Practically all of the men with whom I have corresponded have mentioned the fact that apples are being more largely planted than ever in their states, especially there seems to have been a tremendous impulse to plant apples during the past four or five years, and this impulse has not yet reached its height. The planting is done by men who will specialize in apple growing and who will produce not only more fruit from a given area, but fruit of a better quality. This whole region is one of possibilities rather than achievements, and apple growing and its potentialities are but beginning to be appreciated by land owners. In all the Eastern states the

great drawback to apple growing is the lack of care. With the tremendous handicap of apathy and shiftless orcharding the apple industry of the East is insignificant in quality and quantity of fruit to what it might be.

One last look at apple figures and I am done. The total number of trees in the United States in 1900 was 201,794,642, and these produced in 1899 175,417,700 bushels of apples. About two-thirds of the trees in the country

are east of the Mississippi, and these ten years ago produced over six-sevenths of the apples consumed by the American people. We shall all look forward to the figures of the census now being taken.

An Analysis of Western Spraying Methods

By A. L. Melander, Entomologist State Agricultural College, Pullman, Washington

DURING a study of the methods of spraying for codling moth I had occasion to correspond with a number of fruit growers at the close of the 1909 season. The list of correspondents was made up of the prize winners of the Apple Show at Spokane that year, with a few others added, to whom I had previously been writing about codling moth spraying. Inasmuch as these letters, when collected, brought out much interesting information as to present-day methods of spraying in the Northwest, I sent out an additional set of inquiries at the close of last season. Some of the letters went to districts where there is no codling moth; some brought back answers which were too indefinite to use; but, nevertheless, a goodly number of reports were secured worth recording. The replies, representing some fifteen hundred acres, may be considered as an elaborate practical experiment. They show how well or how poorly the fruit growers have succeeded in the fight against the moth. In a limited way they show the practices of spraying followed in the various districts. The fruit grower of tomorrow can well profit by the examples of the more successful, if not of the majority. Obviously, there is error in the final results. A hundred observers will give a hundred interpretations of the condition of the orchards, but as the errors are as apt to be on one side as the other the total should average somewhere near the truth.

In the table herewith I group the figures by districts, showing which sprayings were given, the number of gallons of spray made with each pound of arsenate of lead, the method of spraying, the total crop in boxes and the amount of loss. In indicating the date of the sprayings this system of abbreviations is used: First spraying: a, at end of blossoming; b, immediately repeated. Second spraying, for first brood: c, one to two weeks after blossoming; d, two to four weeks after blossoming; e, four to eight weeks after blossoming. Third spraying, for second brood: f, July. Fourth spraying, for second brood: g, August. Fifth spraying, for third brood: h, September.

An analysis of these records will be worth while. In the first place it will be remembered that the year 1909 was generally considered as a "worm year," while the year 1910 showed much less worminess. Reduced to figures this idea is sustained, for 6.5 per cent of the 100,000 boxes reported in 1909 became wormy, while but 3 per cent of the

300,000 boxes were infested the next year. The explanation is not so much that the season was hot and dry, or that there was a dearth of parasites, or that the brands of lead were below grade, or that fewer sprayings were given, but is mainly that the 1909 crop was generally short, in some districts markedly so, and a small crop means a higher percentage of worms. The total number of codling moths the country over remains nearly constant year after year, so when there is but little fruit

the moths must concentrate their attacks on the few apples, and then there is a greater chance that the apple will become wormy. But, compared acre by acre for the two years, there were almost exactly eleven boxes wormy to the acre each year. The excessive worminess of 1909 was due to the lighter crop and not to an actual greater abundance of worms.

To show the value of spraying once, twice or more times the foregoing tables are summarized: In 1909, nine-

1909									
WENATCHEE VALLEY									
Town	Spraying	Formula	Acre-age	Power or hand pump	Crook used	Tower used	Total crop, boxes	Boxes wormy	Pct. wormy
1, Cashmere	a	1:50	40	P	Yes	No	6,023	2	..
2, Cashmere	a	1:50	6	P	Yes	No	4,000	1	..
3, Cashmere	a	..	..	..	..	..	1,500	20	..
4, Wenatchee	a	1:50	15	P	Yes	Yes	2,680	5	..
5, Wenatchee	a	1:40	3	P	Yes	No	1,250	275	(1)
6, Wenatchee	a, c	1:33	5	2H	Yes	Yes	2,400	150	..
7, Wenatchee	a, d	1:20	5	H	No	No	3,200	80	..
8, Wenatchee	a, f	1:25	5	P	Yes	Yes	1,500	1/2	..
9, Wenatchee	a, f	1:33	30	P	Yes	Yes	18,000	180	..
10, Wenatchee	a, f	1:25	4	P	Yes	No	2,800	140	..
11, Wenatchee	a, f	1:33	8	P	Yes	Yes	2,500	175	..
12, Wenatchee	a, f	1:17	6	H	Yes	No	2,500	150	..
13, Cashmere	a, f	1:17	7	P	Yes	No	1,000	50	..
14, Cashmere	a, f	1:33	7	H	Yes	No	900	18	..
15, Wenatchee	a, d, f, g	1:30	10	P	Yes	Yes	9,000	900	..
16, Cashmere	a, c, f, g	(3)	..	..	..	..	..	..	1/2
YAKIMA VALLEY									
17, Kiona	None	..	4	..	..	..	..	..	95
18, Sunnyside	a	1:50	2	P	Yes	Yes	1,400	14	..
19, Naches	a, b	1:50	6	P	Yes	Yes	900	18	..
20, Granger	a, c	1:33	20	P	Yes	No	3,000	300	..
21, North Yakima	a, e	..	16	P	Yes	Yes	4,800	480	..
22, Prosser	a, g	1:40	2	H	Yes	Yes	..	..	65
23, North Yakima	a, g, h	1:33	1	H	Yes	No	750	115	..
24, North Yakima	d, f, h	(4)	..	..	..	..	..	..	25
25, North Yakima	a, f, h	1:25	80	P	Yes	No	..	..	10-30
26, Toppenish	a, f, g, h	1:25	3	P	Yes	No	1,050	10	..
27, Selah	a, c, d, e, g	1:33	11	H	Yes	No	6,160	185	..
28, Alfalfa	a, e, f, g, h	..	..	..	..	..	..	..	66
29, Mabton	a, d, e, f, f, g	1:33	3	..	..	..	..	..	1/2
COLUMBIA RIVER									
30, Omak	a	1:50	10	P	Yes	Yes	..	..	6
31, Okanogan	a	1:50	2	P	Yes	No	1,000	150	..
32, Peach	a	1:33	2	2H	No	No	1,200	300	..
33, Cedonia	a	1:50	15	H	Yes	No	..	..	10
34, Ophir	a, e, f	1:30	6	P	No	No	800	250	..
35, White Salmon	a	1:40	7	H	Yes	No	1,500	..	(5)
36, White Salmon	a	1:50	20	H	Yes	Yes	4,800	45	..
SPOKANE VICINITY									
37, Mead	None	..	14	..	..	..	500	125	..
38, Kiesling	a	1:50	3	P	Yes	No	..	..	50
39, Mead	a	1:25	5	H	Yes	Yes	3,500	14	..
40, Foothill	a	1:50	15	P	Yes	Yes	..	..	12
41, Chester	a, b	(3)	8	..	..	..	..	..	10
42, Spokane	a, c	1:50	6	P	Yes	No	5,000	1,250	..
43, Foothill	d	1:20	..	2H	No	No	600	140	..
44, Freeman	a, f	1:17	3	H	No	No	..	..	20
45, Green Bluff	a, g	1:30	14	P	Yes	No	7,000	70	..
46, Hillyard	a, h	1:40	30	P	Yes	No	3,000	1,500	..
47, Foothill	a, e, f	1:50	15	P	Yes	Yes	..	..	4
PALOUSE COUNTRY									
48, Farmington	a	..	86	P	..	..	..	..	3-10
49, Farmington	None	..	5	..	..	..	..	..	75
50, Garfield	a	1:33	17	P	No	No	2,000	100	..
51, Garfield	a, g	1:50	8	P	Yes	No	..	..	2
52, Pullman	a	1:33	32	6P	Yes	No	..	..	15
53, Dayton	a, e, g ⁸	1:35	100	..	Yes	Yes	..	..	1
54, Waitsburg	a, d, f	1:50	7	P	Yes	No	..	..	5
55, Walla Walla	a, e, f, g	1:25	14	P	Yes	No	..	..	20
NOT IN WASHINGTON									
56, Indiana	a	1:17	35	7H	No	Yes	1,800	720	..
57, Colorado	a	1:20	5	2H	No	No	1,250	100	..
58, Idaho	f	..	..	H	..	..	..	..	75
59, Idaho	a, d, f, g	..	80	P	..	..	..	..	2
60, Oregon, Rogue Rvr.	a, f	1:17	7	H	No	No	2,500	75	..
61, Oregon, Rogue Rvr.	a, d, g	1:17	9	H	Yes	No	3,200	4	..
62, Oregon, Rogue Rvr.	a, e, g	1:17	30	P	Yes	Yes	21,000	1,500	..

¹ Large trees. ² Vermorel nozzle. ³ Dust spray. ⁴ Dust spray; very light crop. ⁵ Two wormy apples. ⁶ Poor pressure. ⁷ Friend nozzle. ⁸ Part sprayed.

1910

WENATCHEE VALLEY

Town	Spraying	Formu- mula	Power or Acre- age	hand pump	Crook used	Tower used	Total crop, boxes	Boxes wormy	Pct. w'my
1, Cashmere	a	1:50	10	P	Yes	No	7,000	200	...
2, Cashmere	a	1:50	4	P	Yes	No	2,400	1	...
3, Cashmere	a	...	10	P	Yes	No	5,500	6	...
4, Wenatchee	a	...	2	...	...	...	1,115	5	...
5, Cashmere	a, b	1:40	10	P	Yes	No	4,300	20	...
6, Wenatchee	a, c	1:30	7	2P	No	Yes	3,550	200	...
7, Cashmere	a, d	1:33	7	H	Yes	No	6,500	40	...
8, Wenatchee	a, f	1:17	30	P	Yes	Yes	7,000	350	...
9, Wenatchee	a, f	1:33	36	P	Yes	Yes	31,000	600	...
10, Wenatchee	a, f	1:40	12	P	Yes	Yes	12,000	500	...
11, Wenatchee	a, c, f	1:50	16	P	Yes	Yes	12,500	100	...
12, Wenatchee	a, d, f	1:33	7	P	Yes	No	1,350	170	...
13, Wenatchee	a, d, f	1:33	5	P	Yes	Yes	3,500	70	...
14, Malaga	a, d, g	1:25	5	P	Yes	No	1,540	200	...
15, Cashmere	a, e, h	1:33	30	P	Yes	No	9,870	200	...
16, Wenatchee	a, b, e, g	1:25	6	P	Yes	No	3,000	50	...
17, Wenatchee	a, d, f, g ⁸	1:33	8	P	Yes	Yes	8,000	350	...

YAKIMA VALLEY

18, Grandview	a	1:50	10	P	Yes	Yes	10,000	100	...
19, North Yakima	a	1:40	4	P	Yes	Yes	4,500	45	...
20, Naches	a	1:50	10	P	Yes	Yes	8,727	1	(1)
21, Prosser	a, c, f	1:30	7	H	Yes	No	...	...	50
22, Zillah	a, b, d, f	1:50	40	P	Yes	Yes	8,000	3,000	...
23, North Yakima	a, d, e, f	1:50	12	P	Yes	No	...	...	5
24, North Yakima	a, d, f, g	1:25	80	P	Yes	Yes	13,000	400	...
25, Sunnyside	a, d, f, g	1:33	10	H	No	No	5,000	50	...
26, Wapato	a, b, f, g, h	1:25	5	P	Yes	No	3,100	75	...
27, Prosser	a, c, e, f, g	1:33	4	H	Yes	No	1,800	300	...
28, Zillah	a, c, f, g, h	...	1	...	...	...	5,000	100	...
29, Mabton	a, d, e, f, g	1:33	8	P	Yes	Yes	5,600	200	...
30, Selah	a, b, c, f, g, h	1:25	9	P	Yes	No	5,000	350	...
31, Granger	a, b, d, e, f, g, h	1:10	6	P	Yes	No	2,100	100	...
32, Mabton	a, c, d, e, f, g, h	1:33	3	H	Yes	Yes	...	...	1/2

COLUMBIA RIVER

33, Cedonia	a, d	1:25	15	H	Yes	No	1,200	1	...
34, Peach	a	1:25	4	2P	Yes	No	2,000	20	...
35, Omak	a	1:50	12	P	Yes	Yes	...	...	1
36, Lyle	a, c, f	1:17	17	H	Yes	No	1,000	10	...
37, White Salmon	a	1:50	20	P	Yes	Yes	4,000	20	...
38, White Salmon	a	...	3	...	...	...	155	5	...

SPOKANE VICINITY

39, Mead	a	1:20	14	H	Yes	Yes	4,000	40	...
40, Mead	a	1:33	5	P	Yes	Yes	1,000	24	...
41, Rockford	a	...	20	H	Yes	No	1,000	2	...
42, Kieseling	a	1:25	40	P	Yes	Yes	5,000	300	...
43, Willow Springs	a	...	7	H	Yes	Yes	1,200	25	...
44, Seeton	a	...	1/4	H	Yes	Yes	157	0	...
45, Mica	a, g	1:17	15	H	Yes	No	2,000	25	...
46, Freeman	a, d, f	1:25	3	H	Yes	No	574	324	...
47, Hillyard	a, c, f, g	1:33	8	2H	No	No	1,200	200	...
48, Hillyard	a, b, d, g	1:40	30	P	Yes	Yes	4,200	75	...

PALOUSE COUNTRY

49, Hooper	a	(3)	11	...	...	...	10,000	250	...
50, Garfield	a	1:50	20	P	Yes	No	3,000	50	...
51, Garfield	a	1:50	17	P	Yes	No	6,124	50	...
52, Waitsburg	a	1:33	1	P	Yes	No	250	0	(5)
52, Waitsburg	a, d	1:33	30	P	Yes	No	23,000	500	...
53, Dayton	a	1:40	90	P	Yes	Yes	68,000 ⁶	70	...
53, Dayton	a, d	1:40	10	P	Yes	Yes	...	...	(4)
54, Pullman	a, d	1:33	32	P	Yes	No	2,000	5	...
55, Dayton	a, e	1:33	9	P	Yes	Yes	2,000	10	...
56, Spangle	a, d, f	...	20	P	...	...	2,500	65	...

NOT IN WASHINGTON

57, Pennsylvania	a, c	1:25	30	P	Yes	Yes	...	...	1/2
58, Indiana	a, b, f	1:25	12	7H	Yes	Yes	3,000 ⁹	...	1/2
59, Idaho	d, f	1:20	80	2P	No	No	14,000	7,000	...
60, Oregon, Rogue Rvr.	a, g	1:17	8	2H	No	No	1,900	50	...
61, Oregon, Rogue Rvr.	a, c, f	1:25	8	P	Yes	No	4,200	25	...
62, Oregon, Rogue Rvr.	a, e, f, g	1:17	16	2H	No	No	6,000	10	...
63, Oregon, Hood Rvr.	a, b, d, f	1:20	40	7P	No	No	15,000	300	...

¹ Checks wormy. ² Vermorel nozzle. ³ Dust spray. ⁴ "Seconds" no wormier. ⁵ Twelve wormy apples. ⁶ Ten carloads. ⁷ Friend nozzle. ⁸ Part sprayed. ⁹ Barrels.

ten growers used 1 spray on 288 acres, with 664 boxes wormy of 30,553, or 2.1 per cent; seventeen growers used two sprays on 263 acres, with 4,394 boxes wormy of 55,200, or 7.75 per cent; five growers used three sprays on 98 acres, with 365 boxes wormy of 1,550, 23 per cent; five growers used four or more sprays on 41 acres, with 1,095 boxes wormy of 16,210, or 6.7 per cent. In 1910, twenty-one growers used 1 spray on 309 acres, having 954 boxes wormy of 130,628, or 0.73 per cent; ten growers used two sprays on 196 acres, having 2,101 boxes wormy of 93,500, or 2.24 per cent; ten growers used three sprays on 118 acres, having 1,489 boxes wormy of 40,834, or 3.64 per cent; thirteen growers used four to seven sprays on 212 acres, having 4,700 boxes wormy of 55,800, or 8.42 per cent.

Adding together the results of the two years shows that a single application

of spray has averaged but 1 per cent of loss, two applications have averaged 4.5 per cent, three application the same, while those who gave four or more sprayings lost 8 per cent of their crop. Paradoxical as it may seem, the more sprayings given the poorer the results. Professor C. P. Gillette has gathered similar statistics for Colorado, and writes that his results tally exactly. However, the explanation is simple. One grower concentrates all his efforts on the single application, the other, intending to depend on later applications anyway, slights the spraying of the blossoms.

Practically all the fruit growers of the Northwest use arsenates of lead now. Our own recommendations are to use one pound to fifty gallons, but the majority of orchardists, influenced by the directions on the container, apply it stronger. Experimental tests

have shown that the strength of the spray is immaterial. When well applied one pound to eighty gallons has given us as complete immunity from worms as one to ten. The results of the practical fruit growers bear out this assertion, as is shown by the following summary: twenty-six growers used 1 pound to 50 gallons on 331 acres, with 5,007 boxes wormy out of 87,554 boxes, or 5.6 per cent loss; sixty growers used 1 to 2 pounds to 50 gallons on 1,009 acres, with 10,056 boxes wormy out of 305,544 boxes, or 3.3 per cent loss; fourteen growers used 2 to 5 pounds to 50 gallons on 247 acres, with 8,305 boxes wormy out of 60,300 boxes, or 13.6 per cent loss. The less successful grower is the one who inclines to the stronger formula. I have noticed again and again that in criticising his own methods the less successful grower always ascribes his worms to too weak a spray or to too few applications. Next year he intends to give a fifth spraying in August and will try three pounds to the barrel. What he needs instead is to give better spraying, not oftener. The most popular strength of spray in Washington is three pounds to one hundred gallons, but one-third of the growers are using it stronger than that. A very small percentage still use the dust spray for the late applications.

The success of the Western method depends upon forcing spray through the crown of stamen bars and into the lower calyx cup. This cannot be done by low pressure, or by a misty spray, or by throwing the spray up into the tree. To wet the inside of the blossom demands that a coarse spray be shot down from above the blossoms with considerable force. To get a coarse, penetrating spray our growers have practically all abandoned the Vermorel style of nozzle in favor of the Bordeaux. The seven growers reported above who sprayed with the Vermorel nozzles lost 1,690 boxes out of the crop of 13,400 boxes, or 12.6 per cent. For the same period the hundred growers who used the Bordeaux nozzle had an average loss of 3.7 per cent. 72 per cent do their spraying with gasoline engine power, and many of them maintain a pressure of between 250 and 300 pounds, a thing unheard of a few years ago. 91 per cent have adopted the "crook," a little device I first suggested to the Bean Spray Pump Company to manufacture, the popularity of which is thus attested. This attachment places the nozzle at an angle of forty-five degrees, and greatly facilitates directing the spray down into the blossoms. Many a grower has remarked that the crook is worth its weight in gold to him. Where the trees grow taller than the reach of the extension rod a "tower" is used, and this has been adopted by 42 per cent of the Washington growers. That the number is not larger speaks for the low-headed, low-trimmed trees so characteristic of the Western commercial orchard. The tower needs to be tall enough to enable the topmost branches to be sprayed. Many of the growers

simply spray from the tank. Often the blossom spraying is given in this way and then immediately repeated from the ground. The importance of filling the calyx cup is further brought out by the experience of three growers who omitted the calyx application. These men averaged 25, 50 and 75 per cent loss.

The lesson that this study teaches is this: The calyx cup must be filled, and this demands high pressure, the Bordeaux nozzle, crook and tower. The power sprayer is more conducive to success than the hand pump. Two to three pounds of arsenate of lead will be amply sufficient to one hundred gallons, and it makes no difference what particular brand of lead you use. The spraying must be done immediately after blossoming, at which time every blossom must be filled. If these details are neglected no amount of after spraying will guarantee 100 per cent returns. It is not the number of times you spray that counts, but how well you give the blossom treatment. This is the theory. The analysis of the growers' reports shows that the theory is consistent with practice.



Avenue of Prize Winning Carloads of Jonathans and Mixed Varieties, Exhibited by Richey & Gilbert Company, North Yakima, Washington, at the National Apple Show, Spokane, Washington, in 1910

Further back in the picture is the first prize winning carload of Winesaps, of which we were unable to secure a picture. The Yakima Valley is one of the largest apple producing sections of the Northwest and will have a splendid exhibit at the Spokane National Apple Show this year, November 23 to 30

Apple Growing and Orchard Management in New England

By C. D. Jarvis, Experiment Station, Storrs, Connecticut

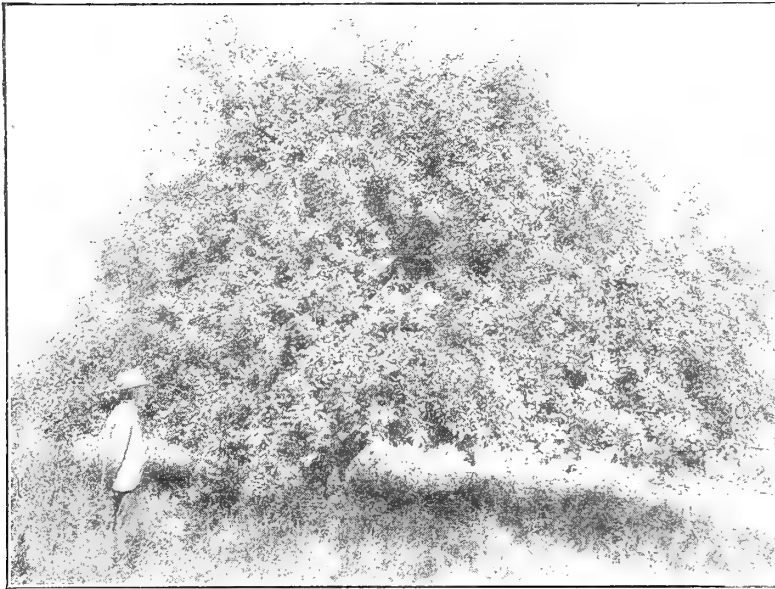
THE business of fruit growing is usually regarded as one of the most specialized lines of agriculture and is commonly conducted on small farms under intensive culture. This, however, is not generally the case in New England. Here a large proportion of the fruit comes either from very large plantations, as is the case with peaches, or from small orchards on diversified farms, as is the case with apples. The apple orchards of New England vary in size from a few trees around the house or along a line of fence to the commercial plantations of many acres. The average size probably does not exceed one or two acres. The chief advantage of specialization in agricultural enterprises is that the farmer may become an expert in his particular line. This feature as applied to fruit growing is offset by many disadvantages. The fruit crop requires attention but part of the year, and there is much loss in unused capital, labor, teams and tools during the remainder of the year. In many cases fruit could be produced much cheaper if certain other crops were grown, or if some kind of livestock were kept. One of the most successful farmers of Connecticut has formulated a system on his farm that seems to be very satisfactory. His principal business is peach growing. For the purpose of utilizing his capital, goods and labor the year round he grows grass and fattens lambs. The men and teams are kept busy in the hay fields from the time cultivation ceases in the orchards till peach picking commences. After the peach harvest is over their attention is given to the care of the lambs

and the hauling of the hay to market and the manure to the field.

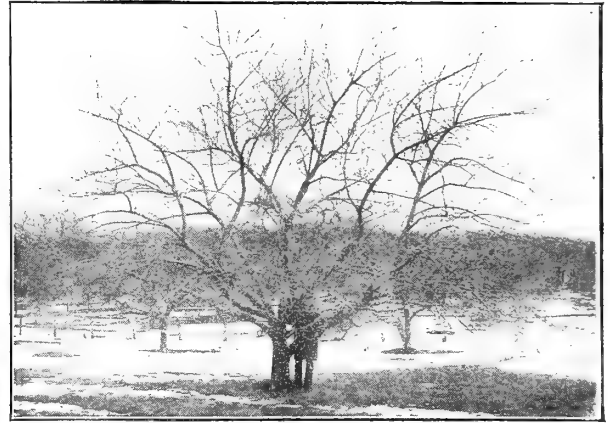
The small orchard on the diversified farm is in many respects a hopeful condition. Unfortunately the apple orchard in this section of the country has generally been regarded as a side issue and any revenue derived from it as clear profit. A five or ten-acre apple orchard, when regarded as a component part of the farm system and when properly cared for, is the ideal condition. There are many farms in New England with orchards of this size, or larger, that have proved unprofitable for the reason that they do not fit properly into the general farm system. The farmer must work out his own system, keeping in mind his peculiar conditions and adaptations. If he is an apple specialist he should aim to have a succession of varieties to lengthen out the season, and he should select such other interests as will most effectively fill in the gaps and avoid the familiar slack seasons. The crops he selects may not be so profitable as apples and may produce very little revenue directly, yet they make it possible to keep in readiness for the rush season a larger corps of workers, and to keep teams and tools in use without loss.

The management of an apple orchard may be likened to a chain, the weakest link of which is the measure of its strength. The following are some of the factors upon which successful orcharding depends: The choice of varieties, proper location, good drainage, sufficient plant food and moisture, good physical condition of the soil, proper pruning and thinning and the

control of insects and diseases. Each of these factors, and probably many others, may be considered a link in the chain of operations concerning orchard management. The importance of any one of these factors depends upon its relation to others. For example, in an orchard that has been well cared for in every respect except spraying the important factor, or what may be called the limiting factor, is the control of insects and diseases. In other words, it is poor economy to spend much time and money on the care of an orchard and allow the apples to be eaten by worms or disfigured by disease. The important point about the whole matter, then, is in the determination of the limiting factor, and when this is found to bring it up to the level of the other factors. The expenditure of a few dollars on the limiting factor will usually produce better results than the expenditure of many times the amount on other factors. Some factors are beyond the control of man, and even of those under his control it is often difficult to discover the limiting one. For this reason every grower should be an experimenter. The differences of opinion among experts concerning orchard methods arise mainly from the varying conditions under which apples are grown. The methods that give best results with one grower may prove entirely unsuitable to other growers who are working under different conditions. It is the business, then, of every grower to determine the methods best adapted to his peculiar set of conditions. Before spending large sums on any one item he should determine by experiment whether it



Ideal Baldwin Apple Tree, That Has Been Trained Properly from the Beginning



Open Center Habit of Growth, Making a Well Balanced Tree



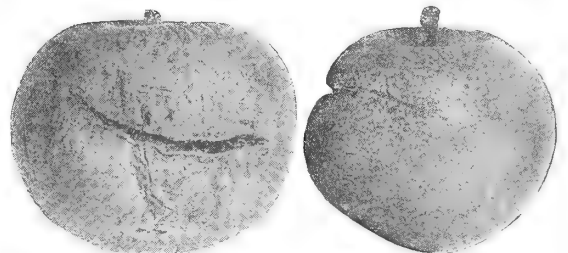
Apple Scab on Fruit and Leaves



Sooty Blotch Disease on the Apple



A Tree That Has Been Pruned from Beneath Instead of from Above



Injurious Effects of Bordeaux Mixture on Apples

will pay. The proposed treatment may be tried on a small part of the orchard and if it proves satisfactory may be extended throughout the whole orchard the following year. The result, however, of such an experiment may not always be conclusive, for the limiting factor in one section of the orchard may be very different from that in other sections. For example, one section of an orchard may be low and wet, and in such a case nothing would

give as good results as under-draining; in fact the trees would not be likely to respond to any other kind of treatment. It is important, therefore, when conducting experiments of this kind to make sure that all the factors are the same throughout the orchard, except the factor under examination.

The various systems of orchard culture that have been the subject of controversy for so many years may be classified as follows: 1, clean culture;

2, tillage with cover crops; 3, sod culture. Clean culture, as its name implies, consists in clean culture throughout the growing season. Cultivation commences as soon as the soil may be worked in the spring and continues till about the middle of August. It is recommended especially for sections where the rainfall is light during the growing season. By maintaining a loose dust mulch on the surface the system is very effective in conserving

moisture. On the other hand, the continuous cultivation tends to deplete the supply of plant food and humus, or decaying vegetable matter. To maintain the fertility of the soil under this system requires liberal applications of stable manure or some substitute. This system, as practiced by some growers, is very similar to the next to be described—tillage with cover crops—and gives fairly good results. These growers cease cultivating about the middle of July or the first of August and allow the weeds to grow up and cover the ground. The weeds here assume the function of a cover crop. The clean culture system, pure and simple, is not recommended for Connecticut.

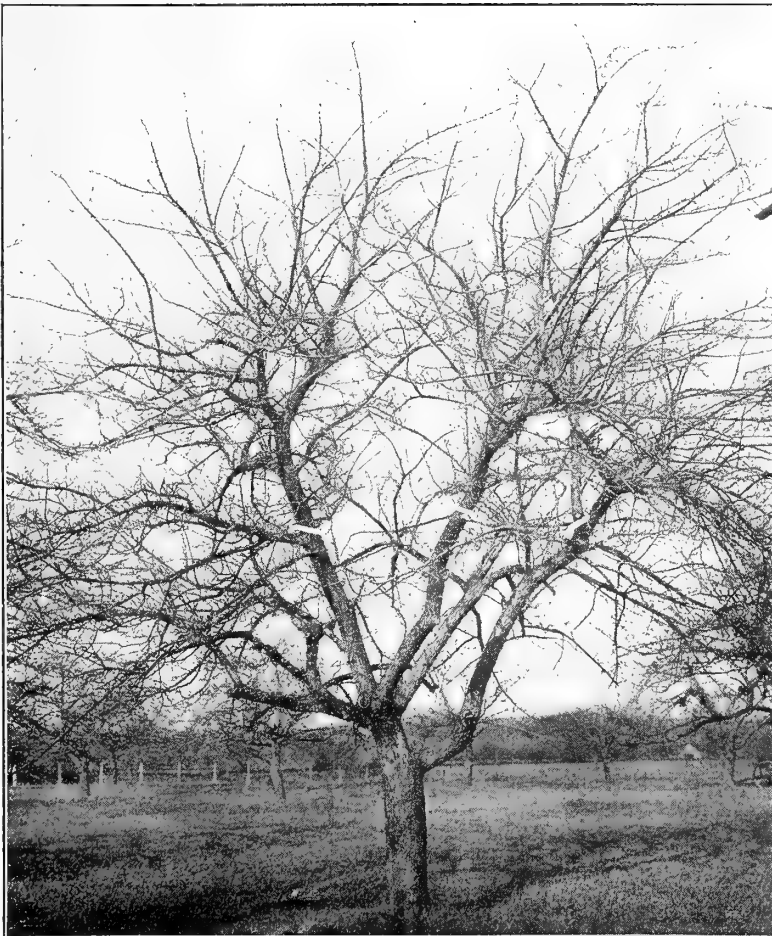
Tillage with cover crops is the same as the one previously described, except that the last cultivation occurs about the middle of July or the first of August. With it some kind of a cover crop is sown, which as it develops takes up and holds the soluble plant food, forms a protective cover to the soil, and, when turned under the following spring, contributes to the supply of plant food and humus. This system is the one followed by the most successful apple growers in the best apple sections. For Connecticut, and probably New England as a whole, this system, with some modifications, will probably give best results.

Sod culture in its most ruinous form is the one commonly practiced in New England, and is largely responsible for the unproductive condition of the ordinary farmer's orchard. The apple specialists as a rule favor the tillage system, yet there are many commercial growers who hold to some form of sod culture. The special advantage of sod culture is the possibility of producing fruit of better color, but this is probably offset by the possibility of increasing the yield by means of tillage. It is remarkable that the fruit from sod orchards has carried off many of the premiums at recent fruit exhibitions in the East. This is especially true at fall fairs that are held too early for winter varieties grown under cultivation. The main purpose of growing apples, however, is not to win premiums, and the man who tills his orchard must get his reward in higher profits. The questions for the grower to settle are, which system is best suited to his conditions—his location, his soil, his markets and his other interests—and which will give him the best return for the capital invested.

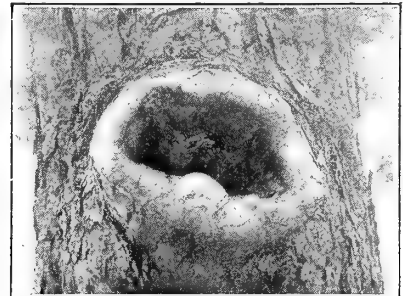
There are probably many orchards in New England situated upon washy slopes where some form of sod culture is the only feasible method. It is probable also that many more of the rugged and washy hillsides will eventually be planted to apples. This need not con-

cern us now, however, for there are thousands of acres of ideal orchard land available in every state of New England, and so long as this condition prevails it would seem advisable to select for orcharding land upon which the regular operations may be most conveniently and expeditiously performed. There is often more or less washing, however, on some of the gentle slopes, especially where the soil is of an impervious nature. Serious trouble from this cause usually may be prevented by cover cropping or by leaving strips of sod along or between the rows of trees and at right angles to the slope.

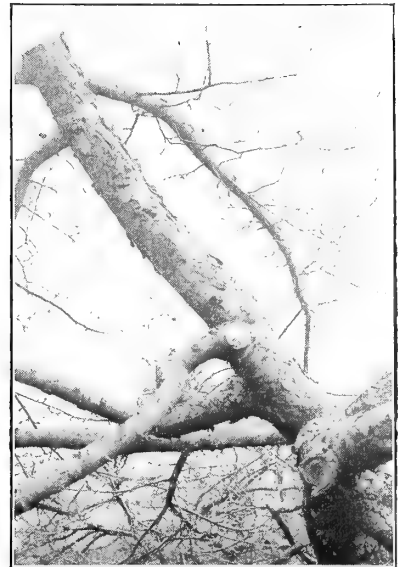
Since there are so many different forms of sod culture it seems advisable to discuss at this time some of the more common practices, such as the sod mulch, the plain or grass mulch, the pasture method and grass removal. The sod mulch method, as understood by the writer, consists in seeding the orchard down to grass and clover, in mowing the green herbage once or twice during the summer, and leaving it as a mulch under and around the trees. This is distinct from the plain mulch or grass mulch method, which depends upon foreign material to form the mulch. One of the most enthusiastic advocates of the sod mulch method and one who has been eminently successful is Mr. Grant Hitch-



A Fairly Common Form of Apple Tree
The white lines indicate where the chief cuts should be made in pruning



A Neglected Wound
Decay starting at this point has extended far down the trunk



In heading back upright branches the cut should be made just beyond a branch extending outward



One of the Earlier Planted Commercial Orchards, and Still Very Productive
The trees have plenty of room and have been well cared for



An Apple Tree in Which the Central Leader Has Been
Allowed to Develop

ings of New York. Success with this method depends largely upon the amount of herbage produced with which to form a mulch when cut. To insure the required amount the occasional breaking up and reseeding of the ground is necessitated. It is not likely to succeed well with old orchards, especially those that are closely planted, for the reason that there will not be enough sunlight admitted to insure a good growth of herbage. The New York Agricultural Experiment Station is making a comprehensive study of this method as compared with the more orthodox practice of tilling and cover cropping. A preliminary report covering five years' observation on one orchard contains some very interesting statements, a brief summary of which may not be out of place here. The tilled plot averaged 36.3 barrels per acre more than the sod mulch plot. The apples on the tilled plot were not so highly colored, but were much larger, of better quality and kept better in ordinary storage. It took 434 apples grown on sod to fill a barrel, while only 309 from the tilled plot were needed. The trees on the tilled plot made a much larger growth than the trees in the sod area. The average cost per acre for the two methods of management, not including harvesting, was \$17.92 for the sod and \$24.47 for tillage, giving a difference of \$6.55 in favor of the sod. The average net income per acre for this sod plot was \$71.52, for the tilled plot \$110.43, a difference of \$38.91 in favor of tillage. It should be borne in mind that these statements are based on the behavior of one orchard only. Another orchard with a different set of conditions may behave very differently. It is a good indication, however, of what may be expected from such treatment of a Baldwin apple orchard located in Western New York and situated on a fertile Dunkirk loam soil with sandy sub-soil.

The plain mulch method is what is frequently called the mulch method, or the grass mulch method. As the pre-

viously described method is necessarily a grass mulch method it has seemed advisable to use the term plain mulch in speaking of this method. Much of the controversy in the agricultural press has arisen from the confusion of names regarding mulch methods. In contrast to the sod mulch, this method consists in covering the ground under and around the trees with some kind of coarse material that has not been grown in the orchard. Coarse stable manure, marsh hay, corn stalks or any kind of straw may be used for the purpose. The system is especially adapted to grain growing sections, where straw is abundant. Success with this method

depends upon having such a thick mulch that no weeds or grass will grow in the orchard. The exponents of the system claim that the natural fertility of the soil may be maintained in this way, but it should be borne in mind that when we remove ten to fifteen barrels of fruit per tree we are going beyond natural conditions, and some additional plant food is likely to be required.

The pasture method is probably the most common method of orchard management in New England. It is the regular practice with the diversified farmer or the specialist in lines other than fruit growing. It is so common that it requires very little comment. Some growers take off a crop of hay and then pasture the orchard. The system depends upon the manure from the stock to keep up the fertility. Where large herds are kept and where supplementary food is supplied, together with good care in other respects, fairly satisfactory results may be expected. The common practice, however, is to turn in a few head of cattle and expect them to get a living from the orchard. Excellent results have been obtained in many cases where hogs have been allowed to run in the orchard. Hog pasturage is very similar to tillage, for the animals keep the soil well loosened up. Hogs in an orchard serve a useful purpose also in destroying many injurious insects that may be within the fallen fruit. The apple maggot is more easily kept under control in this way than by any other known method. Hogs often cause injury to the trees by rubbing off the bark, but this may be averted by feeding the animals some distance from the orchard, the rubbing usually being done just after feeding. Sheep are objectionable in an orchard, for they pasture the grass so closely and pack the ground so hard that the soil quickly dries out. Some growers have had good results from keeping poultry in the orchard, but where trees are located in crowded hen yards they are

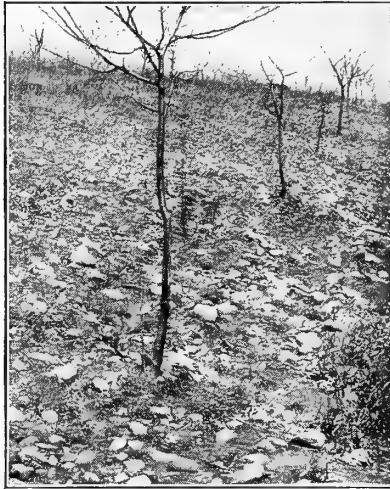


Using the "Loppers" in Cutting Back
the Higher Branches

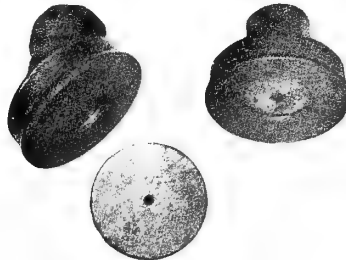
likely to grow too rapidly and to produce very little fruit.

A large proportion of the "home orchards" are cared for after what may be called the grass removal or hay method. It is more disastrous to the trees than the pasture method, for the grass is removed and not even the droppings from the animals added. Trees handled in this way will soon show signs of neglect. The owners of such orchards usually regard the hay as the important crop, and any revenue from the apples is looked upon as clear gain. Many of these neglected orchards are still capable of being renovated.

It is a common notion that the sole purpose of cultivation is to kill weeds. In reality the killing of the weeds is looked upon by the best orchardists as an incidental function of cultivation. It improves the physical condition of the soil, releases plant food, conserves moisture, facilitates drainage and kills weeds. The method of preparing land for orcharding and the cultivation of young orchards has been discussed in a former paper and needs no further comment. As the trees approach the bearing age it is sometimes advisable to relax in our rigorous cultivation to start the trees into bearing. In our efforts to develop a large bearing structure it is possible that we are growing our trees too rapidly. A tree that has been allowed to make a normal growth is likely to come into bearing earlier and to develop into a stronger and more rigid structure than a tree that has been abnormally forced. Bearing trees also should be encouraged in making a uniform annual growth. With established orchards the orthodox treatment among the commercial fruit growers consists in plowing the ground in the spring and in keeping the soil well cultivated until mid-summer, when a cover crop is sown. As a rule the plowing is done as soon as the soil is dry enough to be worked. Fall plowing is practiced with good results in many sections of the country, especially in locations where the ground is generally covered with snow during winter. The chief advantage of the practice is that it gets the work out of the way of the spring rush and exposes the soil to the pulverizing action of the winter's freezing and thawing. For sections where the ground is bare of snow the greater part of the winter this practice is not recommended. The



Side-hill Orchard, Showing the Need of a Cover Crop



"Friend" Angle and Straight Nozzles

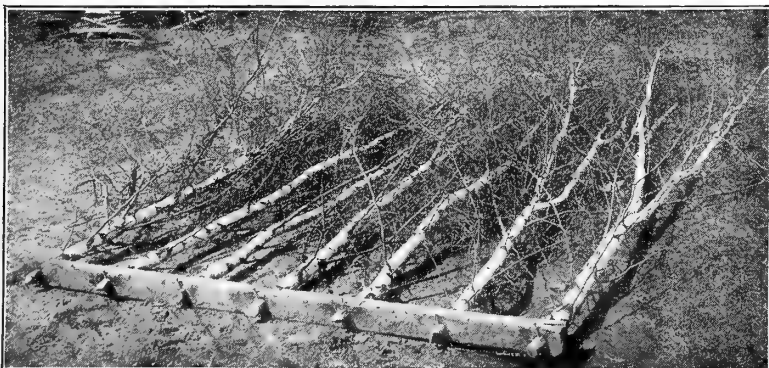
ordinary beam plow is better suited to the purpose than a sulky plow. Most orchard soils may be improved by sub-soiling. This operation is performed by following the ordinary plow with a sub-soil plow. Sub-soiling deepens the soil, giving the roots a larger feeding area. It is especially valuable in the younger orchards, but probably has very little effect upon old trees. Where the sub-soiler is not used the ordinary plow should be set to run as deeply as practicable. With a view of maintaining an even surface it is the custom to plow toward the trees one year and away from them the following year. It is also advisable occasionally to plow crosswise of the orchard.

The subsequent tillage is usually done with some kind of a cultivator. Probably the best tool to use for the first cultivation after plowing is a disk or cutaway harrow, although a spring-tooth harrow is well suited to the purpose. Some growers use a plow only once in three or four years and depend upon the cutaway harrow for the

breaking up of the soil in the spring as well as for subsequent tillage. The cutaway harrow is also used to advantage for breaking up the turf in orchards that have been in sod for so long that the roots are too near the surface for comfortable plowing. Some manufacturers are now making extension cutaway harrows that will project beneath low-headed trees. The later cultivations are intended particularly for the purpose of making a loose soil mulch that will prevent the evaporation of moisture from the soil, and for this purpose a lighter tool will do. Where the soil is in a good pliable condition a harrow of the Acme type, or even a spike-tooth harrow, may be most suitable. It is important to go over the ground with one of these tools soon after each rain, and thus save as much of the added rainfall as possible. In no case should a crust be allowed to form on the surface.

There is a common notion that trees should be cultivated close to their base. In order to facilitate cultivation near the trees some growers have been known to cut off some of the best limbs on the trees. A cleanly cultivated orchard is pleasing to the eye, and the keeping of weeds and grass away from the trunks is a protection from mice. But cultivation under the trees is of little importance so far as nutrition is concerned, for the feeding roots are located beyond the spread of the trees. This, of course, does not apply to young trees, which should always be given clean cultivation. The best practice is to cultivate as near the trees as possible without scraping off bark or fruit. The few weeds that happen to develop in the shade of a modern low-headed apple tree are not likely to seriously affect either the appearance of the orchard or the proper development of the trees. About July fifteenth cultivation should cease to give the trees a chance to ripen up their wood. In very dry seasons it may be advisable to continue cultivation until about the first of August. With the last cultivation it is customary to sow clover, vetch, cowpeas, rye or some such crop, to be turned under the following spring.

A close examination of the orchard soils of New England reveals a marked deficiency in vegetable matter or humus. There is no more effective way of increasing the amount of humus



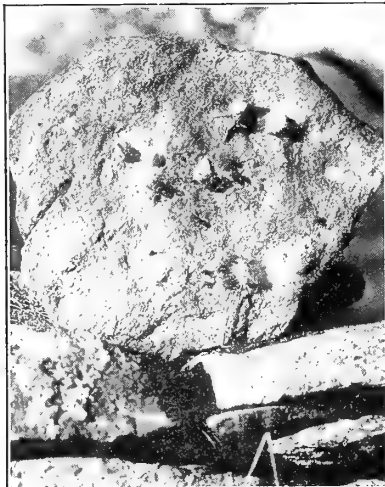
A Well-made Brush Harrow. A very satisfactory tool for covering the seed



Hairy or Winter Vetch as an Orchard Cover Crop



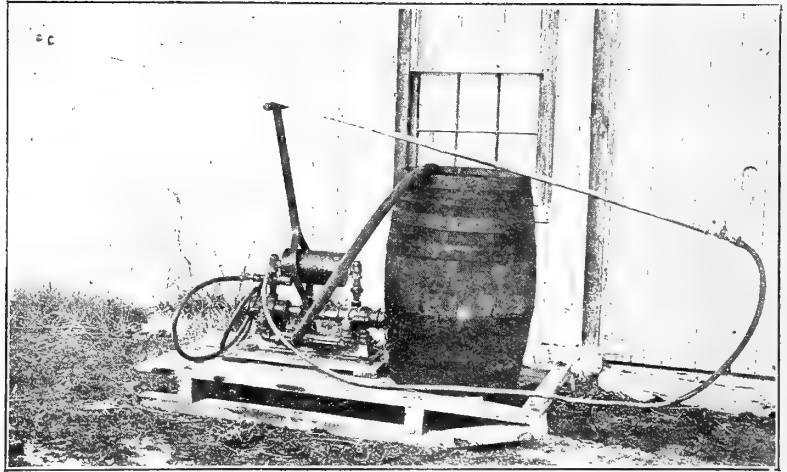
Four Types of "Loppers" from Which the Handles Have Been Removed



An upturned stone on wall surrounding an orchard, showing several hibernating codling moths



Tool with triangular blade for scraping rough bark from old trees



Double Cylinder Spray Pump. A very convenient and powerful outfit



Arlington Hand Pump with Two Leads of Hose

and the ultimate fertility of the soil than by the judicious use of cover crops. Any crop that is sown in the orchard for the purpose of turning under in the spring is called a cover crop, and should not be confused with what is commonly called a "catch crop," which is grown to be harvested. Catch crops are commonly and profitably grown in young orchards before the trees require the whole area. A cover crop serves several useful purposes, of which the following are worthy of special attention: (1) The growing of a cover crop in an orchard tends to check the growth of the trees in late summer and induces early maturity of the wood. Trees that are allowed to make a late growth are likely to be injured by freezing during the winter. The checking of the growth is effected by the cover crop competing with the trees for moisture and plant food. The maturing of the fruit on heavily loaded trees usually affords check enough, especially in dry seasons, and for this reason it is sometimes advisable to delay or omit entirely the planting of a cover crop. (2) A cover crop, especially one that lives over winter, takes up much of the soluble plant food that is likely to leach away during the winter and early

spring. The loss of the plant food by leaching is considerable, especially on light porous soils. A cover crop collects this plant food and holds it until spring, when it is returned to the soil in the form of "green manure." (3) A cover crop also preserves fertility by preventing surface erosion. If land is allowed to remain bare over winter the spring rains and the rapid melting of the snow are likely to wash away much of the surface soil, carrying with it large quantities of plant food. (4) A cover crop acts as a blanket and holds the snow during the winter, preventing root injury. Alternate freezing and thawing seriously affects the roots of fruit trees and is best prevented by a good covering of snow. (5) A cover crop, when turned under, adds humus to the soil, improves its chemical condition and produces conditions more favorable for the development of certain useful micro-organisms. The moisture-holding capacity of a soil is dependent largely upon the amount of humus present. When a rigorous system of cultivation is the practice the supply of humus in the soil is likely soon to become exhausted, and the most satisfactory way of maintaining a supply is the growing and turning under of cover crops. (6) Cover crops of the

leguminous or nitrogen-gathering type contribute to the supply of nitrogen in the soil. Nitrogen is the most expensive kind of fertilizer that the apple grower uses, and by growing in the orchard such cover crops as clover, vetch and cowpeas the expense bill for this chemical may be largely reduced, if not entirely eliminated. Again, certain cover crops like turnips and rape have the ability to assimilate plant food, which is in such form that other plants cannot make use of it. When these crops are turned under and become decayed they supply this plant food in a more available form.

There are two distinct classes of cover crops. There are those that live over winter and commence growing in early spring, like the clovers, vetches and rye, and those that die down in the fall, like cowpeas, soy beans, turnips, rape and buckwheat. Many of those of the latter class make a very large growth and in many respects are superior to those of the former class. The winter cover crops, however, furnish better protection to the soil and roots during cold weather, and on the whole are better suited to New England conditions. Cover crops may also be classified according to their ability to contribute to the supply of plant

food in the soil. Plants belonging to the legume family, such as clover, alfalfa, vetch, peas and beans, have the power of assimilating nitrogen from the air, and when turned under contribute to the supply of this valuable form of plant food. It will be observed that some of these nitrogen-gathering crops belong to the winter group and some to the fall group. Under certain conditions a non-leguminous crop may be more serviceable than a nitrogen-gathering one, and in like manner a fall cover crop may often be just as useful as a winter one. If the trees were not making sufficient growth a leguminous crop would probably be desirable, while if the trees were making sufficient growth and there appeared to be a lack of vegetable matter in the soil a rapid growing non-leguminous crop, such as winter rye, would be more suitable. In locations where a good covering of snow may be depended upon, and on soils that are not likely to wash, a fall cover crop, such as turnips, rape, buckwheat, cowpeas, soy beans or horse beans, would be very suitable. The three last named crops are nitrogen-gatherers, and would be more suitable than the former three if the trees were not making satisfactory growth. The clovers make good cover crops, and in this section of the country are more generally used than anything else. Some prefer the mammoth clover

on account of its making a larger growth. Others prefer the common red clover, while still others pin their faith in alsike. Crimson clover is largely used, and in sections where it may be depended upon to stand the winter is undoubtedly the best of its class. It is a very rapid grower, but in most sections of New England it is likely to winter-kill, and for this reason is not generally recommended. The safest plan probably is to mix together two or more kinds, always including a little crimson. Some growers prefer to mix in a little turnip seed. The turnips grow rapidly and protect the young clover plants from the hot sun. A suitable mixture may be made up of mammoth and crimson clover six pounds each, alsike three pounds and cowhorn turnips three ounces. Alfalfa is so exacting in its requirements and so slow in starting its growth that it is seldom used for cover crop purposes except in combinations. Hairy or winter vetch, in many sections, is becoming a popular cover crop for orchard purposes. It is an annual and thrives well at low temperatures. It belongs to the nitrogen-gathering group, and owing to its prostrate habit of growth and its habit of growing in late fall and early spring is well suited to cover crop purposes. It is better adapted to heavy soil, but when sufficient attention is given to the preparation of the

ground will thrive remarkably well on the lighter soils. The harvesting of the seed is a difficult operation, especially in New England, and for this reason the seed is usually very high in price. Some orchardists have been able to grow their own seed by sowing rye and vetch together. The rye supports the vetch, facilitating the work of harvesting.

By many orchardists the cowpea is regarded as one of the best plants for cover crop purposes. Of the autumn group it is undoubtedly the most satisfactory. It is a hot weather plant and thrives remarkably well on light soils and in dry seasons. This is an important point in its favor, for it is a common occurrence to have very dry weather about the time the cover crop is expected to make its growth. The seed may be sown broadcast or it may be drilled in. The "Whippoorwill" variety is probably the best for cover crop purposes. A combination of cowpeas and clover makes an ideal cover crop. The former should be sown in drills about two feet apart and not later than the middle of July. About the first of August the clover should be sown broadcast between the rows and harrowed in. This harrowing will be of great benefit to the cowpeas, giving them a good start. In very dry seasons the sowing of the clover may be deferred and cultivation may be



Dwarf Apple Tree That Has Been Affected by Borers and as a Result Has Assumed the Fruit-bearing Habit



Small Branch Bearing Ten Apples This number should be reduced by half



Same Branch After Five Apples Have Been Removed



Good Type of Pruning Saw



Just before the opening of the blossoms. Almost too late for the first summer spray



Apple blossoms just after the falling of petals; best time to spray for codling moth



Almost too late for the most effective treatment. Observe that the calyx cup is nearly closed

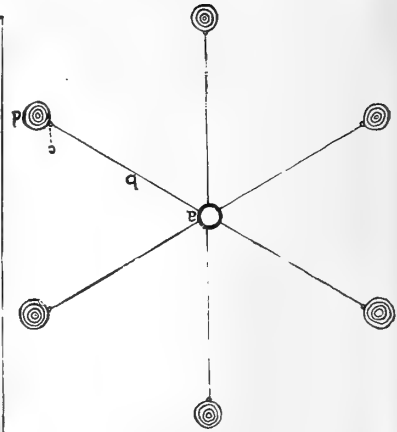


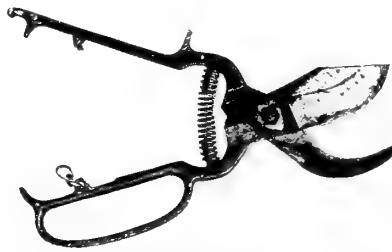
Diagram showing method of bracing trees that have assumed the open center habit of growth. a, Half-inch harness ring; b, No. 12 galvanized wire; c, Eyelet screw; d, One of the main branches

continued between the rows. If it is deferred too long the clover is not likely to become well established before winter sets in and is likely to be killed before spring. Under such conditions rye would probably give best results. About one bushel of cowpeas and twelve to fifteen pounds of clover seed will probably be about the right quantity per acre. When frost comes the cowpeas will be killed, leaving the clover in possession of the ground. Canada peas, soy beans and horse beans are sometimes grown as cover crops. They are nitrogen-gatherers and belong to the fall group. For Connecticut conditions none of them are so well adapted as the cowpea. Rye is probably the most reliable of all cover crops, and among those of the non-leguminous class it is the most satisfactory. The most important requirement of a cover crop is that it makes a cover, and where other crops fail rye may usually be depended upon. The greatest objection to this crop is that it sometimes makes such a large growth in the spring that it is difficult to turn it under. This seldom happens except with the farmer who is habitually behind with his work. Buckwheat, like rye, is a dependable crop, and is largely used by the apple growers of Western New York. It has a pulverizing influence upon the soil and is useful in "smothering" weeds. It does well on almost any kind of soil, and on account of its ability to grow on very poor soils is often called the "poor man's crop." The "poor farmer's crop" would seem to be a more suitable appellation. It is not advisable to sow buckwheat in an orchard until August first or later. If sown earlier it may mature its seed before frost comes, and such seed will cause trouble in the spring. Buckwheat contributes to the soil very little vegetable matter, for after the first frost it is difficult to find the remains of the crop. Turnips and rape are very similar, and are sometimes used for cover crops. They are more useful when sown in combination with clover than when grown by themselves. They continue growing late in the fall and furnish good protection to the clover plants. Their chief value lies in their ability to attack and

break up insoluble compounds that other plants cannot use. Whether grown alone or in combination the greatest care should be exercised in using just the right quantity of seed. Those who have not had experience in sowing turnips and rape are almost sure to use too much seed. Not more than one pound of turnip seed should be used to the acre, except with the cowhorn type. Six pounds of rape seed to the acre is sufficient. Oats, barley and corn are occasionally used as cover crops, but have very little to commend them. They draw heavily upon the moisture of the soil when the fruit is maturing and are likely to affect the yield seriously. The quantity of these different seeds in pounds to the acre is as follows: Mammoth clover 12, common red clover 12, alsike clover 12, crimson clover 15, alfalfa 20, cowpeas 90, soy beans 90, horse beans 90, hairy or winter vetch 50, summer vetch 60,

Canada peas 90, rye 90, buckwheat 60, rape 6, turnips 1.

Many growers have become discouraged after one attempt at growing a cover crop. In many cases the soil is so lacking in vegetable matter, and consequently dries out so thoroughly in the summer that it is difficult to get a "catch." Under such conditions it would probably be safer to use rye or buckwheat. The amount of vegetable matter added by the turning under of either of these crops will improve the soil to such an extent that clover or vetch may be expected to thrive well the following year. It is remarkable that the second attempt at growing clover is usually more successful than the first. When the soil has been properly handled during the early part of the season there is not likely to be any trouble in getting a catch. An ordinary smoothing harrow is probably the best tool with which to cover the seed of most cover crops. Many growers have had excellent results from using the brush harrow, especially with the smaller seeded crops, such as clover, turnips and rape. A well made brush harrow is recommended whenever it may be depended upon to cover the seed deeply enough, for with its use there is less likelihood of "barking" the trees. In dry seasons it is sometimes necessary to roll the ground after seeding. When the trees are bearing a good crop of fruit this would be an unwise procedure, for the soil moisture would be brought to the surface and lost by evaporation. If it should seem necessary to roll the ground after seeding it would be well to follow with a weeder or some similar tool soon after the seed has germinated.



Good Type of Pruning Shears

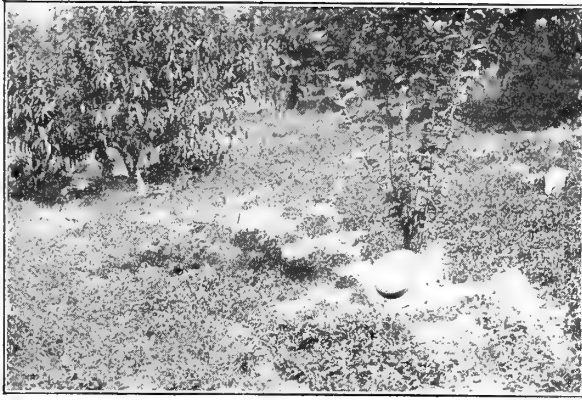


Long-handled Pruning Shears like these are very convenient



An Apple Tree That Has Been Killed by Hogs Rubbing Off the Bark

Of all the intricate problems relating to orchard management that of feeding the apple tree is probably the most perplexing. To a large proportion of the New England farmers this problem has never presented itself, for they have assumed that the orchard did not require fertilization. The specialized apple growers are just coming to realize the peculiar fertilizer requirements of the apple and the importance of ascertaining the fertilizer requirements of their various orchard lands. It is not the purpose of this article to



Crimson Clover as an Orchard Cover Crop
The bare patches show where the plants have been killed out during the winter



The Cowpea as an Orchard Cover Crop

discuss the principles of feeding plants. It is enough to say that in general plants require three elements of plant food, and the apple tree is no exception. These elements are nitrogen, potash and phosphoric acid. While not usually considered a necessary element of plant food, which must be supplied, lime is of much benefit to most crops, and its value should be considered when buying fertilizers. If these elements are not in the soil in available form they must be applied. It is not only necessary that they be present in the soil, but they must be in a soluble form, for in such form only can plants make use of them. Some kinds of fertilizers dissolve readily when applied to the soil. There are other kinds that become available gradually and some others that are so nearly insoluble that most plants cannot make use of them. The apple, being a long lived crop, can make use of the slow working fertilizers, but the tendency among careful apple growers is to use soluble fertilizers and apply them just when needed. The experienced apple grower who keeps a close watch of his trees will probably get best results from soluble fertilizers, but the average farmer will do well to adhere to the use of fertilizers that become available gradually. The various kinds of commercial fertilizers contain one or more elements of plant food in varying proportion. With our present system of fertilizer inspection the percentage composition as given by the dealer may be depended upon. In figuring the relative value of different kinds or brands of fertilizers it is always necessary to know the percentage of plant food that the sample in question contains. Farmers are inclined to buy low priced fertilizers, while in many cases, especially when they are to be shipped long distances, the higher priced brands would be much cheaper. The fertilizer dealers frequently advertise ready mixed fertilizers for various crops, and for the average farmer these may be most suitable. This is oftentimes an extravagant method, however, for seldom will we find two orchards requiring the same treatment. The growers who are prepared to study the

fertilizer requirements of their various fields and crops will do well to mix their own fertilizers.

While most of the orchard lands of New England are likely to be in need of all three elements of plant food there may be a few, especially those on the lower levels, where the soil is usually deeper, that are still well supplied with potash and phosphoric acid. The number of such orchards are so few that it would hardly seem advisable to take them into consideration. There are, however, many soils that are especially rich in some one form of plant food, and for this reason the fruit grower should try the effect of certain fertilizers on his particular soil. If a crop fails to respond to a particular kind of fertilizer the indication is that there is sufficient plant food of that character in the soil. Many soils are sadly deficient in nitrogen and vegetable matter, and respond promptly to the turning under of a crop of clover, even without the application of other



Wash-out in a Side-hill Orchard
A good cover crop will prevent such trouble

forms of fertilizer. Soils that do not respond to such treatment are probably deficient in potash, phosphoric acid or lime. The deficient element or elements may be ascertained by the use of test plots. The important point in this regard is that it is a wasteful practice to apply a complete fertilizer when there is a good supply of one or more elements already in the soil. It should also be remembered that the application of one or more forms of plant food, although deficient in the soil, will produce little or no effect unless all the necessary elements are present. In like manner, the application of all necessary elements of plant food will produce little or no response if there is any serious deficiency in the general management of the soil. In other words, the best results are obtained only when good treatment is given all along the line. Stable manure is the standard fertilizer of the diversified farmer and the stock raiser. The commercial fruit growers, however, rarely use this form of fertilizer in their orchards. The chief objection to its use is that it is relatively rich in nitrogen, which becomes available late in the season. The liberation of nitrogen late in the season is likely to keep up growth so late that the trees will not ripen their wood properly before the arrival of cold weather. Stable manure is a complete fertilizer, and when applied to the soil supplies, in addition to the three elements of plant food, a large amount of vegetable matter. For this reason it is well suited to the enriching of vegetable gardens and cornfields.

To be continued in next edition.

Editor Better Fruit:

The July number of "Better Fruit" came to hand during my absence, and I have just seen a copy. The edition is worthy of special notice, and you are deserving of a great deal of credit. Yours very truly, G. R. Merritt, general agent of Refrigerator Service Northern Pacific.

Editor Better Fruit:

Please continue my subscription to "Better Fruit." I have enjoyed your paper very much during the last year, and have gotten much valuable information from it, especially on the subject of spraying. Your publication may be called "Better Fruit" magazine, but it is really "BEST fruit magazine." Respectfully, Lewis J. Pierce.

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

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Entered as second-class matter December 27,
1906, at the Postoffice at Hood River, Oregon,
under Act of Congress of March 3, 1879.

The editor of "Better Fruit" has for years given the statistics in the actual number of carloads shipped from the Northwest, and it affords us pleasure to say that these reports have been found reliable and valuable to everybody connected with the apple industry. However, "Better Fruit," like everybody else, was fooled on the estimate last year. Men who had lived in their orchards for fifteen or twenty years estimated their crops as high as fifty per cent less than the actual yield. From our experience it seems that large crops are apt to be underestimated and light crops overestimated. The percentage estimate of crops in the state actually means nothing to anybody unless the individual knows two things—what the quantity was last year and whether the percentage is based on last year's crop or on a normal crop. It is a great source of satisfaction to learn that the East will endeavor to make up reports to show the actual number of barrels estimated for each state in future years instead of giving the percentage figures, but until it is done the whole business of estimates is simply a great big guess, and consequently buying and selling more a matter of luck, than of good judgment founded on reliable information. However, it must be admitted that such a task in the East is a large one owing to peculiar conditions. The apple producing sections are scattered all over

the East and apple growing is generally connected with general farming, and nearly every farmer has all the way from a few trees for family use up to a very large orchard. A great many small orchards together produce quite a large quantity. Now, to obtain statistics, for instance, from the New England orchards would be very difficult because these orchards are scattered all over the whole of New England, along stone walls, fence rows, in out of the way corners and pockets of hills, and the crop moved by every kind of conveyance to the different markets, but it is to be hoped that a method of planting will be evolved that will solve the problem and ascertain the actual number of barrels produced in each state every year. When one year's production is recorded, and this quantity is a fixed basis, percentage estimates will assist those connected with the fruit industry in estimating the crop of the current year.

The Value of Statistics.—The editor of "Better Fruit" has many times dwelt on this subject and again calls the attention of the fruit growers and fruit dealers to the present method in vogue of giving statistics. In fact this method is used by nearly all publications with the exception of "Better Fruit." It is the method of percentage, which practically means nothing to anybody unless he knows the actual crop produced in barrels, bushels or boxes in each one of the different states. "Better Fruit" has been using its influence in every way possible to bring about a change in giving out statistical matter. What we need, and what the fruit growers and dealers should demand, is statistics from every state showing the number of bushels, barrels or boxes produced in that state, and estimates should be made along this line. The percentage plan is misleading unless you absolutely know the quantity of apples grown in each state, and whether the percentage is a percentage of last year's crop or a percentage of what is considered a normal crop. For instance, if one state produced 100,000 barrels and was put down as 200 per cent, and another state produced 1,000,000 barrels and was put down as 50 per cent what would the reader know if he was simply given a percentage of crops of the apples in each of the two states. Where simply percentages are given without this information the reader can but guess at the final result. We hope, and believe, the authorities will realize the importance of giving figures showing the actual production each year at the end of the season, and make their estimates for the coming year in the same way.

Elsewhere in this edition will be found a photograph of Mr. J. C. Skinner, who for two years has been secretary of the Hood River Commercial Club. His work in this capacity has been highly appreciated by the community. Much of his work and many of his ideas were along original lines, and while he had charge of the pub-

licity department it seems hardly appropriate to call Mr. Skinner a booster. He has been a close student of the apple industry not only in the Northwestern sections but throughout the East as well. His work has been done along conservative lines, and he has used his best efforts to assist in the development of the orchard industry and has given special attention to distribution. In every way he has worked to assist in securing a good price for Hood River Valley fruit. His belief has been that more effective work could be done along the line of thorough distribution than by boosting. In fact his idea along this line may be best illustrated by using an expression which he frequently used, "By distributing the crop wisely, selling it intelligently and getting good prices you are creating a demand for the fruit, and if all this is done successfully in any district land selling will take care of itself where there is land to sell."

A SPLENDID CLUBBING OFFER

The price of the Weekly Oregonian is \$1.50 per year. We can furnish both the Weekly Oregonian and "Better Fruit" for one year at \$1.50, providing your order reaches "Better Fruit" office not later than October 30, 1911. The Oregonian is known to be one of the best weeklies published by any daily paper anywhere in the world.

The October edition of "Better Fruit" is a Special Statistical Edition, containing more information about the number of trees planted in each state and the size of crops grown than has ever appeared in any other publication so far as we know. These statistics were secured from reliable sources, due credit being given, and most of them are taken from government censuses. Object lessons can be drawn from each table published in this issue. We have made a short note at the bottom of the different tables to indicate a few of the conclusions that can be drawn. These are mere suggestions as to what the reader may do in order to arrive at proper conclusions in reference to the apple business.

The Statistical Bureau for the Northwest.—The editor of "Better Fruit" has for several years spent a great deal of time in writing reliable people and authorities, and visiting different districts, to ascertain what would be a conservative estimate of the apple crop in the Northwestern States, and the estimates of "Better Fruit" have been as nearly correct as is possible to give with the exception of 1910, when everybody in the Northwest underestimated. All of this takes time and money. The Northwestern people should be posted and know what the estimate is each year by the first of August. Some time ago our attention

Continued on page 53

TREADWELL SHOES

STYLISH—COMFORTABLE—LASTING

Style is necessary in a dress shoe, but style is not all—

Like the tinsel that glitters and fades away, the shoe with style *alone* "lasts quick" and makes you feel like the man who takes a chance on a horse race and loses—foolish—regretful—never again.

The *Treadwell* is not "a style alone shoe."

It's as good as the best and "then some."

Ask your dealer for a
"Treadwell"

Treadwell shoes have style—style that's built into the shoe—in, through and over the best of leather, the snappiest, most comfortable lasts—

Incorporates the best shoe-making and most careful final inspection.

Treadwell shoes are made in many styles in Box Calf, Velour Calf and Vici Kid, with single or half double soles.

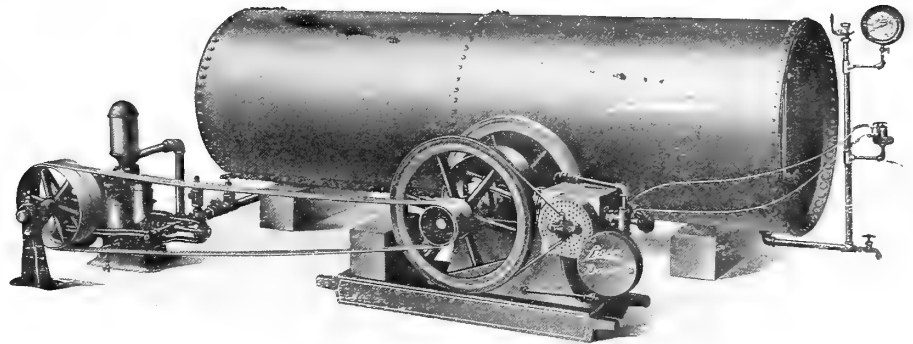
If he hasn't got it,
ask us.



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Water Supply
Troubles
Unknown to
the Owner
of a



Leader Water System

You can enjoy, through the ownership of a LEADER WATER SYSTEM, the same water supply conveniences which are so much appreciated by city folks. And you may have them to even a greater extent, since there are no restrictions to bother the owner of a LEADER SYSTEM. You can have your bath, your sanitary toilets, all the water you want for domestic and sprinkling purposes. A LEADER WATER SYSTEM of suitable size will supply you with all the water you want under almost any pressure you want. Leader Tanks are tested to a pressure of 125 pounds. It is the system which is sanitary, satisfactory and sure. It costs little to operate and is practically troubleless. Write for our book, "THE QUESTION OF WATER," and folder showing homes in which the Leader Water System is furnishing satisfactory water service and opinions of users. Mention "Better Fruit."

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HOOD RIVER COMMERCIAL CLUB

OF HOOD RIVER, OREGON

Respectfully requests each and every person interested in Hood River, or who may have friends interested, to request their individual grocers or fruit handlers to have on sale during the apple season the famous *Spitzenbergs*, *Yellow Newtowns*, *Ortleys* and *Jonathans* grown at Hood River. We request this because we want you to help us get the apples before a discriminating public so as to convince them of their superiority by a practical test. You are further requested to do this at once so as to insure your grocer placing his order in time to secure a supply in advance before they are all sold, so that he will have Hood River apples on hand when you want them.

Hood River Commercial Club

Continued from page 50

was called to this matter by Mr. H. S. Stechan, and we published a letter from him in "Better Fruit." We believe this matter should be given immediate attention. The growers should get busy and begin to discuss it before the different state horticultural meetings, and be able to form some plan for carrying on this work. If there is no other way to raise necessary funds it might be done by having each state horticultural society appoint one member of a committee to get together and devise ways and means of putting the idea into execution and finance the immediate necessary expense. It is our belief that every association in the Northwest would be willing to pay a sufficient sum pro rata, according to the amount of fruit handled or the acreage, that would be sufficient to maintain a man and such other expense as might be necessary to do the work.

The fiftieth anniversary of the Oregon State Fair was celebrated this year at Salem, September 11 to 16. The management is to be congratulated on the fine appearance of the grounds, the fair and indiscriminating treatment of all the exhibitors, and the clean and attractive entertainment provided. It is to be regretted that it rained or was cloudy nearly every day of the entire week, and taking this fact into consideration the attendance was very good. Although too early for the best in the line of a fruit display, the early varieties were well represented. The agricultural exhibits this year were more elaborate than ever and provided a striking demonstration of the fact that every section of our state, although widely differing in soil, topography and climate, with intelligent and up-to-date methods, is capable of enormous yields and good profits. Several counties had spent considerable time and effort in decorating with grains, grasses, etc., and the effects were pleasing. Other counties had large exhibits of canned fruits and fruits and vegetables. The camping feature of the Oregon State Fair is a distinctive one. All state fairs have a few campers, people who are either exhibitors or have concessions, but over 1,200 people camped in "Tent City" this year, and are already looking forward with pleasure to their week of camp life at the Oregon State Fair next year. "Better Fruit" received gratifying words of appreciation for the work it is doing both from subscribers and advertisers.

The new Harney Branch Experiment Station is to be superintended by M. Leroy Breightaup, who is a graduate of the Oregon Agricultural College.

Mr. David Browne of Spokane says we need more farmers on our land. They are absolutely necessary for continued good of our states. The cities can take care of themselves. Farming has been, is now and will be the backbone of the Northwest, and we want to do everything possible to promote the industry.

Seeing America First.—This feeling has been growing, and Baltimore proposes in the near future to hold a convention to promote a plan that will be effective in persuading Americans to see their own country, where the scenery is grander than any in Europe. There is not a single spot in Europe that will compare with the wonderful scenery in America. Europe has nothing like the Grand Canyon, the Yellowstone National Park, the snow-capped mountains of the Northwest, Niagara Falls, the immensity of the Columbia River or the wonderful Mississippi. In no way does the scenery of Europe begin to compare with the scenery of America. The greatest attraction of European scenery is its historical interest. There is a vast amount of wealth spent by Americans in Europe that ought to be spent in America to see their own country first. The vast sum spent by rich and well-to-do people in Paris, Switzerland and Italy is beyond our comprehension. We are glad to see this movement created, and it is our sincere hope that it will bring results and that Americans will spend money at home in future to help upbuild their own country instead of spending it in foreign countries and cities which could hardly survive without the immense revenue from American tourists.

The American Apple Exposition will be held in Denver, November 12-18 of this year, in the Auditorium Building. Bulletins are now out and ready for distribution, and can be obtained by writing the secretary, C. L. Oliver, 210 Chamber of Commerce, Denver, Colorado. Important departments of this exposition will be commercial packs, district displays, improved packages, photographic displays, home-made by-products, kitchen and factory-made apple by-products and evaporated fruit. Liberal prizes will be given and there is every reason to assume that this will be a big show with a very large attendance.

We are advised that President Taft appointed Thomas W. Wilby, a prominent automobilist and a member of the Touring Club of America, as good roads commissioner, whose duty will be to pick out and accurately locate a route from New York to San Francisco and return, which will not only include seeing all the best of the wonder spots of our grand country, but shall be safe and possible of travel without hardship at practically all times of the year.

Demonstration Trains are proving wonderful factors in the development of the Northwest. Usually they are conducted under the auspices of an experiment station. The Northern Pacific, Great Northern and the Harriman system are all doing splendid work. Seventy-four thousand farmers and professors attended the lectures at the University of California given under the auspices of the Southern Pacific.

The Harriman Lines will occupy the same amount of space at the Chicago Land Show in 1911 as in 1910. In this space will be conducted a series of lectures. Seventy-seven thousand people attended these lectures last year. After the land show last year the Southern Pacific and Union Pacific carried fifty-five thousand colonists into territory along their lines.

The total disbursements from the pension bureau of the Southern Pacific Railroad for the fiscal year ending July, 1911, was \$168,000. This sum goes to ex-employees of the railroad who have met with mishap or retired, or to those dependent upon them in case of death. This is certainly a good example to be followed by other large institutions.

Professor H. E. Van Deman, well known as one of the greatest horticulturists in America (and, by the way, "Better Fruit" has the honor of having Professor Van Deman as one of its contributing editors), will be judge at the Indianapolis Apple Show. The professor is one of the fairest, squarest and best posted judges in America.

The movement for better sanitary conditions and wholesome foods is increasing in volume and spreading rapidly. Pure foods are now being demanded, and our attention has been called to the fact that the Southern Pacific Railroad serves certified milk, guaranteed in richness and purity, and they say the baby can now travel in safety and be sure of getting pure food.

What the Panama canal means to the future of the Northwest and the Pacific Coast in general is already indicated in many ways. One of the latest announcements is that a company with a capital of \$15,000,000 is being formed in Baltimore to put on a line of steamers from the Atlantic to Pacific Coast points.

There seems to be a big demand throughout the Northwest for men who have taken a horticultural course in some agricultural college of the Northwest. The Northwestern states all have splendid agricultural colleges with the very best of horticultural departments.

List of agents for the Palmer Bucket Company of Hood River, Oregon (see advertisement on page 64). Ask any of the following dealers for a practical demonstration. They will show you how you can save the bruises: S. E. Forstrom, Joseph, Oregon; C. O. Ramsey, La Grande; Lane & Sexton, The Dalles; Grants Pass Hardware Company, Grants Pass; Churchill Hardware Company, Roseburg; Medford Hardware Company, Medford; Wallowa Mercantile Company, Wallowa; H. G. Master-son, Elgin; Wright Hardware Company, Union; R. H. Huston, Corvallis; Hulbert-Ohling Hardware Company, Albany; Craven Bros. Hardware and Implement Company, Dallas; Wade, Pearce & Co., Salem; Chambers Hardware Company, Eugene; R. M. Wade & Co., McMinnville; Wenatchee Hardware Company, Wenatchee; Yakima Hardware Company, North Yakima; Davis-Kaser Company, Walla Walla; Darbey & Mourey, Pomeroy, Washington; J. W. Stevens Hardware Company, Dayton, Washington; A. de Regt, Kennewick; Palmquist Bros., Prosser; Evans Mercantile Company, Clarkston, Washington; Valley Mercantile Company, Hamilton, Montana; A. C. Rolofson Company, San Francisco, sales agents South Pacific states.

Citrus Protective League of the State of California

By G. Harold Powell, Secretary and Manager

AS the season for the shipment of navel oranges from California is approaching it is well that the attention of growers and shippers should be called to Food Inspection Decision No. 133, issued by the United States Department of Agriculture. The decision refers to "The Coloring of Green Citrus Fruits," and reads as follows: "The attention of the Board of Food and Drug Inspection has been directed to the shipment in interstate commerce of green, immature citrus fruits, particularly oranges, which have been artificially colored by holding in a warm, moist atmosphere for a short period of time after removal from the tree. Evidence is adduced showing that such oranges do not change in sugar or acid content after removal from the tree. Evidence further shows that the same oranges remaining on the tree increase markedly in sugar content and decrease in acid content. Further, there is evidence to show that the consumption of such immature oranges, especially by children, is apt to be attended by serious disturbances of the digestive system. Under the Food and Drug Act of June 30, 1906, an article of food is adulterated 'if it be mixed, colored, powdered, coated or stained in a manner whereby damage or inferiority is concealed.' It is the opinion of the board that oranges treated as mentioned above are colored in a manner whereby inferiority is concealed, and are, therefore, adulterated. The board recognizes the fact that certain varieties of oranges attain maturity as to size, sweetness and acidity before the color changes from green to yellow, and this decision is not intended to interfere with the marketing of such oranges."

It is the evident intention of the government to make it unlawful to ship into interstate commerce green oranges that are unfit to eat, but which are colored by sweating to give them an appearance of ripeness. In this connection the attention of our growers and shippers is called to the first section of the "Green Fruit Law," which recently became effective in the State of Florida. It reads as follows: "Section 1. That it shall be unlawful for anyone to sell, offer for sale, ship or deliver for shipment any citrus fruits which are immature or otherwise unfit for consumption, and for anyone to receive any such fruits under a contract of sale, or for the purpose of sale, or of offering for sale, or for shipment or delivery for shipment. This section shall not apply to sales or contracts for sales of citrus fruits on the trees under this section; nor shall it apply to common carriers or their agents who are not interested in such fruits, and who are merely receiving the same for transportation." From this section of the Florida law and the agitation that now prevails in that state, it is apparent that Florida is pre-

paring to take an active hand during the present season in the endeavor to prevent the shipment of immature fruit from the state. The State of Florida has also made it unlawful to place upon any citrus package or fruit wrapper any statement which contains false or misleading information regarding the name, size, quality, brand or locality in which the fruit is grown. In the case of a shipment of oranges labeled, "Pineapple Oranges," from Florida into Louisiana, the United States Department of Agriculture has recently decided that the shipment was mislabeled and, therefore, in violation of the national food and drugs act, because the oranges "were not of that grade commercially known as 'pineapple oranges,' but consisted of other and inferior grades."

A citrus fruit grower from the Transvaal has recently been in California studying the methods of handling the California citrus fruit crop, and to secure appliances to be used in the handling of the crop in the Transvaal. They are beginning to ship oranges from the Transvaal to the United Kingdom in considerable quantities during the summer months, the season when the fruit ripens in that country. The haul by rail to the South African coast, usually to Capetown, may reach a distance of one thousand miles. According to data furnished by the grower mentioned the fruit is being carried by the railroads during the present season to the point of export at the rate of 15 shillings per ton (13.1 cents per box of California size); it costs 5 shillings per ton (4.4 cents per box) for dock dues and loading charges, and 25 shillings per ton (22 cents per box) to Southampton, a distance of six thousand miles, making a total cost of transportation of 39.5 cents per box of California size for a distance that may equal seven thousand miles. The fruit is carried the entire distance without

refrigeration. With a rate of 25 to 30 cents a box from Southampton to New York, which is the usual rate on foreign citrus fruits, the South African grower, ten thousand miles distant, can land oranges in the eastern United States at a lower cost of transportation than the grower in California.

There is considerable activity in citrus fruit planting in Mexico. According to the "Daily Trade and Consular Reports," September 7, 1911, "The shipment of oranges from San Luis Potosi, Mexico, to Chicago will commence about September 20, 1911, and it is now estimated that a total of about fifty-five cars will cover the season's exports, as compared with thirty-four cars last year. These oranges all come from the Rio Verde Valley, in the south-central part of the state. The freight from Rio Verde to Chicago is \$1.25 gold per 100 pounds, and customs duty \$1 gold per 100 pounds (which totals \$1.91 per 85-pound box), but they reach the American markets so early in the season that good prices are obtained."

The exports of oranges from Spain in 1910 amounted to 1,051,764,067 pounds; from Italy, 265,498,258 pounds, an equivalent from both countries of more than 55,000 carloads of California oranges. More than 50 per cent of the Spanish oranges are shipped to the United Kingdom, and from 15 to 20 per cent go both to France and to Germany. The exports of oranges from Spain have increased 67.2 per cent in the last ten years. The freight rate on Spanish oranges to the United States is about 30 cents per box. It may be as low as one shilling (24 cents) per case, equal to two and a half California boxes, to the United Kingdom. The oranges from Italy are exported principally to Austria-Hungary, Germany, Russia and the United Kingdom in order of importance. The exports of oranges from Italy have increased 59.4 per cent in the last ten years. Exports of oranges from Jaffa in 1910 amounted to 900,000 cases, valued at \$1,136,794. Most of these oranges are shipped to the United Kingdom, with smaller quantities to Russia and Egypt. The exports from Jaffa have increased 149 per cent in the last ten years. The exports of mandarin oranges from Japan in 1909 amounted to 22,245,897 pounds. The oranges from Japan are shipped principally to Asiatic Russia, Korea, Kwantung province and British America, in order of importance. More than half a million pounds were shipped from Japan to the United States in 1909. Exports of mandarin oranges from Japan have increased 605 per cent in the last ten years.

Every orange producing country in the world is interested in the effort of importers of lemons in New York and the exporters in Sicily to have the duty removed from citrus fruits. We may expect that each of these countries, which pays a low wage to labor and a low rate of transportation will prepare to ship its citrus fruits to the United States if a low rate of duty should be established. There has been an unusual demand for lemons in

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Europe during 1911. This demand has been increasing steadily for ten years, and in 1911 it has had a marked effect on the international shipment of lemons. The California crop in 1910-11 is the largest in the history of the state. Nearly twice as much fruit has been shipped into Eastern markets as in 1909-10, and the large increase over the crop of the preceding year has reduced the price of lemons to an unusually low level. Heretofore the Eastern markets have been controlled by the importers of Italian lemons, and each year since 1885 the wholesale price has been forced at some period during the summer months to \$6 to \$12.50 per box. On account of the increase in the California crop in 1911 and the freer shipment of the fruit to Eastern markets the wholesale price of 132,738 boxes of Italian lemons in New York in August, 1911, averaged about \$2.60 per box, an average of less than ten cents per dozen. The average wholesale price of 143,986 boxes of Italian lemons in New York in August in 1910, when the California crop was much lighter, was \$3.67 per box. In an effort to hold the prices high the importers have endeavored to create a scarcity in the Eastern supply of lemons. They have been reshipping lemons to Europe since the first of August, and have withdrawn the fruit from the auction sales in New York whenever the price has been unusually low. Mr. Sciortino, a prominent New York lemon importer, is quoted as saying that some of the exporters in Sicily would probably not permit the sale of lemons in New York at a price below \$4 a box wholesale, on account of the higher prices in Germany and England, where, in referring to Germany, Mr. Sciortino states "that buyers there are willing to pay relatively higher prices than can be obtained in the American markets."

There is a duty equivalent to one cent per pound on citrus fruits in Australia; 1.84 cents maximum and a

free conventional duty on lemons, and 2.2 cents on oranges in Austria-Hungary; 79-100 of a cent on oranges and lemons in Belgium; 79-100 of a cent in Denmark; 1¾ cents in Finland; 1.3 cents maximum and 44-100 of a cent minimum in France; 1.3 cents maximum on oranges and lemons, 35-100 of a cent minimum on oranges and a free conventional duty on lemons in Germany; 2.43 cents maximum and 24-100 of a cent minimum in Norway; 44-100 of a cent maximum and 44-1000 minimum in Roumania; 2.25 cents maximum and 1.42 minimum in Russia, and 1.21 cents in Sweden. There is no duty on citrus fruits in Argentine, Canada, England or Switzerland. With the exception of Australia, which produces citrus fruits, these duties are levied for revenue only. Mexico formerly granted a bounty of 85 cents per 1,000 lemons and \$1 per 1,000 on oranges exported to encourage the planting of these fruits; and Italy fixes a minimum price to be paid the producer for citrate of lemon, into which 40 per cent of the Italian lemon crop is converted, and fixes a minimum selling price as well.

THE GOODELL BERRY

The Sunnyside Nursery was generous enough to send the editor of "Better Fruit" a crate of Goodell strawberries, which is a very sweet, nice looking and delicious tasting strawberry. One of our fruit growers secured a number of plants last year and had his first crop this year, and he pronounces it one of the best berries he has ever eaten.

Events of more than passing interest to fruit growers and fruit dealers throughout the country:

American Land and Irrigation Exposition, November 3-12, Madison Square Garden, New York.

Indiana Apple Show, Indianapolis, Indiana, November 6-11.

American Apple Exposition, Denver, Colorado, November 12-18, Auditorium Building.

Oregon Apple Show, Portland, Oregon, November 15-17.

United States Land and Irrigation Exposition, Coliseum, Chicago, Illinois, November 18 to December 9.

National Apple Show, Spokane, Washington, November 23-30.

Nineteenth National Irrigation Congress, Chicago, December 5-9.

Northwest Land Products Show, St. Paul Auditorium, St. Paul, Minnesota, December 12-23.

FAIR DATES OF THE NORTHWEST
Annual meeting Oregon Wool Growers' Association, Baker, November 14-15.
Fat Stock Show, Lewiston, Idaho, December 12-14.
Land Show, St. Paul, December 12-23.

ANYBODY CAN NOW AFFORD A FARM ENGINE

The price of good farm engines has gotten so low that everybody can afford to own one. There is no longer any use of the man on a farm working himself to death. Such jobs as grinding feed, pumping water, cutting ensilage, sawing wood and other tiresome "grinds" should be turned over to an engine. It is ridiculous to think of a man wasting his valuable time and strength on such work when for less than \$38 he can own an engine which will do it. And the same engine will take a load off the shoulders of the women folk. No more hand-turning of washing machine, churn, cream separator, etc. A farm engine will do all.

If you want to get a good engine cheap the thing to do is to write the Detroit Motor Car Supply Co., 238 Canton Avenue, Detroit, Michigan, at once and have them send you their catalogue on Sandow engines. These people are specialists on engine building. They make and sell at \$37.50 an engine worth \$75 of anyone's money. This engine gives ample power for all farm needs. Has only three moving parts—has no cams, gears or valves—burns kerosene (coal oil), gasoline, alcohol, distillate or gas. They ship it anywhere on fifteen days' free trial, money back if not satisfied—five-year ironclad guaranty. The \$37.50 engine is complete—two and a half horse-power. They make larger engines proportionately cheap. Don't go through another season without a farm engine. Get a good engine like the "Sandow" and let it save you work, time, muscle and money.

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Rogue River Valley Exhibit Made by Medford, Oregon, at the National Apple Show at Spokane in 1910, showing the beauty of district exhibits, of which there probably will be thirty or forty this year at the Fourth National Apple Show, Spokane, Washington, November 23 to 30

An Interesting Newsy Letter From New Mexico

By Alex. McPherson, Horticulturist, Roswell, New Mexico

AS years go by the demand for better fruit becomes more insistent than ever before. The statistics show that the production of marketable apples has decreased two-thirds in the last fifteen years. Instead of the supply from the United States and Canada being 65,000,000 or 75,000,000 barrels it has decreased to between 30,000,000 and 40,000,000 barrels in 1909-1910. These figures are indicative, first, that the people are demanding better fruit, and, second, that the area in which such fruit as the public palate demands is limited. In looking over the various apple sections of the West we find such places as Hood River, Medford, Wenatchee, Yakima; Boise, Payette and Weiser in Idaho, some small places in Utah and a few more in Colorado. Totalling all of these places their acreage would perhaps not exceed 300,000 acres of good apple lands. The southwestern portion of the United States has as yet not entered the apple industry to any great extent. In the last forty years or more orchards have been planted over a large area of New Mexico, Arizona and Texas, and in very many of these cases the quality of the products grown was not up to standard, nor did the trees show good health and satisfactory growth. But in some portion of the Pecos Valley, in Southeast New Mexico, notably Roswell, the apple industry has been amply demonstrated, so that we know we have an area that will produce apples equal to the best apple growing sections of America.

The writer has examined the majority of the apple growing sections in the West and finds that the Pecos Valley, in the vicinity of Roswell, has all of the natural conditions to warrant extensive planting of the king of all fruits—the apple. In fact orchards here have produced phenomenal crops, and the trees are healthy and vigorous. Many of the varieties that are grown here are equal, if not superior, in quality to the same varieties grown in the Northwestern states. Perhaps at the present time this particular section of New Mexico has greater possibilities for development in horticulture than any other section of the great West. First, because of its climate, soil and water supply. Second, because of its proximity to a splendid and ever expanding market. Good apples cannot be grown in the larger portions of Texas, Arizona, New Mexico, Southern California and the Gulf states. Roswell is about the southern limit in which first class apples can be grown. Therefore, their market is at their door. The apples for these sections have been supplied by Colorado, Utah and the Northwestern states. The freight rates are excessive, but here in this section the apple grower can reach these markets at about one-third of the cost in freight on apples from the great apple growing sections of the Northwest. This in itself guarantees a good profit to the grower.

The varieties of apples that seem to be par excellence here are: Jonathan, the Black Twig, York Imperial, both the Stayman and common Winesap. Of course, Ben Davis, Gano and Black Ben Davis are grown, but the Black Ben Davis seems to outrank the other varieties of the Ben Davis family. Some other newer apples are grown here very successfully and are being planted very extensively, such as King David, Senator, etc. The Delicious grows here almost to perfection, besides a number of other varieties, such as Arkansas Black and apples of that quality, and make a splendid showing. Such apples as Yellow Newtown and Spitzenberg do not seem to be productive in this section. Peaches of very fine quality are grown and are very prolific, as well as other members of the peach family. Very few prunes are grown, but grapes of the foreign varieties are giving splendid results. Pecans and almonds are grown with some success. All of the small fruits grow and yield very prolifically. This section of the country demands different methods of handling fruits than the Northwest. The days are quite warm in the fall and winter, hence fruit as soon as gathered from the trees must be taken to cool sheds or cold storage. This may seem a handicap at first, but it is really a good thing. In the Northwest there are several months in the winter when it is dangerous to ship apples to Eastern markets on account of zero temperature, and to avoid this they must be shipped in the fall and placed in cold storage in the East. Here it is different. Large cold storage plants have been built, and the apples are removed to the cooling house and shipped at once, or placed in the cold storage plant and taken out and shipped as the market demands at any time of the year, which gives the fruit growers who are organized into the Roswell Apple Association, or stock company,

an opportunity to get the highest price possible for their goods with the shortest haul possible of any apple growing section in the United States.

There are very few pests so far in this vicinity. On account of the warm days during the winter the codling moth seems to change from the worm to the moth, and in my examination of orchards that I knew had considerable codling moth last year I could scarcely find a living larvae this spring at the time that we usually expect them—when the trees begin to bud—but found them coming out all winter long, and no doubt they perished, as there was nothing for them to feed upon. This accounts, in part at least, for the intermittent attacks of the codling moth in this section of the country, and at no time have they done a very serious damage as compared to the Northwest. The only scale that can be found here is the Putnam scale (*aspidiotus ancyclus*), sometimes mistaken for the San Jose scale, but it is not nearly so dangerous, as it is not so prolific. This scale is commonly called the cottonwood scale, as it is a native of the United States and is found on the cottonwood trees wherever they grow, but it has never done very much damage to orchards. Here, however, it seems to be more prolific than any other place that I have known, and spraying will have to be done sooner or later to exterminate them, which can easily be done. Up to the present time this section has escaped the pear blight.

Now, with regard to apple growing in the other portions of New Mexico, apples are grown in the Rio Grande Valley with varying success. The northwestern counties in the San Juan country seem to be fairly good for the production of apples, although the country is not developed as yet, but may be in the near future. New Mexico is a very large territory and her resources are almost wholly undeveloped, and to my mind there are greater opportunities for profit along horticultural and agricultural lines than in any other portion of the United States.

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That is what you want, because our stock of fruit and ornamental trees is exceptionally fine. Our fruit trees were propagated from buds taken from bearing orchards; they are vigorous, healthy, and above all true to name; that stocky body, grown on whole roots, makes them an ideal tree to plant.

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We can satisfy you both as to **QUALITY** and **PRICE**. Our trees have the highest possible developed **ROOT SYSTEM** and are **TRUE TO NAME**.

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Horticultural News Notes From Southern Utah

By Leon D. Batchelor, Horticulturist

RECENTLY it was the pleasure of the writer to visit the Southern part of Utah, commonly known as "Dixie." This country lies in the extreme southwestern corner of the state, in and around St. George, Washington County. The best fruit sections in this country are a great distance from the railroad—otherwise they would be much better known in the fruit world—in fact it was necessary to take a sixty or seventy-mile stage ride from the railroad to reach this "Dixie" country. The altitude here is about 2,000 feet above the sea, and after passing over a mountain range of about 7,000 feet it was like stepping from winter into summer. At this time, April 28, the roses were in full bloom, peaches were as large as olives and almonds had developed to the size of a small pullet's egg.

The climate is ideal for the production of European grapes, plums, cherries, almonds, apricots, peaches, figs and pears. Pear blight is unknown in this section of the state. In fact the writer observed a pear tree along the river bottom in one of the old towns of the county which must have been between fifty and sixty feet high. This

may sound pretty high to some of the fruit growers in the newer sections of the country, and my only regret is that I have no photograph of this tree to verify my statements. The English walnut crop was not damaged by the frost in the least, neither were the other fruits mentioned above. The first crop of alfalfa was being cut at this time, which gives one an idea of the advancement of the season. There are thousands of acres of bench land throughout this country which are admirably adapted for the production of high class fruit. The extensive mountain ranges furnish ample water supply and ideal reservoir sites for the future development of this virgin soil. The soil itself is a rich, sandy loam, which, in many cases, produces the native sage brush to the height of a horse's back. With the development of a railroad through this country there is every reason to believe that this vast area may be opened up and developed into a fruit section which will be second to none in the world. At the present time, however, the main market for the fruit is in the small towns close by, mining camps, etc.

Prune Survey of State by the Agricultural College

A COMPLETE survey of the state in relation to the prune industry is to be undertaken at once by the Oregon Agricultural College. Beginning in the southwest the staff of experts assigned to the work will work north, visiting all the prune centers and studying methods of growing, evaporating, handling and shipping the crop. In this connection the diseases and pests attacking prunes will be given much attention. Frank R. Brown of Camas, Washington, who graduated from the horticulture department of the Oregon Agricultural College last year, and who has since been foreman of the college experimental orchard, will go out on this survey work, and will be joined later by Mr. Frederick G. Bradford, a Harvard graduate who has been called from the University of Maine, where he has just completed three years of special graduate study. The orchard survey will begin in Douglas County, and will work north from there. It will not be attempted to visit every prune orchard in the state, but the experts will go to practically all of the prune centers and make complete surveys. The first circuit will include such points as Roseburg, Riddles, Myrtle Creek, Crane, Yoncalla, Creswell and Eugene. The second will cover the vicinity of Salem, taking in the famous Liberty-Rosedale district, Dallas, Sheridan, North Yamhill, Lafayette, Newberg and the Waldo Hills country. In Eastern Oregon a third circuit will cover Mosier, The Dalles, Freewater-Milton and the Grand Ronde Valley.

After the field survey as to methods of growing prunes has been completed the study of evaporation systems will be taken up, with investigation of the comparative merits of various types of dryers, of fuel efficiency, of the type of fruit they turn out and the general economy of handling the crop. In connection with these investigations the college will interest itself especially in a study of what is known as "prune drip," which is causing enormous losses to growers. This sort of "sugaring" sometimes causes a loss of fifty per cent. The experts are hoping to throw some light on the cause of drip to discover whether it is a matter of evaporation or from faulty methods of curing and handling the fruit. A thorough investigation and inspection of the methods of processing will be made, and the results will be published in bulletins to be issued by the college in a regular "prune survey series." As a result of this survey the college hopes to be able to take up next year the study of some particular problems and experiments in prune growing, for which a thorough knowledge of the field and the processes in present use there is necessary.

"Prunes are now selling for the highest price that they have commanded for years and years," said Professor C. I. Lewis, head of the horticulture department, discussing the coming surveys. "The field men, in connection with their surveys, will make other observations, especially as to various phases of winter killing, spots and the adaptation of varieties to

KEROSENE ENGINES REPLACING GASOLINE
Our many readers who are about to buy farm engines will be pleased to know that the high price of gasoline is nothing to become alarmed about. As a matter of fact gasoline is not, and never was, as good an engine fuel as common kerosene (coal oil). Two pints of kerosene, under actual test, give more engine power than three pints of gasoline. So why worry about the price of gasoline so long as kerosene remains so cheap? Kerosene, besides being cheaper and more powerful, pint for pint, than gasoline, is much safer. It never explodes, nor does it waste by evaporation. Kerosene is more convenient to buy, too. You can get it at any store cheap, while gasoline is always high, and not every storekeeper handles it.

A great many of our readers are taking advantage of the Detroit Engine Works' offer to ship a kerosene engine on fifteen days' free test to prove that kerosene beats gasoline in every way. We suggest to all our readers that they, before buying a farm engine of any description, look into the kerosene engine. A man with the "Amazing Detroit" not only has an engine especially equipped for kerosene, but when necessity arises he can use benzine, distillate, alcohol or gasoline. This engine sells at a very low price, so anybody can easily afford one. It comes ready to run and is a perfect engine for pumping, sawing, threshing, churning, separating milk, grinding feed, etc. A postal mailed today to the Detroit Engine Works, 507 Bellevue Avenue, Detroit, Michigan, brings catalogue, prices and full explanation of fifteen days' free trial offer. *

INDIANA'S EARLY ORCHARDS.—The first orchards planted in the Middle West were started by Johnny Appleseed, or John Chapman, who obtained his seed from the cider mills of Western Pennsylvania and scattered them along the streams and through the woods of the Indiana wilderness. From his day to this it has been evident to members of the Indiana State Horticultural Society that Indiana has both soil and climate for fruit culture, and what is needed now is to revive the spirit and determination of the pioneers who brought the first orchards into bearing. This revival is expected to come through the apple show held in Indianapolis, Indiana, opening November 6.

Editor Better Fruit:

We are in receipt of your letter of September 21, and thank you for the courtesy of putting us on your complimentary list. We have used your magazine constantly, not in checking up the advertisement, but for reference with our patrons. We think it the best publication of its kind we have ever seen, and are looking forward to a big season next year through the help of its advertisement. Very truly yours, Crest Chemical Co., Seattle, Washington.

OPEN FOR SETTLEMENT

Orchard Lands, Irrigated

No Cash Payment Required

We need settlers—not their money. Irrigated orchard tracts in the famous Rogue River Valley, Southern Oregon; prairie land, ready for the plow; no timber, no rocks. Water now on the ground. Unequaled for productiveness and climate. This proposition, and financial standing of company, indorsed by national banks, leading business men and financial agencies. Only irrigation company in the Northwest permitting settlers to make the land pay for itself. We also sell improved orchard tracts on small monthly, semi-annual and annual payments to those who are unable to make residence at the present time. Send for illustrated descriptive matter. ROGUELANDS INCORPORATED, 1018 Chamber of Commerce Building, Portland, Oregon, or Medford, Oregon.

WANTED—Good Housekeeping Magazine requires the services of a representative in the Northwest to look after subscription renewals and to extend circulation by special methods which have proved unusually successful. Salary and commission. Previous experience desirable, but not essential. Whole time or spare time. Address, with references, J. F. Fairbanks, Good Housekeeping Magazine, 381 Fourth Avenue, New York City.

WHOLE ROOT TREES

Are the only kind to set. Now is the time to make arrangements for your next fall's requirements. We have a large, full line, and ask that you correspond with us.

CARLTON NURSERY CO.

CARLTON, OREGON

localities for all kinds of fruits, including apples, pears and cherries. This work will be carried on in conjunction with the department of plant pathology, and an attempt will be made to discover whether difficulties are due to climatic conditions alone or to faulty methods of handling the orchards and crops, or to diseases and pests. The work will eventually take in nearly all the fruit regions of Oregon."

The blanks printed for the use of the survey will afford a mine of exact information on fruit growing in the state when they have been filled out. They will contain the location as to elevation, county and township; the name of the owner and his postoffice address; the site and plan of planting; the general aspect, distance between trees, kind and variety of fruit; the age of bearing, amount of blossoms and of fruit set at time of inspection. It will show what kind of stock was used, the height of the head and the maturity of the crop; the kind of soil and its value per acre; the irrigation methods that are employed, the number of times it is watered and the age of the trees. The cultivation, pruning, cost per acre and number of acres will be recorded. Any fungous diseases or insect pests attacking the fruit will be noted; the kind of sprays used and time of application, with their cost; the cover crops and fertilizers employed; the past and present condition of the trees, drainage, amount of thinning undertaken, size of the fruit and cost of the work. The manner of picking and the price paid for that part of the orchard labor will be listed, as well as the number of pounds produced to the acre, that the cost of production per pound may be determined. The selling price per pound from that orchard in each of the past six years, the method of disposing of the crop, the owner of the dryer and the amount of frost injury, all will be a matter of permanent record at the college when the survey is completed.

Editor Better Fruit:

Your July number is too big and complete to mention anyway but briefly. You have put before the fruit growers in a very complete way the other side of fruit marketing. It will help enormously to a better understanding. I hope, too, that your August number will get into the dealers' hands in a very general way. They, too, have an incomplete point of view; perhaps not so much one sided, though, as that of the average fruit grower. You have my sincere congratulations on the idea and its development. "Better Fruit" has taken a very high place in the study of the problem of marketing our apples. With kindest regards, R. M. Winslow, Victoria, B. C.

Perfection Truck Company of North Yakima, Washington, are putting on the market a new truck for handling fruit, which is the latest and probably the best truck on the market. You have seen the old swing trucks used in many localities, which for many years seemed to fill the bill, but in using them the truckman had to handle every package from the truck to place it in the pile. In this way five boxes were handled by one man at one time, and it occurs to us that it will be a great labor saving, and consequently a matter of economy for all associations and packing houses, in fact for everybody handling fruit in packages where it has to be moved from one place to another. Further particulars about this truck may be obtained by addressing The Perfection Truck Co., North Yakima, Washington, whose ad appears elsewhere in this paper.

APPLES PEACHES PEARS STRAWBERRIES

In Car Lots

THE HUMPHREYS COMMISSION CO.

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Wholesale Fruits and Produce

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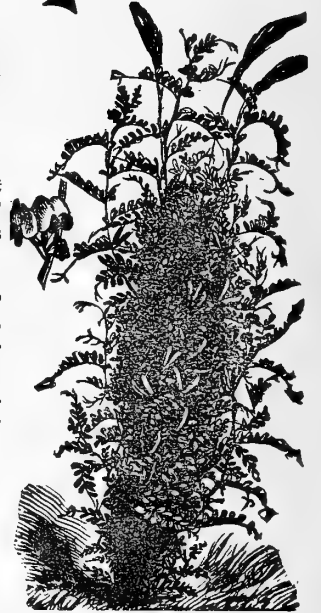
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Portland, Oregon



SPRING VETCH (Vicia Sativa) for sections West of the Cascade Mountains.
WINTER VETCH (Vicia Villasa) for sections East of the Cascade Mountains.

Don't Buy Trees Until You See Us

We are giving the biggest values for the least money on any nursery stock you can get. Quality unequalled at unparalleled low prices. Place your order now for prompt fall shipment.

Address 67 E. 76th St. North, Portland, Ore. **BENEDICT NURSERY CO.**

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HOOD RIVER, OREGON

Phone 325X

Will have for spring delivery a choice lot of one-year-old budded apple trees on three-year-old roots, the very best yearlings possible to grow. Standard varieties from best selected Hood River bearing trees—Spitzenbergs, Yellow Newtowns, Ortleys, Arkansas Blacks, Gravensteins, Baldwins and Jonathans. All trees guaranteed first-class and true to name. Start your orchards right with budded trees from our nursery, four miles southwest from Hood River Station.

WILLIAM ENSCHEDE, Nurseryman

H. S. BUTTERFIELD, President

Authentic Information

REGARDING HOOD RIVER VALLEY

We will be glad to furnish you with full details of our valley and give you a list of what we have for sale in improved and unimproved land. At the present time we have some desirable buys. Will send you literature on request.

Reference: Any bank or business house in Hood River.

Guy Y. Edwards & Co., Agents

HOOD RIVER, OREGON

Boston's Superiority As A Point for Exporting

By T. S. Herbert Taylor

PURSUANT to a recent conversation I may say at once that it gives me a great deal of pleasure to take advantage of the kindly offer of your valued columns to briefly outline the superiority of Boston as a port for the exportation of apples, so that readers of "Better Fruit" may perhaps be brought to appreciate the advantages this port undoubtedly possesses. At the same time I regret that the question is not being dealt with by an abler pen than mine. Before reaching the subject I may be pardoned if I strike the personal note a moment, since I do so at the outset to show that I treat the matter with authority and speak with actual knowledge. Until recently, until I became associated with Messrs. J. & H. Goodwin, fruit brokers of Manchester, Liverpool and Hull, England, I was for many years with the Leyland White Star Lines—the steamship combine—during which time I was located at various ports in Canada and along the Atlantic seaboard. In later years I devoted the greater part of my time to developing the apple traffic. So much, and perhaps too much, about myself, but it will be seen that I am thoroughly conversant with conditions, and the methods of handling and shipping this perishable commodity at all ports, both in this country and in Europe. Now, I can say to you that no port can equal Boston for facilities. Certainly at no other port is the fruit handled to such good advantage.

First, and perhaps most important, there is the question of handling—a matter of vital interest. At Boston there is absolutely no lighterage. All teaming is also eliminated. The cars as shipped are run into a covered shed on the pier, at which the receiving steamer is loading. In other words, the cars go direct from the shipping point to alongside steamer without breaking bulk and without leaving the railway irons. The floor of the dock shed is on a level with the bottom of the car; thus the boxes are wheeled direct from the car on trucks and have simply to be moved some forty or fifty feet to the ship's hatchway. Not only does this assure a minimum of handling, but the fruit is always kept under cover and is protected from the weather, as it should always be in the fall and winter seasons, during which it is shipped. It would be a revelation to your shippers who are acquainted with conditions at other ports, New York, say, to visit the new fireproof docks at East Boston, the terminals of the Boston & Albany Railroad (New York Central lines), and see their boxed apples being taken direct from cars on trucks, as described, and then placed at the foot of the gangways to the steamer in wooden trays, or large boxes, instead of the customary rope slings. This method of taking the boxes from the dock to the ship's hold alone avoids considerable damage, which inevitably results when boxes

are slung together. It would also be interesting for your friends to view the other large terminals of the Boston & Maine Railroad, operating with the Erie Despatch and other through connections, where at any time during the season our friends in the trade would see large quantities of apples being handled as they should be. The importance of this whole question of reducing the physical handling of the fruit to a minimum is too obvious to dwell upon further. A word here as to modus operandi where apples are held at seaboard in Boston refrigerator storage. Here also the cars can be taken under cover at the storage warehouse, and the boxes placed directly from the cars into the refrigerator compartment. I noticed in one of your late issues a cut showing a car being unloaded into the warehouse of the Boston Terminal Refrigerating Company, well illustrating the above. When these stored apples are reshipped the boxes are again loaded directly into a car, which is then switched to the docks. The plant of the cold storage warehouse mentioned is located but a stone's throw from the East Boston docks, and from this and other stores cars can be loaded and placed alongside ship at the Boston & Maine terminal or any other berth in the harbor in the course of any day upon the shortest notice.

Now, as to shipping facilities. There are three lines maintaining services to Liverpool from Boston, one of which alone—the Leyland line—dispatches during the fall and winter apple season regularly a steamer every week, sailing on Saturdays. On all of these steamers, and those of the Cunard line, refrigerating space is readily obtained. There will be weekly sailings of steamers to London, with refrigeration available, during this coming season. Every ten days it is intended to have a sailing for Manchester, these steamers also being provided with refrigeration. There are also frequent sailings for Glasgow and other ports. Nowhere do railway and steamship officials co-operate as they do in Boston in the general interests to insure prompt clearances of perishable property, hence delays

are unknown. To emphasize the importance of this let us suppose a case where a car of apples has missed a Liverpool steamer, or say Manchester or London, on account of steamer just sailing, there is always another steamer on the berth with refrigerators ready, and no transfer by teams or lighterage is necessary. The car is merely replaced by a short switching around to another dock should the following steamer not sail from the same pier. It should be noted here that no expense is incurred at Boston beyond the flat railroad rate, no transfer charges of any kind, no shipping brokerage or forwarding fee. This is also true of apples stored in Boston in transit, which are afterward exported, in which case shipper only pays actual railroad freight—that is, the through rate from point of shipment to steamer plus net storage charges.

As the advantages of the port are becoming better known from season to season, Boston is obtaining a greater share of the apple shipments. For instance, last season many thousands of barrels were shipped from Virginia past Baltimore, Philadelphia and New York for exportation from Boston. This fact speaks for itself, and can be accounted for in no other way than that the exporters have come to appreciate the importance of better handling and the facilities affording better service throughout. For the reasons given above, and were it not for the fact that I am reluctant to tax your patience and space to greater length, I could cite many more; many exporters have decided to operate from Boston because of the more favorable working conditions there. Our firm, Messrs. J. & H. Goodwin, after operating in Canada and in the United States for years, exporting heavily from the various ports, has centralized its export business at Boston, and we clear everything possible from that port. We find that we can control shipments better and have greater opportunities to exercise proper supervision over consignments. In conclusion, I repeat that if our exporting friends will but look into the situation they will, in their own interests and that of the fruit, use Boston more freely when making direct export shipments.

APPLES

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APPLES

"See America First" Convention Held May, 1912

THE "See America First" convention to be held in Baltimore during May, 1912, is already being much talked about through the press and by the people generally. The plant of the committee in charge, appointed by Mayor Preston, and of which Mr. Henry F. Baker is chairman, is to make the display one of the greatest ever seen. Through this Baltimore movement "See America First" is becoming a by-word everywhere. Mary, as she starts off on a fifty-mile automobile trip, calls back: "Good-bye, mamma; I am going to 'See America First.'" It is "See America First" with everybody at all hotels and the slogan is becoming general. President Taft, United States senators, governors and other prominent people have already commended the movement, and the governors of many of the states have appointed committees to arrange for the exhibit of their respective states. The display will be largely pictorial and topographical, and both the Baltimore committee, which will have entire charge of the arrangements for the convention, and the Maryland committee, which will arrange for the state exhibit, are expected to get very busy in the near future now that the vacation period is over.

Listen to what one of the most talked about United States senators, Hon. Luke Lee of Tennessee, has to say about the movement in a letter to the Greater Baltimore committee: "It gives me great pleasure to indorse most cordially the object and purposes of the 'See America First' convention. I feel sure that Tennessee will be much interested in your movement when understood here, and I will be glad to do all I can to bring the convention before the people of Tennessee, so that it will be understood." "I enclose you a list of delegates I will appoint to represent Virginia at the convention," wrote Governor Mann of Virginia, "and will be glad for the committee to write each of them such particulars in reference to the matter as it may deem proper." "I should be very glad, indeed, to be present, but my term ends in December of this year, and I have no doubt that my successor would be more in

evidence, and better in evidence than I would at that time," said Governor Willson of Kentucky. From the private secretary of Governor Glasscock of West Virginia comes this message: "I beg to say that we are holding Governor Crothers' letter in regard to this convention, and will appoint delegates at some time in the near future. The governor is not able at this time to say whether he will be able to attend the convention or not." Governor O'Neal of Alabama says: "I will take up the matter of appointment of delegates as soon as I possibly can, and will take pleasure in attending the convention myself if official duties will permit." Governor John Burke of North Dakota says: "I shall be very glad to appoint delegates to this convention, for I am heartily in sympathy with its object." Governor Jarred T. Sanders of Louisiana says: "Later on I will appoint delegates to the 'See America First' convention. Best wishes for the success of the movement." Governor Lee Cruce of Oklahoma must be quite familiar with newspaper work. This is the way he writes Mandel Soner, press representative of the Greater Baltimore committee: "I shall give the newspaper dope to the press boys here, as per your request. I cannot tell at this time whether I shall be able to be with you in May, 1912, or not. It is impossible to foretell what an hour may bring forth." Governor Frear of Hawaii has sent this message to Governor Crothers in reply to his letter asking co-operation in the "See America First" movement: "I took the matter up at once with several organi-

zations in this city which would naturally be interested in the movement, with which movement, I hardly need to add, I am in entire sympathy. Nothing definite has as yet been done." Harken to the words of a great newspaper man, Mr. Harry Chandler, treasurer and assistant general manager of The Times, Los Angeles, California: "The 'See America First' convention deserves the support of the entire country, for there are many people who spend their good money abroad seeing sights which in no way compare with the beauties of our own land. It is doubtful whether or not I shall have the pleasure of being in Baltimore during this convention, but assure you that if I am in the East at the time will be glad to visit Baltimore. You are correct when you say that 'Los Angeles must be one of the garden spots of the world.' It is, indeed, God's country, and is the most rapidly growing city in the world." To the Greater Baltimore committee he says: "We had, of course, learned of the municipal and state development campaign which is under way to bring Baltimore and Maryland to the front, and think it is a very worthy undertaking and wish you success." H. M. Woir, editor of the Municipal Development Magazine, Bloomington, Illinois, says: "I think that the movement is of vast importance, and personally have advocated many times to friends and acquaintances the great opportunity of interesting travel that this country affords. I have had the good fortune to have traveled in practically every country of the civilized globe, but at the same time never lost sight of the fact that in seeing the entire part of the United States I was educating myself along lines that other countries did not offer." After seeing these strong commendations of the movement by such prominent men, Mr. Edwin L. Quarles, director of the Greater Baltimore committee, said: "The world has always placed a premium upon men with constructive minds. Solomon's greatest work was building a temple. Our work now is to make the 'See America First' convention the greatest thing that ever happened."—Contributed.



NEW PLANT PATHOLOGIST

The Oregon Agricultural College has just recently added to its staff of plant pathology experts Mr. F. D. Bailey, a graduate of the botany department at the University of Wisconsin, whose specialty is plant diseases. Mr. Bailey takes his degree of master of science at Wisconsin this summer. His study of "A Fuserium Disease of Cabbage," upon which he wrote an able thesis, is considered an especially meritorious piece of work, and he is thought to be a distinct addition to the strength of the department.

YOUNG BEARING ORCHARD

Do you want a comfortable orchard, bearing the best varieties, with a good crop in 1912? Six and one-half acres of Yellow Newtowns and Arkansas Blacks, handsomely situated on the White Salmon River, in a good community with all advantages, for sale by the owner. PAUL McKERCHER, White Salmon, Washington.

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SPRAY PUMPS

Hose, Nozzles, First-
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Successor to Norton & Smith

HOOD RIVER, OREGON

Storage-in-Transit and the Box Apple Industry

THE apple season of 1910 and 1911 will always be remembered as being remarkable for the extremely high prices paid for barreled apples, which have been the highest in the history of the apple industry, and the extremely low prices for box apples, which have been the lowest in the history of the apple industry. The demand at all times has been dull and dragging on boxes and strong and active on barrels. This in spite of the fact that the quality of box apples has always been superior to barreled apples. What is the reason of this paradox? Can it be possible that the more scientific and careful the growing and packing of apples become the less they are appreciated? Has the expert packing of apples, which has reached its highest development in the apple producing sections of the Pacific slope only had the result of making the public prefer the rough-and-ready, slap-dash packing of barreled apples, especially when it is known that the great majority of these barreled apples contain, with the exception of those on the face or top of the barrel—apples suitable only for cooking? No, there is a sensible reason for the fact that box apples have not been wanted and have ruled at low prices. The reason lies in the method of distribution of the two classes of apples. The barrels have been shipped to every market in the country, large and small. There has been a strong demand for them in England and Germany. Western New York fruit houses have had a steady demand and drain on them from the West and South, and from the East and from the lands across the sea. There was about an equal quantity of apples packed in barrels and boxes; the barrels are being consumed in a thousand places, the box crop practically was marketed in two places—Chicago and New York. Of course, there was some small amount of boxes shipped abroad, especially Newtowns, and some few cities like Philadelphia and Boston had a small amount of boxes, but the markets of New York and Chicago were at all times oversupplied. The newspapers were filled with flashing advertisements on the part of a few dealers stating the hundreds of thousands of boxes that their firm would have the distinction of handling. One Chicago house blazoned forth to the world that they had disposed of a thousand cars. The impression was given that the quantity was so unlimited on the part of every large dealer in Chicago and New York that every smaller dealer shut out the temptation of investing in them.

This absolute lack of intelligent distribution came about through the rigid rules of the railroads regarding freight rates on box apples. One dollar per hundred is the rate on a carload of box apples, whether shipped to Denver, Chicago or New York, and when stored at one point or the other it cannot be reshipped without paying another freight rate. If a storage in transit

privilege should be allowed on shipments of box apples there would at once develop a system of distribution which would scatter the crop of box apples all over the country; it would place them in consumption where they were most wanted. The crop of box apples, amounting to twenty million boxes, is transported in a month and a half, but it requires nine months to consume it, even though it should be scattered in every city, large and small. By the storage in transit privilege is meant the privilege to ship the car to any warehouse that is desired and later on when the owner desires to market that car of apples to ship it to its ultimate destination and pay for the total services, the through rate from the initial point of shipment to the ultimate destination, and a switching charge in addition, because that is the only extra service in addition to the through haul that the railroad has rendered in granting this privilege. It is impossible for the owner of a considerable amount of box apples, whether he is a grower or an association of growers, or a merchant who has invested his money in their output, to tell what market during the coming nine months after the crop is gathered will be a desirable market for his apples. He can tell less because it is a new industry and only cities of the



MR. J. C. SKINNER

who for two years has been secretary and manager of the Hood River Commercial Club, has just tendered his resignation. Mr. Skinner, in this line of work, has made a reputation for himself that has extended all over the United States. The people of Hood River appreciate his work, which is not only valuable but in reality wonderful. He is giving up this line of work to go into commercial business.

[Editor's Note—We desire to call the attention of our readers to the statistics in this issue, most of which were collected by Mr. Skinner, authority being given in each instance to the source. These statistics will be of inestimable value to apple growers throughout the country, and while these statistics apparently cover but a few pages the time required to get all together has covered a period of three months.]

larger size have developed the use of box apples.

With the very great increase in the production of the orchards of the Far West, amounting last year to twenty million boxes, it is essential for the prosperity of the growers in the Far West, or any person who desires any part in that industry, whether railroads or warehousemen or merchants, to do a lot of missionary work in scattering the crop and introducing it to the cities of smaller size and the European markets. A lot of this missionary work has already been done, and the crop would flow to cities of the second class as well as the first class if the railroads would see to it that a flexible method of distribution was permitted by granting the storage-in-transit privilege. The greatest benefit would go to the railroads between Chicago and New York. In that district lies half the wealth of the country, and half the crop of box apples should be there distributed. With the exception of one railroad, the Erie, the other transcontinental lines from Chicago to the East have next to nothing of this traffic. The storage-in-transit privilege would give to them a very large share of this traffic. It is of the utmost importance, therefore, that all growers' associations and all apple dealers should bring this information to the attention of the head officials of railroads—it will help them more than it will help the general industry. In addition, it is a matter of importance to all persons interested in the apple industry, whether in barrels or boxes, because if the box industry is placed upon a healthy and profitable basis the capital available for investment in apples will flow toward that part of the industry and leave the barreled apples open to a natural competition, but not to the excessive competition that now exists.—Contributed.

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**Apples, Pears
Peaches, Prunes**

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**ORCHARDIST
SUPPLY HOUSE**

**FRANZ
HARDWARE CO.**

Hood River, Oregon

Oregon Apple Show and Horticultural Society

By F. W. Power, Secretary

THE management of the Oregon State Horticultural Society has set November 15 to 17, inclusive, for its twenty-sixth annual meeting in Portland, Oregon. The program will be unusually strong, and will consist of live, practical topics, handled by men whose experience entitles their opinions to respect. In order that the program may be made as nearly as possible responsive to the needs of every grower, members are invited to mail the secretary any question they would like brought before the meeting for answer or discussion.

The fruit show, which in recent years has become such a prominent feature at the annual meetings, will it is believed surpass all previous shows put up by the society. It is proposed this year to make a special effort to give dried fruits, and especially the dried prune, the prominence to which its importance entitles it. This is as it should be because the financial returns from evaporated prunes in Oregon equals those derived from the apple. The management is especially desirous of emphasizing the importance of the proper curing of prunes, as on the proper curing the stability of the industry largely depends. To this end they will offer exceedingly attractive premiums for the best cured evaporated prunes, and they ask that all growers

contribute at least five pounds to this contest. This will be a special contest, passed upon by prune experts, and should prove of great educational value to those interested in evaporated prunes. Another educational feature of the show will be a contest in the naming of varieties of fruits. The society will provide premiums in this contest, which will be open to students of the Oregon Agricultural College making the best record in the contest. This contest will be under the direction of the horticultural department of the Oregon Agricultural College. Growers are requested to contribute typical specimens of each variety they grow to afford material for this contest. Members, by watching this contest, can also test their own ability in naming varieties.

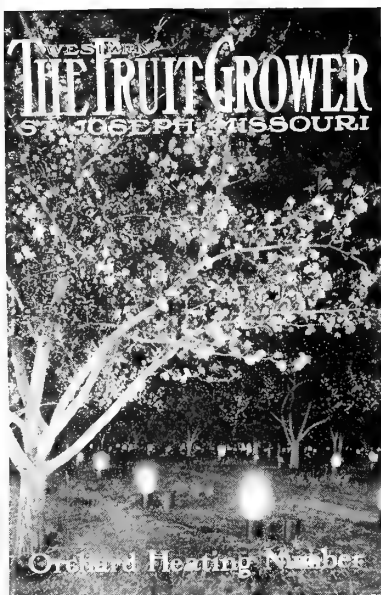
It has been decided to throw open the competition in all classes of exhibits (not otherwise specially limited to some district) to growers from other states. It is expected and hoped that our neighbors of Southern Washington especially will respond to this opportunity. The management this year, in place of trying to secure carloads, is offering about the same amount on smaller exhibits of one hundred or fifty-box lots, thinking that more can be induced to compete for such prizes. All premiums this year will well repay anyone taking a prize for bringing their fruit. The Oregon State Horticultural Society, in the twenty-six years of its existence, has performed a valuable work for Oregon horticulture. Its annual meetings and fruit shows should receive the hearty support of all fruit growers of Oregon,

COME TO VIRGINIA

Homes for all, health for all, happiness and independence for all. Ideal climate; no malaria, no mosquitoes. Write for our land bulletin, which will interest you.

J. R. Meadows, Appomattox, Virginia

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"Better Fruit" per year.. \$1.00
The Fruit Grower . . . 1.00 - total, \$2.00

Will send them Both for, per year \$1.50

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**TRAPPERS GET READY
BIG MONEY IN FURS**

Over ten million dollars will be paid to trappers of fur bearing animals during the coming winter. Any man or boy living in the country can add a goodly sum to his earnings by trapping during spare moments. We furnish ABSOLUTELY FREE a complete Trapper's Guide which tells you the size of trap and kind of bait to use for the different animals, how to make the skins and prepare them for market. We also furnish the best traps and baits at lowest prices. We receive more furs direct from trapping grounds than any other house in the world, therefore can pay the highest prices for them. Our price lists, shipping tags, etc., are also FREE for the asking. If you are a trapper or want to become one, write to us today. We will help you.

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in guaranteed, high-grade nursery stock? Does it make any difference to you what quality of stock you plant? We know it does, and for that reason we feel certain that you will consider the Toppenish Nursery Company before placing your order.

Our trees are guaranteed, and they have no equal.

Let us figure with you on your this season's needs. We have this year, due to exceptionally favorable growing conditions, the finest lot of stock you ever saw, the kind of stock that grows from the day it's planted.

We are needing a few live salesmen to take exclusive charge of good territory in various sections of the Northwest. Write us for our terms to salesmen.

Toppenish Nursery Company
Toppenish, Washington
Unsurpassed Nursery Stock grown in the famous Yakima Valley

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Ten acres rich orchard land in famous Rogue River Valley. Write for description and price. CHAS. E. HICKS, Independence, Oregon.

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Western Soft Pine. Light, strong and durable.

"Better Fruit" subscribers demand the "Better Box."

BOXES

CAN MAKE TWO CARLOADS DAILY

Washington Mill Co.

Wholesale Manufacturers
Spokane, Washington

YOU SHOULD PLANT PEDIGREED TREES

In setting out an orchard everyone should use the same care in selecting his trees as he would in selecting the best seed or in selecting breeding animals to improve his herd. By careful selection and the propagation of nursery stock, the habits and fruit-producing qualities of the trees may be improved to a great extent, in the same way that one breeds up the quality of animals.

Winfield Trees Mean Quality

Our stock is propagated from trees that are producers and prize winners. Every block in the Winfield Nursery is tagged, referring to the record of these trees on file in our office. For instance, in our Jonathan block, the scions were selected from the individual trees that produced the fruit that won the prize for Jonathans at the National Apple Show at Spokane. It is a well known fact that individual trees in an orchard will bear oftener and more regularly than other trees in the same orchard.

By our methods of propagation you are more sure of getting your trees more absolutely true-to-name than where the scions are taken at random. I am sure that if I could talk to you I could convince you that our methods are correct. I would like to show your letters endorsing our methods from the prominent fruit growers and horticulturists connected with the agricultural colleges, but as it is impossible to visit every man who intends to set an orchard either this fall or next spring, we have prepared a booklet called "Progressive Horticulture," which you will find one of the most interesting booklets ever published for the fruit grower.

Don't delay, but write for a copy of "Progressive Horticulture" today.

Address WINFIELD NURSERY

J. MONCRIEF, *President*

Box 5, WINFIELD, KANSAS

not only by bringing fruit for exhibit but also by joining the society, as Oregon should have at least one thousand members. For further particulars address the secretary at 308 Sherlock Building, Portland, Oregon.

The premium list is not fully prepared, but is given below in as complete form as is possible at this time:

On dried fruits it is up to several of the large packers as to what they think would bring out the most dried fruit, but there will be at least \$100 cash prizes in addition to medals and diplomas.

The following nurseries have recently offered to donate nursery stock as prizes, but have not been assigned to varieties: Oregon Nursery Co., \$100 in trees; Vineland Nursery Co., 100 Spitzenberg trees; Yakima Independent Nursery Co., 500 3 to 4-foot assorted apple trees; J. B. Pilkington, 100 Rome Beauty trees 4 to 6-foot, for best box Rome Beauty; Milton Nursery Co., 250 two-year Yellow Newtown Pippin trees.

The prizes on dried prunes will be to growers on best cured product in five-pound lots on 40s and 60s, and on those larger than 40s, and will be either \$5 or \$10 as first prize, with second and third prizes.

District Prizes—The following prizes are open to any commercial club, fruit growers' organization, grower, or any combination of growers in any county or district:

No. 1. 100-box lots; total prize \$500 cash. Not less than three varieties and at least twenty-five boxes of each variety must be shown. These should be commercial sizes from 88 to 112. First prize, \$250 and gold embossed medal; second prize, \$125 and silver medal; third prize, \$75 and bronze medal; fourth prize, \$50.

No. 2. 50-box lots; total prize \$275. Not less than three varieties, nor less than fifteen boxes of each variety; commercial sizes from 88 to 112. First prize, \$150 and gold embossed medal; second prize, \$75 and silver medal; third prize, \$50 and bronze medal.

The party winning first prize in No. 1 to donate fifteen boxes to the society and one taking second prize five boxes.

Party winning first in No. 2 to donate seven boxes and the one taking second to donate three boxes to the society. These apples are used for advertising purposes.

Individual Prizes—All contests, except those mentioned above, to be open to growers only.

No. 3. 25-box lots; total prizes \$500. First prize, \$75 and gold embossed medal; second prize, \$50 and silver medal. Prizes of \$125 will be offered as above on four varieties: Baldwin, Jonathan, Spitzenberg and Yellow Newtown.

No. 4. 10-box lots; total prizes of \$200. Five prizes of \$40 each will be offered on the following: Arkansas Black, Baldwin, Jonathan, Spitzenberg, Yellow Newtown. First prize, \$30; second prize, \$10.

5-box lots; total prizes, \$250. First prize, \$15; second prize, \$10. Ten prizes of \$25 each will be offered on the following: No. 12, Arkansas Black; No. 13, Baldwin; No. 14, Ben Davis or Gano; No. 15, Grimes Golden; No. 16, Jonathan; No. 17, Northern Spy; No. 18, Ortley; No. 19, Rome Beauty; No. 20, Spitzenberg; No. 21, Yellow Newtown.

3-box lots; total prizes of \$150. First prize, \$10; second prize, \$5. Ten prizes of \$15 each will be offered on the following: No. 22, Arkansas Black; No. 23, Baldwin; No. 24, Ben Davis or Gano; No. 25, Grimes Golden; No. 26, Jonathan; No. 27, Northern Spy; No. 28, Ortley; No. 29, Rome Beauty; No. 30, Spitzenberg; No. 31, Yellow Newtown.

Single box lots; total prizes of \$142.50. First prize, \$5; second prize, \$2.50. Nineteen prizes

of \$7.50 on the following: No. 32, Arkansas Black; No. 33, Baldwin; No. 34, Ben Davis or Gano; No. 35, Delicious; No. 36, Gravenstein; No. 37, Grimes Golden; No. 38, Hydes King; No. 39, Jonathan; No. 40, King of Tompkins; No. 41, Northern Spy; No. 42, Ortley; No. 43, Red Cheek Pippin; No. 44, Rome Beauty; No. 45, Spitzenberg; No. 46, Vanderpool; No. 47, Wagener; No. 48, Winesap; No. 49, Winter Banana; No. 50, Yellow Newtown. In addition to the cash prizes on the single boxes each party winning a first prize on single box will receive one Palmer apple picking bucket valued at \$1.50, offered by the Palmer Bucket Co. of Hood River.

Plate exhibits; total prizes, \$54.

No. 51. Best exhibit of apples on plates. First prize, \$5; second prize, \$2.50; not less than five varieties.

Single plate exhibits; total prizes \$43.50. First prize, \$1; second prize, 50 cents. Twenty-nine prizes will be offered on single varieties on plates. No. 52, Arkansas Black; No. 53, Baldwin; No. 54, Ben Davis; No. 55, Gano; No. 56, Golden Russet; No. 57, Gravenstein; No. 58, Grimes Golden; No. 59, Hydes King; No. 60, Jonathan; No. 61, King of Tompkins; No. 62, Northern Spy; No. 63, Ortley; No. 64, Red Cheek Pippin; No. 65, Rome Beauty; No. 66, Roxbury Russet; No. 67, Spitzenberg; No. 68, Stark; No. 69, Swaar; No. 70, Talman Sweet; No. 71, Vanderpool; No. 72, Vandevere; No. 73, Wagener; No. 74, Wealthy; No. 75, White Winter Pearmain; No. 76, Winter Banana; No. 77, Yellow Bellflower; No. 78, Yellow Newtown; No. 79, York Imperial.

No. 80. A diploma will be given for meritorious display for best plate of any other commercial variety not mentioned.

No. 81. Largest apple. First prize, \$2; second prize, \$1.

No. 82. Judging contest of apple varieties; total prize, \$10. This contest will be open to the students of the Oregon Agricultural College, and to any grower or individual except the judges. This contest will be in complete charge of Professor C. I. Lewis and assistants of the Oregon Agricultural College. A large number of plates of sundry varieties will be on exhibit without names attached, and the party who can give correct names to the largest number will be declared winner. All growers are urged to bring plates of as many varieties as possible to enter in this

contest; also if they have any variety and are not sure of the name bring it along; this is your chance to find out what it is. Also bring new and promising seedlings. Five apples constitute a plate. First prize, \$7.50; second prize, \$2.50.

Pears—No. 83. Three-box lots; total prizes, \$35. First prize, \$25; second prize, \$10; third prize, bronze medal.

Single box lots; total prizes, \$57.50. First prize, \$5; second prize, \$2.50. Five prizes of \$7.50 will be offered on the following: No. 84, B. d'Anjou; No. 85, Comice; No. 86, B. Clairgeau; No. 87, P. Barry; No. 88, Winter Nelis.

In addition to the cash prizes on single boxes of pears each one winning a first prize will receive one Palmer apple picking bucket, offered by the Palmer Bucket Co. of Hood River.

Pears on Plates—No. 89. Best exhibit on plates. First prize, \$5; second prize, \$2.50. This exhibit must consist of not less than three varieties.

Single plate exhibits; total prizes, \$7.50. Five prizes on single plate exhibits will be offered. No. 90, B. d'Anjou; No. 91, B. Clairgeau; No. 92, Comice; No. 93, P. Barry; No. 94, Winter Nelis.

No. 95. A diploma will be awarded as meritorious display (where only one entry is made, and as first and second prize where two or more exhibit same variety) for best exhibit of any other commercial variety not mentioned above.

Nuts; total prizes, \$7.50. No. 96. Best exhibit of nuts. First prize, \$5; second prize, \$2.50. Five prizes are offered for the following (first prize, bronze medal; second prize, diploma): No. 97, Franquette Walnut; No. 98, Mayette Walnut; No. 99, Praeparturien Walnut; No. 100, Parisienne Walnut; No. 101, Barcelona Filbert; No. 102, Du Chilli Filbert.

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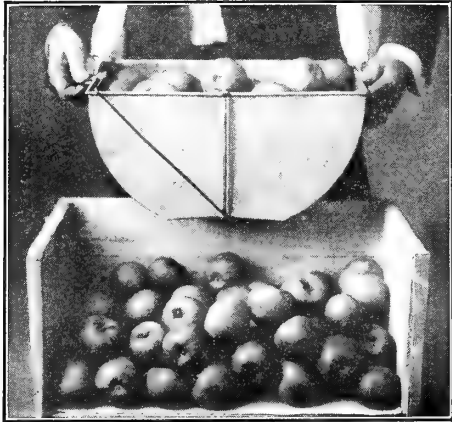
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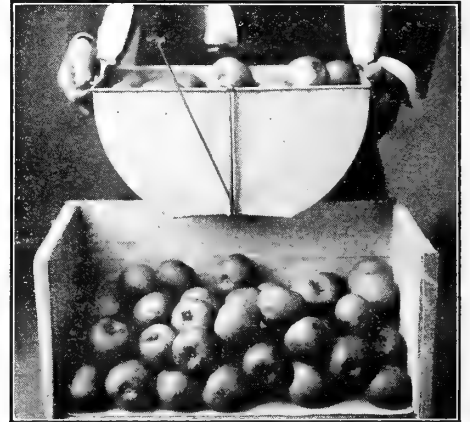
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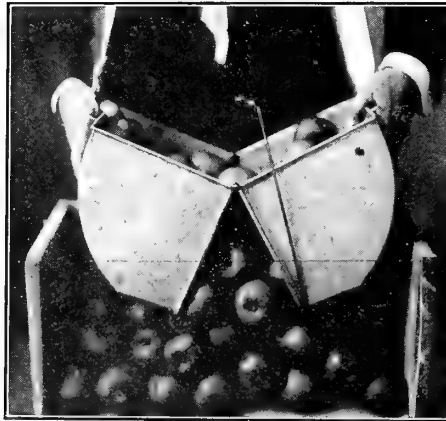
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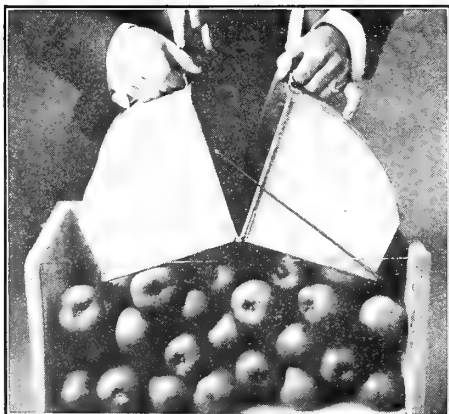
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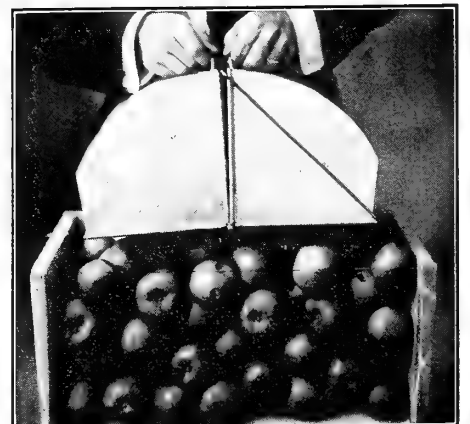
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FOR LIST OF AGENTS SEE PAGE 53

Fourth National Apple Show November 23 to 30

By August Wolf

FIVE hundred dollars in gold and a massive silver loving cup, suitably engraved, presented by the International Apple Shippers' Association, will be awarded to the exhibitor of the best packed carload entered at the Fourth National Apple Show in Spokane, November 23 to 30. The total value of the prizes and premiums is \$20,000. The judges will award prizes of \$300 to firsts and \$100 to seconds in carload contests on each of these varieties:

Jonathan, McIntosh Red, Rome Beauty, Spitzenberg, Wagener, Winesap, Yellow Newtown; also on the best mixed car of standard winter varieties, each to consist of at least fifty boxes, and the best car of any standard variety not named in the foregoing. A special premium of \$200 is offered for the most artistically decorated entry in the carload class. "The trustees think this arrangement of the carload prizes will be more satisfactory to all the growers

and districts than was possible by the terms of the championship contest, which was heretofore a feature," said Harry J. Neely, first vice-president of the National Apple Show, Inc. "The championship prize was \$1,000. It is possible for an exhibitor to receive a similar amount besides gaining three distinct honors: Winning first on pack, first in his class on variety and first for decorative features. Another thing is that certain varieties will not be forced into competition under a handicap because of the higher quality rating of other apples. The carload contest calls for entries of 630 boxes, or 210 barrels. The exhibitor must be the owner, lessee or authorized agent of the land where the apples were grown and give a sworn statement when making entry that the apples were grown in one orchard. The judges will consider quality, color, size, uniformity, condition and pack in scoring to make the awards.

Another competition is to bring out originality in design and attractiveness of display, not necessarily of a commercial value; is open to associations, districts, societies, lodges or unions having a membership of more than five persons. Two hundred dollars will be awarded for the most unique and artistic display, the second prize being one hundred dollars. Wide latitude is allowed in designs and decorations, and birds, animals, buildings, maps and other features may be worked out in the scheme. There also will be a similar contest open to individuals, the first prize being \$200, with \$100 for the second. These displays will be passed upon by a committee of special judges, who will consider only the merits of the unique and artistic sides of the exhibits. As an added inducement the judges will award premiums of \$50 each to the five contestants whose displays rank closest to the winners of first and second prizes. One hundred dollars to the first and \$50 to second is offered for general collective displays of apples grown on irrigated land and shown by commercial clubs, associations, unions, counties or districts, but not by individuals. The same provisions apply for the best general collective display of apples grown on nonirrigated land. The first prize is \$100, the second being \$50. Fifteen competitions are announced in the ten-box classes, tak-

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has just closed the most successful and prosperous year in its history. We want to make 1911 even more successful than the year just passed. We want *your* name upon our subscription list. Here are a few facts which will help you to decide the question of subscribing,

☐ The Pacific Monthly is recognized as the most successful independent magazine in the West. It publishes each month artistic and unusual duotone illustrations of beautiful Western scenery, studies of Indian heads, or of animal life, ranging from Alaska, on the North, to Mexico on the South, and as far afield as Japan and the South Seas. From its striking cover design to the last page you will find a feast of beautiful pictures.

☐ Each month it publishes from five or six short stories by such authors as Jack London, Stewart Edward White, Harvey Wickham, D. E. Dermody, Seumas MacManus, Fred. R. Bechdolt, and other well known writers of short stories. Its stories are clean, wholesome and readable.

☐ Each month one or more strong articles are published by such writers as William Winter, the dean of dramatic critics, John Kenneth Turner, the author of "Barbarous Mexico", Rabbi Wise, the noted Jewish Rabbi, and John E. Lathrop, who contributes a non-partisan review of national affairs. Charles Erskine Scott Wood contributes each month under the title of "Impressions" a brilliant record of personal opinion.

☐ The Pacific Monthly has become noted for having published some of the best verse appearing in any of the magazines. Charles Badger Clark, Jr., contributes his inimitable cowboy poems exclusively to The Pacific Monthly. Berton Braley, George Sterling, Elizabeth Lambert Wood, Wm. Maxwell, and other well known poets are represented by their best work in our pages.

☐ A feature that has won many friends for The Pacific Monthly has been our descriptive and industrial articles. During the coming year one or more such articles will be published each month. Articles now scheduled for early publication are: "Money in Live Stock on the Pacific Coast", "Success with Apples", "Nut Culture in the Northwest", "Success with Small Fruits", "Fodder Crops in the Western States".

☐ In addition to these articles the Progress and Development Section will give each month authoritative information as to the resources and opportunities to be found in the West. To those who are planning to come West, the descriptive illustrated articles on various sections of the West will be invaluable.

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ing in standard varieties, with first prizes of \$40 and \$20 to seconds and added premiums for pack. There will be fifteen competitions in the five-box classes, with first prizes of \$25 and second prizes of \$15; also added pack prizes. An added contest in this class is for five varieties in as many boxes. The first prize is \$50 and \$25 for the second. In the single box class there will be thirty competitions, the varieties including thirty of the best known standard winter apples, with first prizes of \$10 and second of \$5. There will be additional prizes on pack. \$75 is offered for the heaviest pyramid of fifty apples, weight to determine the award, with \$25 as the second prize. Other contests on big apples are for entries of plates of five apples, circumference to determine the awards. The first prize is \$25, with \$15 to second. The exhibitor of the largest single apple will receive \$20, the second largest \$10. \$40 to firsts and \$20 to seconds are offered for displays of one barrel, or three boxes, of any variety grown in the Eastern, Middle Western, Southern and Northwestern groups of states and districts or provinces outside of the United States. A gold medal banner will be awarded to the manufacturer or distributor of the most practical and economical new appliance for use in planting, cultivating, picking, packing or marketing. The second prize is a silver medal banner. Four hundred prizes of two dollars each to firsts are offered for plates of five apples. This competition is

open to all varieties. Cups, gold and silver medals and banners and trophies are offered for exhibits of factory and home-made apple by-products; also for new varieties and photographs and designs reproduced on apples. The added premiums in the foregoing contests are nursery stock, orchard implements, spraying machinery and materials, and numerous other articles of value to orchardists. The contests in all classes are free and open to the world, no charge being made for the space occupied in the exhibition halls.

Editor Better Fruit:

The Fourth Annual Exposition of the National Horticultural Congress will be held in St. Joseph, Missouri, November 23 to December 3, 1911, inclusive. St. Joseph is a very wealthy city of from 90,000 to 100,000 people, and its location for an exposition of this character is ideal. They have a mammoth new auditorium building three times as large as the one at Council Bluffs, and will be able to properly house and care for an exposition many times larger than any of the previous ones. The premium committee will soon be able to send you the preliminary premium list. I can assure you now, however, that when you receive the official premium list that it will be very attractive to you. The educational features will be about the same as last year. The attendance will be four times greater. Now, to get down to business. I want you to get in touch with your growers

and have a display there equal to, or better if possible, than the one you had at Council Bluffs last year. I don't know of anyone in your state or district who can do this better than you, and you will realize the necessity of prompt action. The exposition committee very much desires to have all of the old exhibitors take part in the coming exposition at St. Joseph. Won't you kindly advise me at once regarding prospects? Mr. Frederick Neudorff of St. Joseph, Missouri, is the president of the local organization. I am to be the superintendent and corresponding secretary. Address me at Council Bluffs until October 1, 1911. Sincerely yours, Freeman L. Reed, Superintendent National Horticultural Congress, Council Bluffs, Iowa.

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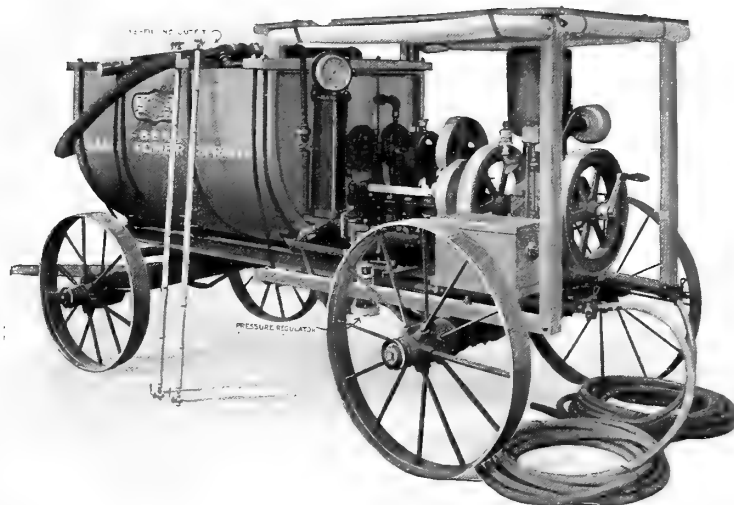
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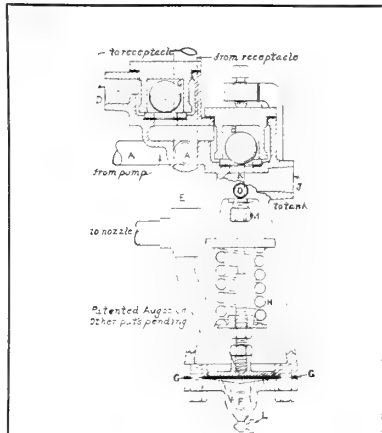
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Photo taken August 20, 1911

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The Cove, Oregon, Cherry Fair

By George Rieben, Judge

ON the nineteenth of July last there was held in the town of Cove a cherry fair which doubtless excelled any similar exhibition of fruit ever held in Eastern Oregon. The principal feature, of course, was the cherries, but there were also several other very interesting items which aided in keeping things alive all day, such as musical selections, a speech by "Jerry" Rusk, speaker of the House, baby show and a baseball game. Lunch was served at noon, and one could get all of the free cherries that one wished. The cherry exhibit proper consisted of about one hundred boxes Bings, seventy-five Royal Ann, twenty Black Republicans, some Lamberts, some pickled in jars and eighty boxes of mixed varieties used in making pretty designs of various descriptions. These boxes were set on slanting shelves, as in every large fair. They were all packed very neatly and with about a half-inch bulge in the middle, and any of them would have stood shipment very well. The package used was the standard double ten-pound wooden box. It is all the more gratifying for us to know that all, or nearly all, of them were placed upon exhibition in identically the same condition as they were to be placed upon the market, for they were packed with that intention. The competition for the ribbons was exceedingly close, especially in the Bing and

Royal Ann class, and it showed that the growers took much interest in the class of fruit which they put out. After this each of the four largest towns in the Grand Ronde Valley is to have an annual fair—Elgin the apple fair, La Grande the county fair, Union the stock show and Cove the cherry fair. This was the first fair under the new arrangement, and considering everything it was a success, and the people of Cove are to be commended for the way in which they entertained their visitors.

Scores of premiums to winners at the Fourth National Apple Show have been offered by various manufacturers of orchard implements, publishers of fruit journals, makers of apple boxes and others directly or indirectly interested in the development of the apple business. Among the prizes offered are the following: Number of pruning knives, International Tool Company of Detroit; Edgemont lid press, H. Platt & Sons of Como, Montana; 200 Bolton orchard heaters, Frost Prevention Company of San Francisco; prize to be selected from the Inland Empire Biscuit Company; fifty subscriptions to "Better Fruit," E. H. Shepard, the editor; fifty subscriptions to the "Northwest Horticulturist," C. A. Tonneson of Tacoma; ten two and a half-pounds tins of "Black Leaf," Ken-

tucky Tobacco Products Company; Acme orchard harrow, John Deere Plow Company; fifty buckets, Palmer Bucket Company, Hood River, Oregon; extension frame orchard disc harrow, Parlin & Orendorff Plow Company, Portland; loving cup, A. C. Rulofson, Pacific Coast sales agent for the J. C. Pearson Company of Boston; orchard disc harrow, International Harvester Company of America; one thousand fruit boxes, Washington Mill Company of Spokane; two orchard ladders, Oregon Ladder & Manufacturing Company; improved orchard machine, Light Draft Harrow Company of Marshalltown, Iowa; lightning fruit picker, Lightning Fruit Picker Company.—Spokane Chronicle.

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PEACH

Elberta	107,797
Salway	20,488
Slappy	19,391
Early Crawford	37,848
Late Crawford	10,388
Carmen	7,432
Tuscan Cling	2,284
Phillips Cling	5,410

APRICOT

Moorpark	14,308
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CHERRY

Bing	4,527
Lambert	7,898
Royal Ann	1,856
Varieties	2,291

PLUM

Varieties	1,723
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THE SUNNYSIDE NURSERY CO., Sunnyside, Washington

The Governor's Special

AN event of the utmost importance to the State of Oregon and the entire West is about to take place in the departure of a monster special train laden with exhibits of the products of this state and each one of the other twelve that comprise the mighty Western empire. This train is to be called the "Governors' Special" from the fact that it will number among its passengers, if the plans now under consideration take effect, each one of the thirteen governors of the West, comprising the chief executives of the States of Oregon, Washington, Idaho, Montana, Colorado, Utah, Nevada, California, Wyoming, North and South Dakota, Nebraska and Minnesota.

The "Governors' Special" will be made up at Omaha immediately after the big land show that is to be held there, and will visit all of the important cities in the East. The committees in each state having the matter in charge will send their most comprehensive exhibits to Omaha, where each will become an integral part of the complete exhibit of the resources of the West, for the purpose of making a tour of the East. Among the cities to be visited are Omaha, Chicago, Pittsburgh, New York City, Washington, D. C., and St. Paul, and from the interest already created in the forthcoming visit of the train in those cities the tour will be fraught with exceptional opportunities for creating an exodus

from the crowded centers of the East to the boundless stretches of the West. Each state participating is called upon to contribute \$1,000 as its share of the expenses of the trip in addition to furnishing its exhibit. On account of the large number of states included in the monster exhibit the individual expense is very low, and never before have the states of the West had the opportunity of advertising their resources so thoroughly in such a promising field at so little expense. On this account it is hoped that each state will not delay in the matter of arranging for its participation.

Before disbanding at St. Paul, the "Governors' Special" will exhibit at all of the big land shows and fairs in the East, thereby assuring that the resources of the West will be thoroughly exhibited to the farmers of the Eastern states. In view of the fact that the East has suffered from a disastrous drought during the past summer while the West, and especially the Northwest, is enjoying a harvest of more than ordinary magnitude, the present is an opportune time to display the agricultural and horticultural prosperity of the Northwest to the drought stricken populace of the Middle West and the East.

Ex-Governor James H. Brady of Idaho, president of the Western Development Association, under whose auspices the trip will be made, is the orig-

inator of the plan, and to him is due the credit of the immense success that it has met. In the beginning the project was regarded as being one of too great proportions to be accomplished, and but little encouragement was given Mr. Brady, but a brief time had elapsed, however, until there was a general recognition of the advantages to be gained by such a trip, and as a result each state in the West has taken up the proposition with enthusiasm. Governor M. E. Hay of Washington has wired Reilly Atkinson of Boise, who has been appointed manager of the train, stating that Washington would participate and that he would be one of the number of Western governors who would be on the "Governors' Special." Washington is the first state that has served official notice of its participation in the movement destined to give such an impetus to the development of the great Northwest, but it is thought that all will have served similar notice in a few days. President Brady and Manager Atkinson left on Monday for Omaha to complete the final details of the project.—Contributed.

FOR SALE—Ten acres in Mount Hood region, on which is located store, creamery, ice cream parlor, butcher shop, three-story warehouse, slaughter house and small barn. The sale will also include a cow, three horses and wagon. Creamery equipped with \$1,500 worth of modern machinery, and butcher shop with \$200 worth. Living apartment in rear of store, with sitting rooms and ten bedrooms overhead. Fine well six feet from rear of house. Will take Portland property in part payment. Write or call on S. A. Helmer, 53 North 18th and Davis, Portland, Oregon.

APPLE STORAGE—410,000 Box Apples Capacity

Our Apple Department is constantly in touch with the market and we are therefore in a position to give storage customers best results

INSURANCE RATE LOW

EBNER ICE AND COLD STORAGE CO.

Main Office, VINCENNES, INDIANA

Plants at Vincennes, Indiana; Flora, Illinois; Seymour, Indiana; Washington, Indiana

Rae & Hatfield

317 Washington Street, New York

Largest Handlers of Pacific Coast Fruits in the East

REPRESENTING THE FOREMOST WESTERN SHIPPING COMPANIES AND ASSOCIATIONS
ON THE NEW YORK MARKET

Operating in All Producing Sections

RELIABLE

EXPERIENCED

PROMPT



Five Stories
and Cellar
Corner
Harrison and
Washington
Streets.

J. & G. LIPPMANN

IN BUSINESS OVER 30 YEARS

Incorporated—Capital \$100,000.00

On one of the most conspicuous corners of the fruit and produce district. Handle all kinds of produce and want to get in touch with Western shippers of peaches, plums, prunes, etc. Box apples we shall make a specialty. Prepared to handle business of large associations, being fortified with ample capital to take care of any deal. Correspondence solicited.

J. & G. LIPPMANN

338-340 Washington and 46-48 Harrison Streets, NEW YORK CITY

We Want all Shippers of Green and Fresh Fruits to Write Us

Auction Facilities Unequaled by any House in America

THE B. PRESLEY CO.

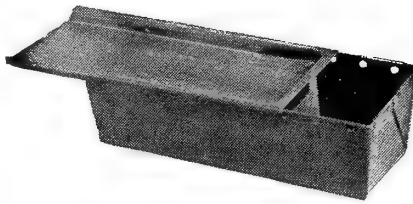
ST. PAUL, MINNESOTA

WHOLESALE FRUITS

We handle thousands of cars of fruit yearly, Apples, Pears, Peaches, Prunes, Etc.

A THRILLING STORY

is told by hundreds of FRUIT GROWERS in every state in the Union from windy Texas to Washington State of their great achievements in overcoming from one to fifteen degrees of frost in their orchards by the use of



THE HAMILTON RESERVOIR ORCHARD HEATERS

Every grower freely claims that his successes were due almost entirely to the REGULATED FIRE feature, which permitted him to secure two, three or even four times as much fire at the time of most severe frost, the most critical hour of the night. Many also tell us of having lost their crops by the use of small pots that could not be regulated to give greater fire to meet the critical hours. Forever the question of the vast supremacy of the large RESERVOIR HEATER with the REGULATED FIRE has been established. We have abundance of proof that the only ORCHARD HEATER equipment on the market today that affords the grower absolute protection against the most severe weather conditions and wind is the

HAMILTON RESERVOIR HEATER either in three or six gallon size

It is the most EFFECTIVE, most ECONOMICAL and the SIMPLEST in construction and operation. Our new literature is now ready, containing much of interest to you and expert advice on these points, which is free. We welcome your inquiries. Better write today. Don't wait two or three months.

Good Agents Wanted Everywhere

HAMILTON ORCHARD HEATER CO., Grand Junction, Colorado

How They Do Things in New York

OVER the signature of John L. Walsh, commissioner of the mayor's bureau of weights and measures, the following notice was sent to produce dealers and commission merchants relative to the sale of apples, pears and quinces in the City of New York:

I desire to serve notice upon you that on the first day of November, 1911, and thereafter I shall enforce section 395A of the code of ordinances of the City of New York, and sections 5 and 9 of chapter 20 of the consolidated laws, general business laws of the State of New York, relative to the sale of apples, pears and quinces in the City of New York. Apples, pears and quinces, when sold by the barrel, shall conform in size with the standard barrel as specified, as follows: "Sec. 9. Barrels of Apples, Quinces, Pears and Potatoes. A barrel of pears, quinces or potatoes shall represent a quantity equal to one hundred quarts of grain or dry measure. A barrel of apples shall be of the following dimensions: Head diameter, seventeen and one-eighth inches; length of stave, twenty-eight and one-half inches; bulge, not less than sixty-four inches outside measurement, to be known as the standard apple barrel. Or where the barrel shall be made straight or without a bulge, it shall contain the same number of cubic inches as the standard apple barrel. Every person buying or selling apples, pears, quinces or potatoes in this state by the barrel shall be understood as referring to the quantity or size of the barrel, specified in this section, but when potatoes are sold by weight the quantity constituting a barrel shall be one hundred and seventy-four pounds. No person shall make, or cause to be made, barrels holding less than the quantity herein specified, knowing or having reason to believe that the same are to be used for the sale of apples, quinces, pears or potatoes, unless such barrel is plainly marked on the outside thereof with the words "short barrel" in letters of not less than one inch in height. No person in this state shall use barrels hereafter made for the sale of such articles of a size less than the size specified in this section. Every person violating

any provision of this section shall forfeit to the people of this state a sum of five dollars for every barrel put up, or made or used in violation of such provision." And no barrel marked "short" will be permitted to be used for the sale of apples, pears or quinces in the City of New York. "Sec. 395a. No person shall manufacture, construct, sell, offer for sale or give away any dry measure or liquid measure, nor any barrel, pail, basket, vessel, container, intended to be used in the purchase or sale of any commodity or article of merchandise which shall not be so constructed as to conform with the standards provided by statute. Nor shall any person use any barrel, cask, pail, basket, vessel or container in the purchase or sale of any commodity or article of merchandise which does not conform to the standards provided by law, under a penalty of one hundred dollars for each offense."

Section 5, chapter 20, consolidated laws, general business laws of the State of New York, provides as follows: "Sec. 5. Units of Capacity. The units or standards of measure of capacity for liquids from which all other measures shall be derived and ascertained shall be the standards designated in this article. The barrel is equal to thirty-one and one-half gallons, and two barrels are a hogshead. The parts of the liquid gallon shall be derived from the gallon by continual division by the number two, so as to make half gallons, quarts, pints, half pints and gills. The peck, half peck, quarter peck, quart, pint and half pint for measuring commodities which are not liquids shall be derived from the half bushel by successively dividing that measure by two. The standard of measure for buying and selling strawberries, raspberries, blackberries, currants, gooseberries, plums, cherries, cranberries and other small fruits shall be the quart, which shall contain, when even full, sixty-seven and two-tenths cubic inches; the pint, which, when even full, shall contain thirty-three and six-tenths cubic inches; the half pint, which, when even full, shall contain sixteen and eight-tenths cubic inches; multiples of the quart, which, when

even full, shall contain like multiples of sixty-seven and two-tenths cubic inches." Apples, pears or quinces, when sold in boxes, crates or containers other than as specified in sections 5 and 9 of the general business law, or section 395a of the code of ordinances, shall be plainly marked or labeled on the outside of the box, crate or container with the net weight or measure of the contents.

The PARIS FAIR

Hood River's largest and best store

Retailers of

EVERYTHING TO WEAR

Agents for

**HAMILTON & BROWN AND
THE BROWN SHOES**

**HART, SCHAFFNER & MARX
CLOTHES**

MANHATTAN SHIRTS

JOHN B. STETSON HATS

NEMO CORSETS

Strictly Cash—One Price to All

J. F. LITTOOY

CONSULTING HORTICULTURIST

Land, irrigation and orchard schemes examined for owners, buyers, bonding companies or advertising agencies—Orchard and land values estimated—Orchard soils examined—Directs orchard development—Land damage claims estimated—All business confidential.

MOUNTAIN HOME, IDAHO

Members of the International Apple Shippers Association

We use Revised Economy Code

The F. J. Pomeroy Co.

84 DETROIT ST. Milwaukee, Wis.

Branch at Medina, N. Y.

RECEIVERS AND DISTRIBUTORS

Apples, Fruits, Potatoes

Melons and Cabbage

Provisions and Grain

CAR LOTS A SPECIALTY

We handle 200 carloads of Apples and better per Season

HARDING-SHAW CO.

LEADING
BROKERS
Carlots
Box
Apples

Wire Us
Your
F. O. B.
Prices.
We Will
Place
Them
Before
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Buyers

Cor. S. WATER & CLARK STREETS
CHICAGO, ILLINOIS

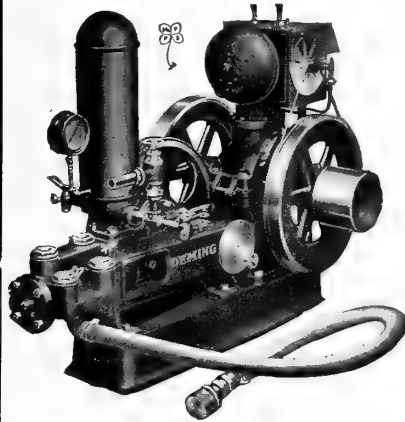
Deming Spray Pumps

Always Ready When You Are

You can depend on a Deming outfit as on a trusted friend—it is always reliable, ready for business, and does just as thorough work at the finish as at the start.

The qualities that make Deming Spray Pumps speedy, durable and capable of making and holding high pressure, make them reliable and trustworthy too. We build them by *knowledge of orcharding conditions*—not by theory. Successful growers say our machines are properly designed and correctly built—whether the little bucket or knapsack affair, or the gasoline engine-driven outfit that holds the gauge steady at 150, 175 or 200 pounds.

The profit you clean up on your fruit depends largely on your spraying outfit. Don't take chances; if you aren't absolutely sure you have the most reliable and dependable outfit you can buy, see your local dealer, or write



CRANE CO.

Pacific Coast
Agents
Portland, Seattle,
Spokane, San Francisco
The Deming Company
Manufacturers
870 Depot St., Salem, Ohio
Hydraulic Rams
Hand and Power Pumps
for All Uses

This Light Weight Grader Will Solve Your Irrigation Problems

It is an all-steel one-man machine. It weighs only 600 pounds. It will stir your soil, level your land, cut laterals, pick up dirt and drop it where you want it, and *cut ditches 24 to 36 inches deep at a cost of 2 cents a rod*. It will do more work than big heavy graders in less time and with less effort. One man with two horses operates it. Ditches cut with the 20th Century Grader are "V" shaped, with firm, solid sides—no fear of their being washed down.

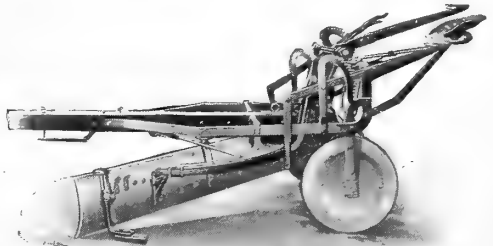
20th Century Grader

is a many purpose, easily operated machine that pays for itself over and over again and puts money into your pocket.

To get big results your work must be right, so you must have the right machine.

Let us tell you what others say about this wonderful machine. We want to prove to your satisfaction that it's a genuine money-maker. There are many uses to which the 20th Century Grader is specially adapted and many ways you can make big money by using it on your own land and on your neighbors'.

Write for our interesting and valuable free book giving full information about this money-making machine, what it has done for thousands and will do for you.



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542 Hunter Building
CHICAGO, ILLINOIS

The Tim Kelly Nurseries **TIM KELLY**

PROPRIETOR

WAPATO, WASHINGTON

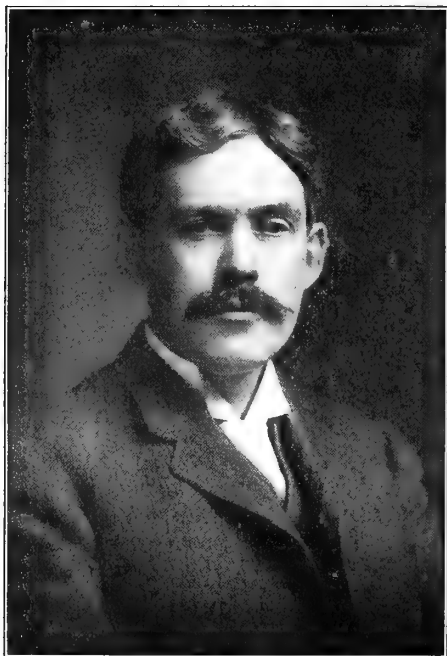
Two Million Trees for Fall and Spring Planting

I have a splendid stock of APPLES, PEACHES, PEARS, PLUMS, PRUNES,
ORNAMENTAL TREES AND ROSES

For Special Prices write to **TIM KELLY**, Box 197, WAPATO, WASHINGTON

Prominent Ohio Commission House

THE firm of M. O. Baker & Co., Toledo, Ohio, has been in business since 1898. Their specialty from the beginning has always been apples. They are not speculators, but buy and handle on commission the best grades



M. O. Baker
Of M. O. Baker & Co., Toledo, Ohio

of fruits, and store quite largely for their regular trade. They have a regular and extensive trade not only with all the best retail dealers in Toledo, but in all the surrounding territory. Toledo is the third largest railroad center in the United States, and one of the best (if not the best) distributing points in the Central West or the United States. Goods can be diverted from Toledo east, west, north or south on through billing. Toledo has good cold storage facilities, and shippers sending apples to M. O. Baker & Co. can either have them sold on arrival or placed in cold storage to be sold at some more favorable time. In addition to their extensive trade with retail grocers they have an excellent business with small jobbers in adjacent territory. Every season they handle anywhere from one hundred to two hundred cars of apples, depending upon conditions. Ask any dealer in Toledo about apples and they refer you to M. O. Baker & Co. as leaders in that line, and where apples can always be had. If you have apples or any other kind of fruits or produce for sale place them with M. O. Baker & Co., Toledo, Ohio, and you may rest assured your interests will receive the very best care and attention, as both M. O. Baker and B. A. Baker understand the business from A to Z and are always on their job.



B. A. Baker
Of M. O. Baker & Co., Toledo, Ohio

Hood River Grown Nursery Stock for Season 1911-12

Standard Varieties.
Prices Right and Stock First Class

C. D. THOMPSON, Hood River, Oregon

ALFRED W. OTIS

81 Beach Street
NEW YORK, N. Y.

92 Commercial Street
BOSTON, MASSACHUSETTS

Apples for American and Foreign Markets

AGENTS FOR

Thomas Russell, Glasgow, Scotland
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M. Isaacs & Sons, Ltd., London, England

SHIPMENTS FORWARDED FROM BOSTON OR NEW YORK

Market quotations and full particulars on application

Correspondence invited

Central Oregon



Is Now Reached via the Deschutes Branch

Oregon-Washington Railroad & Navigation Co.

For both Passenger and Freight Traffic to and from Madras, Metolius, Culver, Opal City, Redmond, Bend and other Central Oregon points

SCHEDULE

Lv. Portland	{ 7:50 A.M.	Lv. Opal City	8:15 A.M.
	{ 10:00 A.M.	Lv. Metolius	8:43 A.M.
Lv. The Dalles	12:40 P.M.	Lv. Madras	9:00 A.M.
Lv. Deschutes Je.	1:30 P.M.	Ar. Deschutes Je.	1:15 P.M.
Ar. Madras	5:45 P.M.	Ar. The Dalles	1:55 P.M.
Ar. Metolius	6:00 P.M.	Ar. Portland	5:45 P.M.
Ar. Opal City	6:30 P.M.		

Auto and regular stage connections to La Pine, Fort Rock, Silver Lake, Prineville, Burns, Klamath Falls and other inland points

The Direct, Quick and Natural Route between Portland and All Points in Central Oregon

Call on any O.-W. R. & N. Agent for any information desired, or address

WM. McMURRAY
 GENERAL PASSENGER AGENT
 PORTLAND, OREGON

The American Express Company, in connection with the National Express Company, having named exceptional rates on apples, we will deliver to any point in the United States or Canada where the American Express or the National Express Company has an office

ONE OF OUR WELL KNOWN SEVENTEEN POUND BOXES OF

Extra Fancy Hood River Apples

AT FOLLOWING PRICES, ALL CHARGES PREPAID (excepting duty charges)

Spitzenbergs, \$2.25; Newtowns, \$2.25; Ortleys, \$2.25; Winter Bananas, \$2.50

Express Money Order, Check or Cash should accompany all orders. To points beyond the American or National Express lines 30 cents should be added to cover additional express charges

None but Extra Fancy Apples shipped in these packages

Crocker & de Reding, Hood River, Oregon

American Apple Congress at Denver

AN effort will be made to have the next session of the American Apple Congress held in a city in the East or Middle West. Representatives of the apple districts in both these sections will attend the second annual meeting of the congress with the avowed intention of electing the next president. This information has been received at the headquarters of the congress in Denver. Salt Lake City, Utah, is the Western city most prominently spoken of as the next place of meeting if the congress does not go East. The congress will be held in Denver, November 14 to 16, and will

be in session during the American Apple Exposition, which will also be held in Denver. Apple men in all sections of the country recognize that this organization is fast developing into an important association of apple growers, shippers and dealers, and that it may become the leading one of its kind on the American continent. It was organized last December in Denver and will be less than one year old when the second session convenes. Among the Eastern men who have been urged by their friends as candidates for president are N. G. Gibson of Chicago, C. C. Clemons of Kansas City, J. Howard Detwiller of Philadelphia and E. P. Loomis of New York City. The Western man most prominently spoken of at this time as a candidate for president is Elliott M. Sly of Kennewick, Washington.

While Colorado would like the honor of naming the next president the apple men of this state are satisfied with the honor of Denver being the birthplace of the congress, and they realize that the organization was created for the benefit of the apple industry of the entire American continent. Consequently Colorado wants every apple district in the country represented, and the delegates from this state can be depended upon to support any policy that will aid in building up the congress and that will make it a power for good and effective work in the

CARLOT DISTRIBUTORS
OF
BOX APPLES
Box Pears Box Peaches

Largest handlers of box fruit in this territory. Best modern storage facilities. Reliable market reports.

Top Prices
Prompt Returns

E. H. SHAFER & CO.
212 Coleman Building
Louisville, Kentucky

apple world. The following declaration of principles illustrates the scope of the congress as set out in the official call:

Whereas, at the meeting held in Denver, Colorado, in the month of December, 1910, an organization designated as The American Apple Congress was formed with the following objects: To promote and diffuse knowledge concerning the apple industry on the American continent; to facilitate conference and deliberation among the people of the country concerning the growing and marketing of the apple crop and related interests; to provide means for bringing the needs of the people interested in the apple industry of the country before national and state governments; to provide ways

The Campbell System

INSURES your crop against DROUTH. Our experience in 1910 and 1911 has proven that good crops can be grown with less than eighteen inches of rainfall. Those who followed the **Campbell System** in 1910 have a crop in 1911.

DON'T TAKE ANY RISKS FOR 1912

Campbell's publications explain the system.

Campbell's Soil Culture Manual . . \$2.50
Campbell's Scientific Farmer . . \$1.00
Combination Price \$3.00

Address

CAMPBELL SOIL CULTURE CO.
Lincoln, Nebraska

When you write ask about the Campbell Correspondence School.

WEIL, TURNBULL & CO.

DETROIT, MICHIGAN

NINTH LARGEST CITY IN THE UNITED STATES

Will sell your goods at auction or at private sale. We have a large interest in the United Fruit Auction Company here and will guarantee best possible results and prompt remittance. Correspond with us if you contemplate doing business in Detroit. We will furnish references that will justify you in making us your Detroit connection.

WANTED
Land Salesmen

CAPABLE OF EARNING

\$5,000 to \$10,000

A YEAR

To sell highest grade irrigated fruit land in the country. Exceptionally attractive selling terms. This is the best paying proposition today for land men who are live wires in all sections of the country.

Address **ROBERT S. LEMON**
General Sales Manager
Bitter Root Valley Irrigation Co.

Suite 844-850
First National Bank Building
CHICAGO

and means for securing profitable legislation for the industry; to organize and maintain a "Transportation and Railroad Rates Bureau"; to maintain a "Continental Information Bureau on Crops, Markets and Fruit Movements," and to promote and conduct apple expositions in connection with the congress; and

Whereas, there are numerous matters of importance which appeal mutually to all growers and dealers interested in the apple industry, especially as to the development of American orchard lands, the care of the orchards, fighting insect pests, fighting frosts, standardizing and systematizing the grading and packing rules, planning and securing legislation intended to benefit the industry; securing equitable freight and express rates for the shipment of our apples to market; planning better distributing and marketing, advertising our apple industry to secure new and desirable settlers for our apple lands, better immigration rates from the congested centers of population and from the less productive farm lands of other sections, and advertising the food values of the apple for the purpose of increasing the consumption of this "king of fruits"; and

Whereas, article 3, section 1, of our constitution provides for annual meetings; and

Whereas, the executive committee of this organization has decided that the

second annual session of this organization shall be held in the City of Denver, Colorado, on the 14th, 15th and 16th days of November, A. D. 1911, and have executed an agreement to that effect with The American Apple Exposition Association, which will hold a national apple show during the same week.

Now, therefore, in accordance with our constitution and with such decision and agreement, I hereby call such second annual session for the above days, and request the appointment of the number of delegates provided by the constitution in Article 7, Section 1, as follows, to-wit: The governor of each state to appoint fifteen delegates; the mayor of each town or city having 500 population or less to appoint one delegate; the mayor of each town or city having more than 500 population one delegate for each additional 500, provided that not more than ten delegates shall be appointed from any one town or city; the county commissioners of each county to appoint two delegates; the president of each regularly organized horticultural society to appoint three delegates; the president of each commercial body to appoint one delegate; providing also that the president of the United States, the governor of each state, the members of the congress of the United States, the horticulturist and the entomologist of each agricultural college and all members of state

BUY NOW CHERRY PEACH APPLE TREES

They occupy land that must be cleared
PRICES EXTREMELY LOW

Also several thousand California Privet and Carolina Poplars cheap

WRITE TODAY FOR BARGAINS

M. BARNES' NURSERIES
(College Hill) CINCINNATI, OHIO

Apple and Pear Root Grafts of highest quality made to order

Established in 1855 At it 56 years

The apple is the king of fruits. Our apples are kings of apples. We are apple specialists. We sell the very best apples at very attractive prices.

Fine Eating Apples
Cooking Apples
Special Purpose Apples

Carefully packed in boxes or barrels. Remember, apples are staple goods, but we have made them a specialty.

We wish to handle the output of fruit associations as well as shippers. It will pay you to get in touch with us.

Sutton Brothers
Wholesale Fruit Dealers
COLUMBUS, OHIO

BULBS

Send for our catalogue of Bulbs, Pansies and Sweet Peas. Mailed Free.

Tulips are gorgeous flowers. Try Morse's Long Stem Tulips mixed, 30c doz.; (postpaid 35c doz.); \$2 per 100 White Easter Lilies, \$1.50 doz. (Postpaid 35c doz.) Auratum—Rubro—Vittatum Lily—is shown above. It is a rare sort. 50c each.

Unusual Anemone Collections of new and rare Anemones 125 bulbs for \$1.95. (Postpaid for \$2.05)

"1911 Best" Bulb Collection, a fine assortment of hardy Bulbs; 136 Bulbs for \$2.10. (Postpaid \$2.50)

Do you love Spring Flowers?

C. C. MORSE & Co.

128 Market Street SAN FRANCISCO CALIFORNIA

INCOME AND INDEPENDENCE

These are the two great essentials sought for by every fruit grower and there is no other factor in the establishment of an orchard that insures them more thoroughly than the character and kind of trees planted.

The nursery trees grown by the Hood River Standard Nursery Company—the **STERLING QUALITY** trees—are the most carefully grown and most thoroughly guaranteed trees in the country. They are propagated from the best and highest earning trees of the world famous Hood River Valley, and they cost you no more than ordinary trees.

At all of the leading apple shows, land expositions and fairs this year you will find these trees on exhibition. Go see them. Compare them with the usual run of nursery stock—then write us for our catalogue and guarantee.

HOOD RIVER STANDARD NURSERY CO.

HOOD RIVER, OREGON

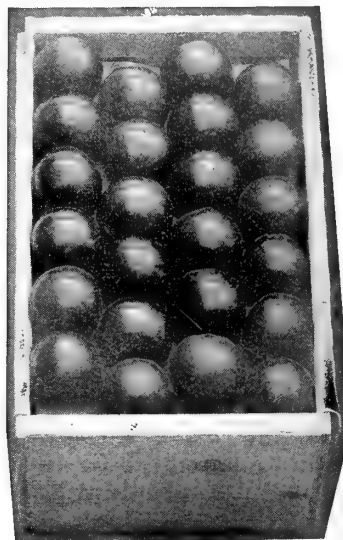
A FEW LIVE SALESMEN WANTED TO REPRESENT US

boards of horticulture shall be honorary delegates to this convention. None but regularly appointed delegates will be recognized in the congress, but it is provided, however, that any person interested in the apple industry may become a permanent delegate or member by paying the initiation fee of two dollars and the annual dues of three dollars; and it is further provided that fruit growers' associations, fruit companies, fruit jobbing concerns and all other corporations interested in the apple industry shall be entitled to delegates and memberships as follows: If capitalized at less than \$50,000, on payment of \$25 annual dues, three delegates; if capitalized at \$50,000 or more, on payment of \$50 annual dues, five delegates. Delegates appointed shall be supplied with credentials from the authority which they represent, and no delegates should be appointed from towns or cities not interested in the apple industry.

In accordance with article 5, section 2, of the constitution, and in order that the meeting shall have a definite program, that the meeting may be properly advertised, the delegates suitably entertained and the objects of the congress accomplished, I hereby announce the following board of local managers to have charge of all local matters connected with the convention: B. F. Coombs, chairman Apple Congress executive committee; Arthur Williams, secretary Colorado State Horticultural Society; Clyde H. Smith, general man-

ager Intermountain Fruit Journal; W. F. R. Mills, secretary Denver Convention League; J. W. Kelley, D. & R. G. attorney; Thorndike Deland, secretary Denver Chamber of Commerce; S. F. Dutton, proprietor the Albany Hotel; George E. Collisson, secretary Denver Retail Association; Frank Adams, president Colorado Ice and Storage Co.; H. G. Wolff, nurseryman;

Mrs. Lute Wilcox, Denver Field and Farm. It is desired that the names and addresses of delegates appointed be forwarded to Clinton L. Oliver, secretary, suite 210-12 Chamber of Commerce Building, Denver, Colorado, as soon as appointed, so that they may be communicated with by the board of local managers prior to the convening of the congress.



Yoncalla Orchards Company

OREGON FRUIT LANDS

Plymouth Building, Suite 714

MINNEAPOLIS, MINNESOTA

This orchard tract adjoins the town of Yoncalla, Oregon, which is situated on the main line of the Southern Pacific Railway. No better land in the West. This tract of orchard land is being subdivided and sold in 5 and 10-acre tracts.

For further information write

THE YONCALLA ORCHARDS COMPANY

Plymouth Building, Minneapolis, Minnesota

(INCORPORATED)
SCALZO-FIORITA FRUIT CO.

ST. LOUIS, MISSOURI

Headquarters for
 Box Apples
 Oranges, Lemons

PRUNES
PEARS
PEACHES

Largest Fruit and Produce House in America
 70,000 Square Feet of Floor Space
 Members Western Fruit Jobbers Association

FORTY YEARS IN BUSINESS

Correspondence invited with associations and individual growers desiring first-class connection in St. Louis. Auction facilities unequalled. Will buy outright or handle consignments, private sale or through St. Louis Fruit Auction.

References: Franklin Bank, Dun and Bradstreet, any wholesale fruit house in the country.



PROMPT SAFE RELIABLE

LINCOLN, NEBRASKA
J. GRAINGER & CO.

ESTABLISHED 1887

WHOLESALE FRUIT MERCHANTS

Extensive Dealers in Extra Fancy Washington and Oregon

Apples, Pears, Peaches, Plums, Prunes

Managers of Associations will do well to correspond with us

REFERENCES

"Better Fruit"
 First National Bank, Lincoln, Nebraska
 Corn Exchange National Bank, Chicago, Illinois
 Chatham & Phoenix National Bank, New York, N.Y.

J. H. Bahrenburg, Bro. & Co.

103-105 Murray Street New York City, N. Y.

WE ARE PREPARED TO HANDLE YOUR SHIPMENTS OF APPLES
 in Foreign or Domestic Markets

Our representatives in foreign markets are merchants with whom we have been associated in the apple business for a great many years, and whose ability we have learned to know.

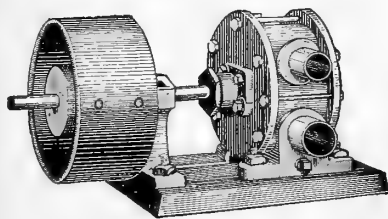
We are also prepared to offer you

THE BEST STORAGE FACILITIES TO BE HAD
 in New York State as well as in New York City

For any further particulars, write the above address.

The pump you have always wanted but could never before obtain

The Ideal System of Irrigation



Saves power and money; utilizes the power; converts power into results; high heads without staging; deep wells, pits and mines. Mechanical perfection; simple; easily installed; free from wear; faithful and dependable machine. Made in many sizes, 25 gallons per minute to 10,000 gallons per minute. Address

Patented June 2, 1903
 Improvements Pending

Every Pump Guaranteed Absolutely

Ideal Irrigation Rotary Pump Company

HENRY BUILDING

SEATTLE, WASHINGTON

Crutchfield, Woolfolk & Clore, Inc. No. 11 W. SOUTH WATER STREET CHICAGO

WHOLESALE DEALERS AND CARLOT DISTRIBUTORS

FOREIGN AND DOMESTIC FRUITS AND VEGETABLES

All Popular Codes. Cable Address "CloeField." Bankers: National Bank of the Republic

THE BEST CHICAGO CONNECTION

Growers and shippers of Western fruits must have proper connections in Chicago if they expect to realize full market value of their fruit.

We have the best of connections on all the larger markets and the confidence and patronage of the carlot buyers on the smaller markets.

We have the most favorable auction connections and a good auction market in Chicago.

We have a large and attractive jobbing house on South Water Street and a thoroughly organized and competent sales force for handling local and country orders.

We have the organization and equipment for obtaining the full market value of fruits and vegetables when conditions are most unfavorable, as well as favorable.

Let us hear from you at once as to what you have to sell.

CRUTCHFIELD, WOOLFOLK & CLORE

Western Fruit Jobbers' Convention

At a recent meeting of St. Louis fruit jobbers committees were appointed to make arrangement for the reception and entertainment of the Western Fruit Jobbers' Association of America when they come to St. Louis for their annual convention on January 3, 4 and 5 next. James W. Corcoran, president of the St. Louis Fruit and Produce Exchange, was chosen chairman of the executive committee to arrange for the convention. Other members are J. E. Stewart, vice chairman; W. Ernest Reeves, secretary, and Manley G. Richmond, R. H. Pennington, Charles Devoto. A hotel committee, consisting of J. E. Stewart, James W. Corcoran and Manley G. Richmond, was also appointed. They have selected the Planters Hotel as convention headquarters, and many of the visitors will also be quartered

there. The entire parlor floor will be turned over to the jobbers for convention purposes. A finance committee, consisting of H. M. Smith, F. G. Hau-eiser, R. H. Whyte and J. H. Russell, was also chosen, and lost no time in commencing work. Within a few minutes they had \$1,000 pledged of the \$5,000 which they expect to raise for the entertainment of the visitors and their ladies. Entertainment and reception committees and a committee of ladies will be appointed later. Because of the central location of St. Louis this convention will without a doubt be one of the largest ever held by the association. Hotel reservations are already being made both with the Planters Hotel direct and through the secretary of the committees at the Fruit and Produce Exchange.

Non-Irrigated, Whole-Root Trees

We have them. Write us your wants. We pay freight and guarantee arrival in good condition. A Few Reliable Salesmen Wanted.

PACIFIC NURSERY COMPANY, 308 Corbett Bldg., Portland, Oregon

BARNETT BROS. 159 South Water Street CHICAGO

A Minute's Talk

with *Western Fruit Associations*, particularly those dealing in Apples, Cantaloupes and Peaches, are invited to correspond with us. We are able to put before you a plan for marketing your output in a manner satisfactory to you and mutually profitable.

Deal Direct and Save Agents Commission

We offer a full line of fruit trees grown on whole-root stock; also nut trees, small fruits, roses, etc. Our prices are sure to interest you. Catalog and price list on application

P. S.—Enclose
this ad

Lafayette Nursery Co., Lafayette, Oregon

The Largest Planters in the World

Planting and care under
the supervision of

Churchill-Matthews Company

506-8-10-11 Spalding Building
PORTLAND, OREGON

Sales to Eastern people of planted
tracts with five years' care,
August 1, 1911, equal

\$1,845,000.00

Sales and Selling Agencies
under supervision of
BRANIGAR BROS.
BURLINGTON, IOWA

Dore-Redpath Company

Wholesale Fruits, Vegetables
and Produce

Peaches, Pears and Box
Apples Our Specialty

Get acquainted with us

St. Paul, Minnesota

OPEN LETTER

TO

NORTHWESTERN SHIPPERS

There are three (3) essentials to Successful Marketing

First—Facilities and Organization

Second—Expert Salesmanship

Third—Judgment, based on Knowledge and Experience

If you want maximum results communicate with us.

Yours truly,

CRUTCHFIELD & WOOLFOLK

PITTSBURG, PENNSYLVANIA

FREE EXPERT ADVICE

By Professor A. Van Holderbeke, five years Washington State Horticulturist,

TO FRUIT GROWERS

Purchasing high grade nursery stock, guaranteed true to name, from the

Van Holderbeke Nursery Company

Main Offices:
Columbia Building
Spokane, Washington

RELIABLE
AGENTS
WANTED

Nurseries:
Spokane Valley and
Kennewick, Washington

BUTTE POTATO & PRODUCE CO.

BUTTE, MONTANA

Jobbers of All Farm and
Orchard Products

We have a large outlet for fruits and vegetables. We want to hear from shippers.

A. J. KNIEVEL, President and Manager

Sixteen years' experience on the Butte market.

THE EVANS & TURNER CO.

COLUMBUS, OHIO

ARE OPEN FOR CONNECTIONS IN THE EXTREME WEST ON

Apples, Pears and Peaches

We are members of National League of Commission Merchants and the Produce Reporter Company
References: The Union National Bank, Columbus, Ohio; Union Savings Bank, Manchester, Michigan

RIDLEY, HOULDING & CO.

Fruit Brokers and Commission Salesmen
Covent Garden, London, July 19, 1911.
Editor Better Fruit:

We beg to inform you that the crop of early English dessert apples is only a fair one, the later varieties fairly good. This will not interfere with any of the Hood River apples, which are likely to arrive over here in the early part of the season. Prices are sure to rule well, as we hear the California apples are very light, and the quantity of box apples sent to this market will consequently be very light this year. The medium size apple suits our trade best, and we think it will prove a very useful outlet for the association apples which cannot be classed as the finest grade. Yours faithfully, Ridley, Houlding & Co.

Editor Better Fruit:

It cannot help but be gratifying to you to learn that I am still receiving letters asking further advice about walnut culture, the writers referring to my article published in "Better Fruit" two years ago. What surprises me is that these letters come from such distant districts; today I received one from Georgia and several from British Columbia, and not long ago letters from Wisconsin and Rhode Island, which proves that your magazine is not only distributed and read over the United States and British Columbia, but is doing a good missionary work in advertising our Oregon. Cordially, Henry E. Dosch, Villa Eichenhof, Hillsdale, Oregon.

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.

Mills College

NEAR OAKLAND, CALIFORNIA

The only Woman's College on the Pacific Coast. Chartered 1885. Ideal climate. Entrance and graduation requirements equivalent to those of Stanford and University of California. Well equipped laboratories. Grounds comprise one hundred and fifty acres. Special care for health, outdoor life. Pres. Luella Clay Carson, A. M., Litt. D., LL.D. For catalogue address Secretary, Mills College P. O., Calif.

GRASS SEED

Let us send you samples of our new vigorous crop grass seed—ready for immediate shipment. Lilly's Best Grass Seed is reliable, of high germination and re-cleaned by our up-to-date machinery. We have an expert grass seed tester who analyzes every sample sent us and every pound we offer for sale, not alone to comply with the pure seed law, but that we ourselves are satisfied that the seed is GOOD.

Send For Fall Catalog.

This is what one customer says:—"I have used your grass seed and have had fine results. It was the nicest and cleanest seed I have ever used."

A. L. GROSS
Starbuck, Wash.

For prices and samples
Write
Chas. H.
Lilly Co.
Seattle



For over a decade the leading seedmen of the Northwest



HERE'S a simple, strong, low-priced light-draft riding harrow which covers more surface with less draft than any other cultivator made. It works right up to the trees and under lowest branches without harming fruit or leaves in the least.

Forkner Light Draft Harrows for Orchards and Vineyards

make it possible to thoroughly cultivate 20 to 30 acres per day with two horses. They lift and turn the soil and leave it in slight waves, thus exposing more surface to the chemical action of the sun and rain. They make a perfect dust-mulch, which conserves maximum amount of moisture.

Write for Free Trial Offer—and Booklet.

We will ship to responsible parties on 30 days' riskless free trial. Free booklet, "Modern Orchard Tillage," tells the whole story.

LIGHT DRAFT HARROW CO.

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CHICO NURSERY COMPANY

GROWERS OF

High Class Nursery Stock

The best that good soil, care, skill and long experience can produce

Write us for prices on Grape Vines, Cherries, Apples, Peaches, Pears, Nut Trees, Ornamental Shade Trees, Flowering Shrubs and Roses
Peach Seed For Sale. Catalogue Free

CHICO NURSERY COMPANY, Chico, California



MODERN

COLD STORAGE

with every facility for handling and storing

Apples, Fruit, Produce

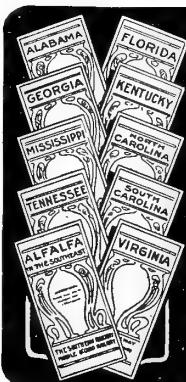
at any temperature desired.

Finest market and distributing point in the Northwest
Write for terms

De Soto Creamery and Produce Co.

Cold Storage Department

MINNEAPOLIS, MINNESOTA



The Best Farm Locations

Productive lands, favorable climate, and abundant rainfall make farm locations in the Southeast the most profitable.

Land from \$10 to \$50 an acre close to the best markets. Wheat, corn, hay, all truck crops, give best returns. Conditions unsurpassed for dairying and live stock, hog and poultry raising. Beef and pork produced at 3 to 4 cents a pound.

Five to six crops of alfalfa per season grown. Good farmers make 60 to 100 bushels corn per acre. Home markets near at hand pay highest prices for dairy products and demand is undersupplied. Apple orchards pay \$100 to \$500 an acre, and orchard lands cost only a fraction of those in other sections.

The Southeast Has Locations for Every Kind of Farming

The climate assures the finest results from intelligent agriculture, and makes the region unsurpassed as a pleasant and healthful home location. It is an open winter country, and its summers are enjoyable. You can locate where there are good schools, churches, roads, rural delivery, and all other advantages. The Southern Railway and associated lines will help you find the location you desire. Our several publications, free on application, give full information. Address,

M. V. RICHARDS, Land and Industrial Agent, Southern Railway,
Room 13 1320 Pennsylvania Ave., Washington, D. C.

JOHN B. CANCELMO

PHILADELPHIA, PENNSYLVANIA

Largest Dealer IN BOX APPLES on this Market

Philadelphia Supplies
WITHIN A RADIUS OF ONE HUNDRED MILES
Over Ten Million People

Make Your Arrangements Now, Cold Storage Facilities Unexcelled
We Represent some of the Largest Fruit Shipping
Concerns in the World

DO NOT OVERLOOK THE PHILADELPHIA MARKET

APPLES

“THE HOUSE TO DO BUSINESS WITH”

COYNE BROTHERS

APPLE SPECIALISTS

Write for Memo Loose Leaf Book. Mention “Better Fruit”

119 W. South Water Street, CHICAGO

Associations, Independent
and Individual Shippers

We desire to get in touch with you for the purpose of arranging to handle your apples. To that end we ask you to please write us at once, giving estimate of what your crop will consist of and the varieties of apples you will have.

Founded 1839

Capital, \$150,000.00, paid in

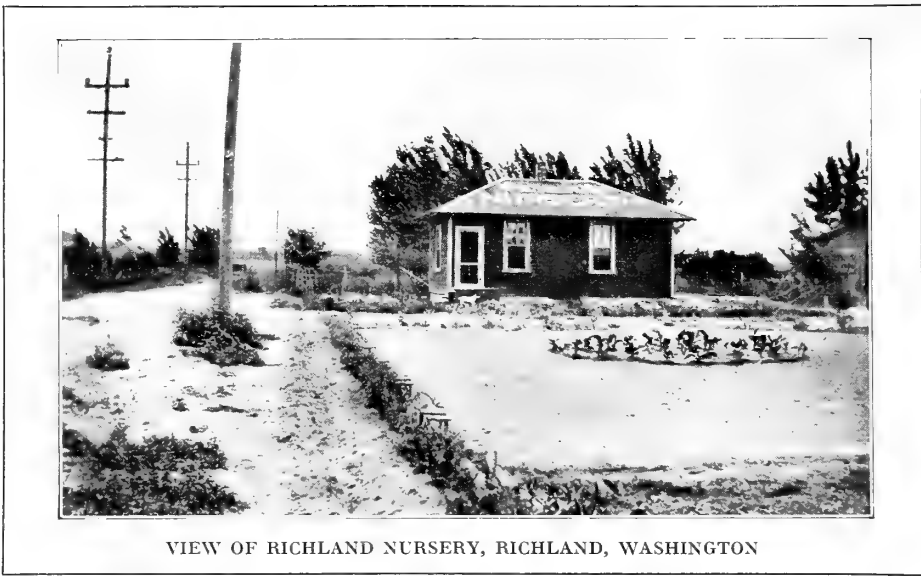
Incorporated 1904

JOHN NIX & COMPANY

281 Washington Street, NEW YORK CITY
WESTERN OFFICE, 220 No. State Street, CHICAGO, ILLINOIS

Pacific Coast Fruits and Vegetables

Our Store Centrally Located. One Block from Erie R. R. Depot



VIEW OF RICHLAND NURSERY, RICHLAND, WASHINGTON

The Richland Nursery Company

THE Richland Nursery Company, established in 1907, have developed a most profitable nursery business, equal in fact to anything of the kind in the country. With fifty acres of ground devoted solely to nursery stock, the reader can form some idea of the extensiveness of this business. About thirty-five acres of this land is used for fruit trees only; another fifteen acres are used for ornamental stock, containing over 75,000 trees. Besides this there

office under the efficient general management of Mr. C. F. Breithaupt. Professor W. J. Vander Bruggen has charge of all the ornamentals and all propagating work. He is a graduate horticulturist from Holland and for the past three years has held a position as foreman with some of the leading nurserymen and greenhouse firms of the East. J. C. Breithaupt and W. J. Breithaupt have charge of the budding, grafting, planting and care of all fruit stock. Send for a copy of the Richland Nursery Company's catalogue, containing forty-six pages. It is a most complete and comprehensive manual, prepared and edited by the various heads of the nursery departments. *



VIEW OF RICHLAND NURSERY, RICHLAND WASHINGTON

are 15,000 roses propagated from soft wood cuttings, which will be used for mail orders, and also for lining out in the nursery, besides thousands of flowering shrubs and vines. The nursery itself is ideally situated on irrigated land just on the outskirts of the town of Richland, with a complete business

VEHICLES AND AGRICULTURAL IMPLEMENTS

*THE BEST OF
ORCHARD AND GARDEN TOOLS
A SPECIALTY*

GILBERT - VAUGHAN IMPLEMENT CO.

HOOD RIVER, OREGON

THINGS WE ARE AGENTS FOR

KNOX HATS
ALFRED BENJAMIN & CO.'S
CLOTHING
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DENT'S and FOWNES' GLOVES

Buffum & Pendleton
311 Morrison St., Portland, Oregon

Drain Tile

Most Important Investment
for the tiller of the soil

Write for prices and free booklet

Lang & Bullock, Inc.

601 Beck Building
PORTLAND, OREGON



**THE NEW
CROWN RELIEF
VALVE**

For Power Sprayers
Patent Applied For
*An end to Relief Valve
Troubles*
*Designed on an
entirely new principle
and sold under
guarantee*
SPECIAL PRICE FOR
SAMPLE
\$4.00 POST PAID

**CROWN SPECIALTY
COMPANY**
BOX 297, CHICAGO

IF YOU WANT THE BEST ORCHARD LAND IN OREGON

I have what you want, whether it is five to forty acres for a HOME ORCHARD, or 400 acres for subdivision.

I have land in the Hood River Valley or in the Mount Hood Valley adjoining Dufur.

If you do not want to take possession at once, your land will be planted and cared for, in the best manner, for you for from three to five years, when it will come into bearing.

For further particulars address,
P. O. BOX 86, HOOD RIVER, OREGON

Prizes for Your Products

ENTER SOME EXHIBITS OF *YOUR* HANDIWORK AT THE
**American Land & Irrigation
 Exposition: Nov. 3 to 12, 1911**
Madison Square Garden, New York City

A rare opportunity for the Farmers and Fruit-growers of the North-west to show the world where the *Real Goods* come from!

Note the List of Prizes:

- For Best 25 boxes of Apples, any varieties.....\$ 500 in Gold
- For Best 100 pounds Wheat grown in U. S. 1,000 Gold Cup
- For Best 100 pounds Wheat grown in No. & So. America 1,000 in Gold
- For Best 30 ears of Corn grown in U. S. 1,000 Cup
- For Best 100 pounds White Oats grown in U. S. 1,000 Cup
- For Best Alfalfa Exhibit 1,000 Cup
- For Best Half Bushel Potatoes grown in U. S. 1,000 Cup
- For Best Sugar Beets grown in U. S. 1,000 Cup
- For Best Hops grown in U. S. 1,000 Cup
- For Best Bushel Barley grown in U. S. 1,500 Cup

Write quickly for circular giving detailed information about this Exposition and the numerous prizes offered for displays of farm products and your opportunity to get 160 acres of Montana land to be awarded by popular allotment by the

Northern Pacific Ry.

Address:
 A. D. CHARLTON
 Assistant General Passenger Agent
 PORTLAND, OREGON

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NURSERY CATALOG

New, handsome, instructive, up-to-date, describing

Fruit and Ornamental Trees, Shrubs, Vines, Roses, Berry Plants, etc.

Free on request. Write now, mentioning this paper.

J. B. PILKINGTON, Nurseryman, Portland, Oregon

TERMINAL ICE AND COLD STORAGE CO.

A COLD STORAGE PLANT, MODERN THROUGHOUT, AT
 THIRD AND HOYT STREETS, PORTLAND, OREGON

Fruit growers or apple growers and dealers of the Western markets in and around Portland, who have watched the markets closely for the past few years, have learned that in the spring there is always a good demand for apples, and that they usually bring good prices if they are in good condition. There is only one way to keep them in good condition for spring consumption, and that is to put them in cold storage.

We offer the best of cold storage facilities in the city of Portland and solicit correspondence from all the associations and fruit growers in general who want to store fruit in the fall or early winter to be used in the spring.

Write us and we will give you further particulars.

TERMINAL ICE AND COLD STORAGE CO.

THIRD AND HOYT STREETS, PORTLAND, OREGON

RICHLAND NURSERY CO.



INSURE YOUR HARVEST

by planting in the first place GOOD ROOTS. If you are looking for choice home-grown, hardy trees and plants especially adapted to the Pacific Northwest send for

OUR 46-PAGE CATALOG

We make a specialty of perfectly rooted nursery stock, and every tree we ship to you is guaranteed by us to be true to name. We sell every variety of fruit and ornamental trees, berry plants, shrubs, vines, perennial plants, roses, etc., wholesale and retail.

RICHLAND NURSERY CO., INC.
 Breithaupt Brothers & James
 Proprietors

RICHLAND, WASH

GET CATALOG AND PRICE LIST
 420 Acres Devoted to Nursery Purposes

THE WOODBURN NURSERIES

Established 1863 by J. H. Settlemier

Grower of Choice NURSERY STOCK

F. W. SETTLEMIER

Woodburn, Oregon

Make Big Money Drilling Wells



IMPROVED STANDARD DRILLING MACHINE
One Man Can Handle
 Has a record of drilling 130 feet and driving casing in one day. Only three levers. Extra large rope sheaves.

WESTERN MADE FOR WESTERN USE. Positively will drill every kind of formation. Avoid delays from sending back East. Buy from us. We build these up-to-date machines. Will tell you all in catalog. Write for it.
 REIERSON MACHINERY CO., MANFRS., PORTLAND, OREGON

APPLES!

We want the best the market provides

FLIEGLER & CO.

ST. PAUL, MINNESOTA

Members St. Paul Board of Trade

Let us keep you posted on the St. Paul market
 It will pay you

A. LEVY & J. ZENTNER CO.

NORTHWEST CORNER OF DAVIS AND WASHINGTON STREETS

SAN FRANCISCO, CALIFORNIA

The largest dealers in and distributors of Box Apples on the Pacific Coast

Get in touch with us. Let us know what you have to dispose of. Best modern cold storage facilities
Inquire about us of any bank, mercantile agency, Produce Reporter Company, or the manager of your
association

LET US HEAR FROM YOU

S. SEGARI & COMPANY

No. 109 Poydras Street
New Orleans, Louisiana

Next door to the auction room, will be our headquarters for California deciduous fruits and box apples. Remember, we keep experienced salesmen at the Illinois Central Railroad fruit and produce sheds, also at the Louisville and Nashville Railroad watermelon and produce sheds. We are now ready to handle

Apples, Pears, Cantaloupes, Peaches

WRITE OR WIRE WHAT YOU HAVE

NEW ORLEANS

GEO. H. APPEL

The Acknowledged
FANCY FRUIT HOUSE
of New Orleans

IMPORTERS
JOBBERS
LAUX &

Wholesale
Commission

APPEL

THE HOUSE
YOU WANT

All Fruits in Season

Storage for 50 Cars

LINDSAY & CO. LTD.

Wholesale Fruits

HELENA, MONTANA

Established in Helena Quarter of a Century

Branch houses: Great Falls, Missoula and Billings, Montana

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Fruit and Produce

306-310 Poydras and 507-509 South Peters, NEW ORLEANS

Box Apples

Peaches, Pears and Cantaloupes

We are distributors. We reach all points tributary to New Orleans, including Cuba, Panama and Central America

SOUTHERN OREGON NURSERIES

YONCALLA, OREGON

No Agents
Prices Wholesale

GENERAL NURSERY STOCK PROPAGATORS

Stock clean and true. Budded or grafted from bearing trees

E. P. DREW
Consulting Horticulturist

30 years in business

Apple Tree Gavel Presented to Mr. W. L. Wagner

At Niagara Falls in August, 1910, Mr. L. K. Sutton of Columbus approached your secretary and suggested that a gavel be presented to Mr. Wagner at the Detroit convention, and during all of the succeeding time he has followed it with keen interest and valuable assistance. It was deemed especially appropriate to procure a gavel of apple wood if possible. To that end the great sections of the United States and Canada were called upon. In the end the Spitzenberg was procured from E. H. Shepard of Hood River, Oregon, the Spy from Mr. Peterson of Canada, the Greening from Mr. Blodgett of Massachusetts, the Baldwin from New York, the Albemarle Pippin from S. L. Lupton and F. D. Wood of Virginia and the Ben Davis from Missouri by Mr. Sutton. These woods were put together, the Baldwin composing the handle and the other five in the head. At the forefront of the head was the Greening carved in the form of a matured apple. On each of the other sections of the head apple

blossoms were carved, and the names of the states from which the wood came were also carved upon the respective pieces. Running entirely around each end of the head were carved wreaths of apple leaves. About the handle was a silver band, and engraved thereon were the words, "William L. Wagner, Detroit, 1911."

In connection with the gavel a framed scroll, done in gold and white, was presented. On the scroll were these words: "The Apple Tree Gavel, presented to William L. Wagner, four times president of the International Apple Shippers' Association, by the members thereof, in grateful appreciation of his services; courage, energy, fidelity, wisdom and truth—he brought things to pass." Mr. Wagner's work will long be remembered in its vital force and energy. He was a builder, a creator, a man of truth and judgment and a friend unrivaled. No more need be said of any man.—From the Spy, published by the International Apple Shippers' Association, Rochester, New York, August 24, 1911.



WHITE LEAD on THE FARM
Run Down Places

Don't let your buildings run down—any more than your land—both of them are your capital. Nothing makes a farm appear more neglected and down-at-the-heel than unpainted buildings. Paint mixed on the job and made of

"Dutch Boy Painter"
Pure White Lead

and pure linseed oil will not only make your buildings look prosperous but will protect them from the weather as no other paint can. It is the most economical paint in the world because it lasts so long. Paint now and keep out the winter's storms and frosts.

Our Free Painting Helps
We will send you free, on request, color schemes and miscellaneous painting instructions that you will find of real practical value. Ask for Helps 73b

NATIONAL LEAD CO.
New York Cleveland Chicago St. Louis
Boston Buffalo Cincinnati San Francisco
(John T. Lewis & Bros. Co., Philadelphia)
(National Lead & Oil Co., Pittsburgh)

"PEDIGREED DOGS WITH BRAINS"



One of the finest litters of Airedale Terriers ever bred on the Pacific Coast is now ready for delivery. Sired by "Kootenai Admiral" ex "Clipstone Sunbeam," whelped May 20. The Airedale is the most useful dog living and the ideal dog for the country home. Males \$25.00, females \$20.00. I refund your money if you are not satisfied. C. W. J. RECKERS, Klickitat Kennels, On the Bluff White Salmon, Washington

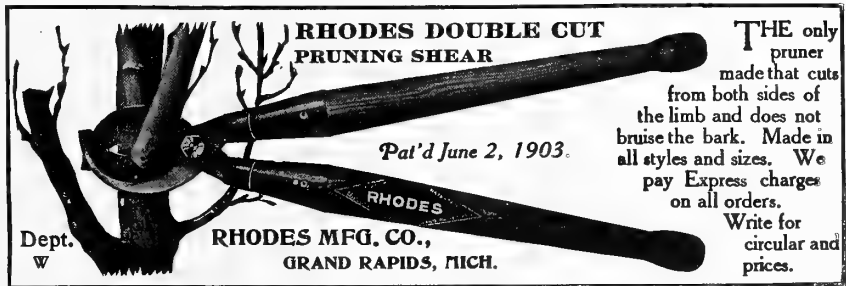
For Several Years

We have been supplying most of the nursery stock planted in the famous Wenatchee district. Our business has grown to one of the largest in the Northwest and we have gained a reputation of which we are proud.

EXPERIENCE HAS TAUGHT US HOW TO GROW THE Cleanest, Healthiest, Best-Rooted Trees in the World

Our line is large and complete. Over two million trees sold last year. Our customers get what they order. Send in your list, whether large or small.

Columbia and Okanogan Nursery Company
WHOLESALE AND RETAIL WENATCHEE, WASHINGTON



RHODES DOUBLE CUT PRUNING SHEAR

Pat'd June 2, 1903.

Dept. W RHODES MFG. CO., GRAND RAPIDS, MICH.

THE only pruner made that cuts from both sides of the limb and does not bruise the bark. Made in all styles and sizes. We pay Express charges on all orders. Write for circular and prices.

Trees and Seeds That Grow

26th Year.

For 26 years I have furnished my customers with trees and seeds direct, without any middleman, at less than half the agents' price. Freight paid on \$10.00 tree orders.

Grafted Apple and Peach, 2-3 feet, 1 year from bud, 7c each. Cherry, 15c each. Full assortment of Vegetable, Flower and Farm Seeds. Save money; send for my large illustrated Garden Book. Free.

GERMAN NURSERIES AND SEED HOUSE
(Carl Sonderegger) Beatrice, Neb.

HARVEY BOLSTER SPRINGS

Soon save their cost. Make every wagon a spring wagon, therefore fruit, vegetables, eggs, etc., bring more money. Ask for special proposition. Harvey Spring Co., 784 19th St., Racine, Wis.



O. E. OLSEN LITHOGRAPH CO.

FRUIT LABELS

FOR BOXES, CANS, BOTTLES, ETC.

STOCK AND SPECIAL TRADE MARK DESIGNS
330 JACKSON ST. SAN FRANCISCO.
COR. BATTERY ST.

STEINHARDT & KELLY

101 PARK PLACE, NEW YORK

THE MOST EXTENSIVE OPERATORS IN
HIGH CLASS FRUITS IN THE WORLD

THE Messrs. Steinhardt & Kelly take great pleasure in advising the fruit growers of the Northwest that a member of the firm will as usual make his annual trip to the Coast sometime during the latter part of August and the early part of September, for the purpose of acquiring, both by the outright purchase or such other method as agreeable to the growers, the large amount of reserve stock in all varieties of fruit which their business demands. Particularly do the Messrs. Steinhardt & Kelly wish to draw the attention of the growers to their practically unlimited outlet for fancy fruit and to their sincere belief in their ability to handle and dispose of the crops of the most extensive districts at prevailing market rates with celerity and dispatch.

¶ The Messrs. Steinhardt & Kelly might also incidentally mention that they have completed arrangements giving them cold storage space for several hundred carloads in the very best cold storage warehouses in the East and Middle West.

¶ All correspondence will get the prompt personal attention of a member of the firm



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A. B. C. Code, 5th Edition

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SPECIALTIES:

American Apples

AND

West Indian Bananas

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WE WANT TO TALK BUSINESS

WITH EVERY SHIPPER OF

APPLES

PEACHES

PEARS

IN

California, Oregon, Washington, Idaho, Colorado, Utah, Nevada

WRITE US TO-DAY, stating varieties, quantity and probable quality of fruit you expect to ship. Look up our standing; ask "Better Fruit" or your bank

Robt. T. Cochran & Co. 290 Washington Street
NEW YORK



THE CUTAWAY HARROW AT WORK

Intensive Cultivation with the Cutaway Harrow

IN the vicinity of Tariffville, Connecticut, are fields aggregating about seven hundred acres, upon which are grown large quantities of Sumatra tobacco, most of which is cultivated under cloth. Posts several feet above the ground are planted at regular distances, wires are stretched tightly, then the muslin strips are stretched above the wires and tied, thus making a roof.

In hot weather horses and men easily fatigue under this canvas, therefore some method of easier and cheaper cultivation was greatly needed. Finally it was decided to try a twenty-horse-power gasoline engine and a double-action "Cutaway" harrow. This combination proved a great success. The outfit takes the place of six eight-

foot harrows, six men and twenty-four horses. A saving of twenty-five to thirty dollars a day and no horses to feed during the winter months.

This outfit can be run day and night, with change of crews. The engine is easy to guide; simply set the lever, adjust the clevis and the harrow requires no more attention. It is not necessary for the man to ride on the harrow. Engine and harrow turn in circle of sixty-four feet. The harrow works as deep as necessary, taking the place of plows and pulverizes the earth thoroughly.

The harrow was made by the Cutaway Harrow Co., Higganum, Connecticut, who will give full information on application. Ask for free booklet, "Intensive Cultivation."

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Barrels, 25 or 50 gallons, per gallon . . .	\$1.25
Five-gallon cans, per gallon . . .	1.35
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Half-gallon cans, each90
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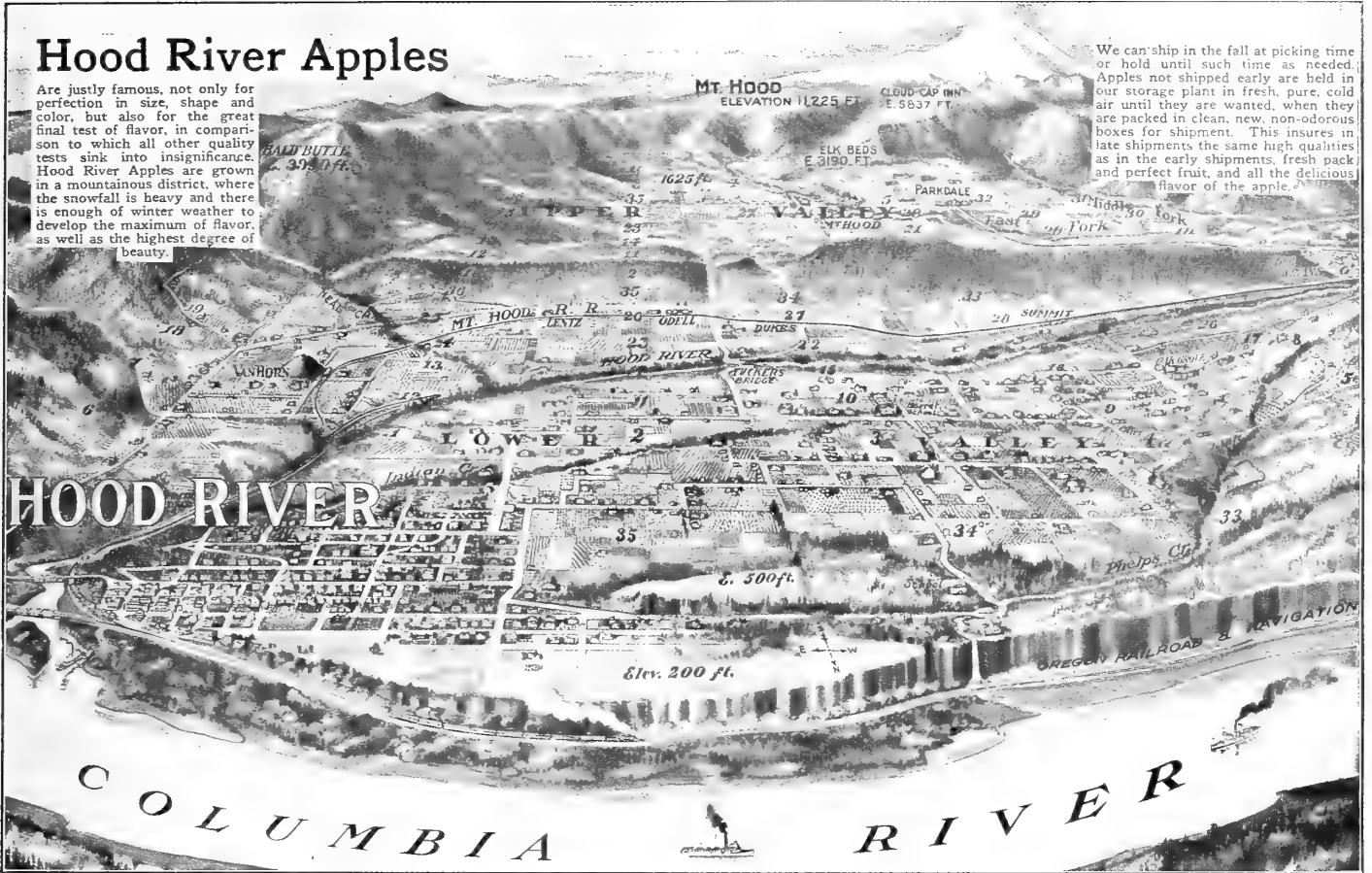
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Are justly famous, not only for perfection in size, shape and color, but also for the great final test of flavor, in comparison to which all other quality tests sink into insignificance. Hood River Apples are grown in a mountainous district, where the snowfall is heavy and there is enough of winter weather to develop the maximum of flavor, as well as the highest degree of beauty.

We can ship in the fall at picking time or hold until such time as needed. Apples not shipped early are held in our storage plant in fresh, pure, cold air until they are wanted, when they are packed in clean, new, non-odorous boxes for shipment. This insures in late shipments the same high qualities as in the early shipments, fresh pack and perfect fruit, and all the delicious flavor of the apple.



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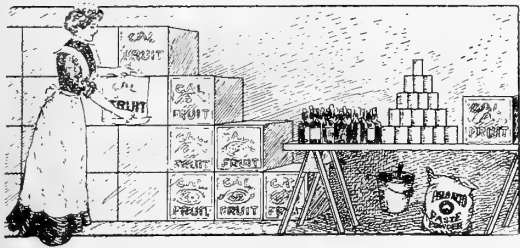
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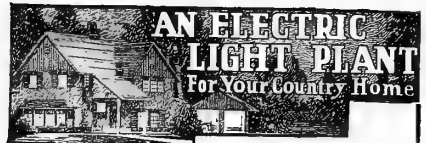
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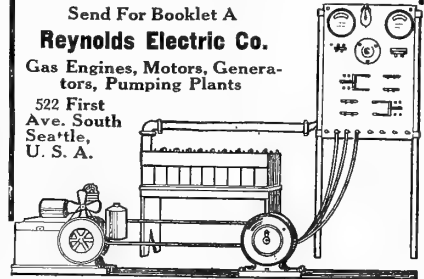
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We grow exclusively, and offer to planters, selected trees of certified pedigree.

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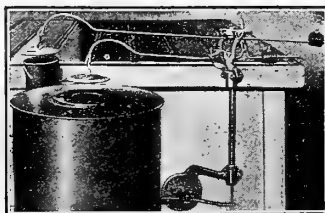
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Our disks are made of cutlery steel shaped and sharpened in our own shops and are the only genuine "Cutaway" disks.

Beware of imitations and infringements. We make a tool for every crop. If your dealer can't supply the genuine "Cutaway," write us your needs. Satisfaction guaranteed. Prompt shipments. Send a postal today for our new catalogue "Intensive Cultivation." It's Free.

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Washington

Kennewick Fruit Growers' Association, Kennewick; Wenatchee Fruit Growers' Union, Wenatchee; Puyallup and Sumner Fruit Growers' Association, Puyallup; Vashon Island Fruit Growers' Association, Vashon; Mt. Vernon Fruit Growers' Association, Mt. Vernon; White Salmon Fruit Growers' Union, White Salmon; Thurston County Fruit Growers' Union, Tumwater; Bay Island Fruit Growers' Association, Tacoma; Yakima Valley Fruit and Produce Growers' Association, Granger; Buckley Fruit Growers' Association, Buckley; Lewis River Fruit Growers' Union, Woodland; Yakima County Horticultural Union, North Yakima; White River Valley Fruit and Berry Growers' Association, Kent; Lake Chelan Fruit Growers' Association, Chelan; Zillah Fruit Growers' Association, Toppenish; Kiona Fruit Growers' Union, Kiona; Mason County Fruit Growers' Association, Shelton; Clarks-

ton Fruit Growers' Association, Clarkston; Walla Walla Fruit and Vegetable Union, Walla Walla; The Ridgefield Fruit Growers' Association, Ridgefield; Felida Prune Growers' Association, Vancouver; Grandview Fruit Growers' Association, Grandview; Yakima Valley Fruit Growers' Association, North Yakima; Southwest Washington Fruit Growers' Association, Chehalis; The Touchet Valley Fruit and Produce Union, Dayton; Lewis County Fruit Growers' Association, Centralia; The Green Bluffs Fruit Growers' Association, Mead; Garfield Fruit Growers' Union, Garfield; Goldendale Fruit and Produce Association, Goldendale; Spokane Inland Fruit Growers' Association, Keistling; Elma Fruit and Produce Association, Elma; Granger Fruit Growers' Association, Granger; Cashmere Fruit Growers' Union, Cashmere; Stevens County Fruit Growers' Union, Myers Falls; Dryden Fruit Growers' Union, Dryden; White Salmon Valley Apple Growers' Union, Underwood.

Idaho

Southern Idaho Fruit Shippers' Association, Boise; New Plymouth Fruit Growers' Association, New Plymouth; Payette Valley Apple Growers' Union, Payette; Parma-Roswell Fruit Growers' Association, Parma; Weiser Fruit and Produce Growers' Association, Weiser; Council Valley Fruit Growers' Association, Council; Nampa Fruit Growers' Association, Nampa; Lewiston Orchard Producers' Association, Lewiston; Boise Valley Fruit Growers' Association, Boise; Caldwell Fruit Growers' Association, Caldwell; Emmett Fruit Growers' Association, Emmett; Twin Falls Fruit Growers' Association, Twin Falls; Weiser River Fruit Growers' Association, Weiser; Fruit Growers' Association, Moscow.

Colorado

San Juan Fruit and Produce Growers' Association, Durango; Fremont County Fruit Growers' Association, Canon City; Rocky Ford Melon Growers' Association, Rocky Ford; Plateau and Debeque Fruit, Honey and Produce Association, Debeque; The Producers' Association, Debeque; Surface Creek Fruit Growers' Association, Austin; Longmont Produce Exchange, Longmont; Manzanola Fruit Association, Manzanola; Delta County Fruit Growers' Association, Delta; Boulder County Fruit Growers' Association, Boulder; Fort Collins Beet Growers' Association, Fort Collins; La Junta Melon and Produce Company, La Junta; Rifle Fruit and Produce Association, Rifle; North Fork Fruit Growers' Association, Paonia; Fruita Fruit and Produce Association, Fruita; Grand Junction Fruit Growers' Association, Clifton; Palisade, Grand Junction; Palisade Fruit Growers' Association, Palisade; Peach Growers' Association, Palisade; Colorado Fruit and Commercial Company, Grand Junction; Montrose Fruit and Produce Association, Montrose; Hotchkiss

Fruit Growers' Association, Hotchkiss; Paonia Fruit Exchange, Paonia; Colorado Fruit Growers' Association, Delta; Crawford Fruit Growers' Association, Crawford; Amity Cantaloupe Growers' Association, Amity; Pent County Melon Growers' Association, Las Animas; Capitol Hill Melon Growers' Association, Rocky Ford; Denver Fruit and Vegetable Association, Denver; Fair Mount Melon Growers' Association, Swink; Fowler Melon Growers' Association, Fowler; Granada Melon Growers' Association, Granada; Grand Valley Fruit and Produce Association, Grand Junction; Independent Fruit Growers' Association, Grand Junction; Kouns Party Cantaloupe Growers' Association, Rocky Ford; Lamar Melon Growers' Association, Lamar; Loveland Fruit Growers' Association, Loveland; Manzanola Orchard Association, Manzanola; Newdale Melon Growers' Association, Swink; Roaring Fork Potato Growers' Association, Carbondale; Woods Melon Growers' Association, Las Animas.

Montana

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

Utah

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

New Mexico

San Juan Fruit and Produce Association, Farmington.

British Columbia

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

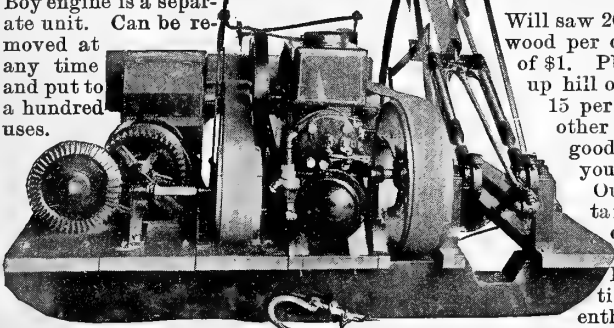
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VIRGINIA Apple Lands

One hundred and twenty acres of high grade apple land in Shenandoah Valley for \$2,000.00 to insure quick sale; within two miles of the largest apple shipping station in Virginia and no better land for apples in the state; well watered by springs and streams and partly cleared. Easily worth double the price asked. Other lands in large and small tracts at \$15.00 to \$50.00 per acre.

ADDRESS

F. H. LaBAUME, Agricultural Agent
Norfolk & Western Ry.
Box 2076, Roanoke, Va.



Seeds

THE KIND YOU CAN'T KEEP IN THE GROUND

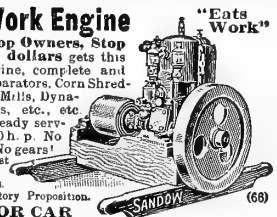
They grow, and are true to name
Write for prices on your wants

188 Front Street J. J. BUTZER Portland, Oregon
Poultry Supplies, Spray, Spray Materials, Fruit Trees, Etc.

Let SANDOW Run It!

Wonderful Work Engine

Farmers and Shop Owners, Stop Sweating! A few dollars gets this grand little work engine, complete and ready to run Cream Separators, Corn Shredders, Grist Mills, Feed Mills, Dynamos, Printing Presses, etc., etc. Gives a lifetime of steady service! All Sizes: 2 to 20 h. p. No cranking! No cams! No gears! Only 3 moving parts. Finest construction. Thousands in use. Guaranteed 5 years. Write for Special Introductory Proposition.



DETROIT MOTOR CAR SUPPLY CO., 238 Canton Ave., Detroit, Mich.



WE MAKE 200 DIFFERENT SIZES. SUITABLE FOR EVERY PURPOSE

Pearson Coated Nails

are the RECOGNIZED STANDARD

Fruit Box Nails
To insure always getting Best Quality, Proper Size, and Full Count Nails

specify PEARSON, and take no substitute.

Why not accept this advice when PEARSON'S cost no more?

J. C. Pearson Co.
Boston, Massachusetts
Sole Manufacturers

A. C. RULOFSON CO.
815 Monadnock Building, San Francisco
Pacific Coast Sales Agents

Pearson-Page Co.

131-133 Front Street
PORTLAND, OREGON

Superior facilities for handling

PEACHES APPLES AND PEARS

Solicit Your Consignments

Reliable Market Reports Prompt Cash Returns

A Reputation to Sustain

Vineland Nurseries Company

Clarkston, Washington

PROPAGATORS OF

Reliable Nursery Stock

All stock budded from bearing trees, fruit and ornamental



Read what Hood River says

Hood River, Oregon, Nov. 27, 1909. This is to certify that I have used Cooper's Tree Spray Fluids, V1, for killing San Jose scale and found it very effectual.

G. R. Castner, County Fruit Inspector.

APTERITE

THE SOIL FUMIGANT
DESTROYS INSECTS IN THE GROUND

REDUCES LOSSES SAVES PROFITS
IT WILL PAY YOU TO INVESTIGATE
Write for 1910 booklet (32 pages)

Testimony from fruit growers everywhere

Agent:

C. G. ROBERTS

247 Ash Street Portland, Oregon

Sole Manufacturers:

William Cooper & Nephews
CHICAGO, ILLINOIS

CREATION



The tone is the Jewel.
The case is the Setting.
The combination is the Steinway—the Perfect Piano.

HE who is blessed with the power to create is blessed with God's greatest gift to man, and if he uses that power to increase the happiness of his fellow men he becomes a benefactor to the human race.

The world owes homage to the men who have devoted their burning energies to the consummation of one purpose, to the final and most perfect development of an ideal.

The Steinway Piano

Is an example of the grand result of years of persistent, purposeful striving after the very highest musical ideal. Sons have taken up the task where fathers left off, so that alternate generations of genius, working through the finest piano factory in the world, have evolved the Steinway—a piano that has long since been acknowledged the musical masterpiece of the ages.

Priced at \$575, \$625, \$775 and up to \$1,600. Of course you can buy a piano cheaper, but it will be a cheaper piano. Why not get the best?

VICTOR TALKING
MACHINES and
SHEET MUSIC

Sherman  & Co.

SIXTH AND MORRISON
PORTLAND, OREGON
Exclusive Steinway Representatives

FRUIT GROWERS, YOUR ATTENTION!

Royal Ann, Bing and Lambert cherry trees; Spitzenberg and Newtown apple trees; Bartlett, Anjou and Comice pears, and other varieties of fruit trees.

A. HOLADAY MONTE VISTA NURSERY
SCAPPOOSE, OREGON

Two Hard Headed Business Men Select Orchard Homes from Our Tracts

No. 1. Lives in Minnesota. Made a trip through the fruit districts of the West two years ago and made a second trip of investigation this year. He visited the best known fruit districts of the West—was solicited by several agents to buy of them, but came to our office in Minneapolis unsolicited and said our fruit tracts were the best he had seen in his investigations; therefore purchased his orchard tract from us.

No. 2. Has been investigating the principal fruit districts of the West for over two years, is a resident of Portland, a prominent business man, and after seeing our ad in "Better Fruit" wrote to us, came and examined the tracts and purchased immediately, saying that our tracts were the best he had seen.

The purchases made by the two men referred to above, as well as others to whom we could refer you, prove that the most careful purchasers are buying our tracts.

Buying an orchard home is important, therefore investigate all of the well-known fruit districts of the United States, but do not purchase until you examine ours. We cheerfully leave the choice of the selection to you after that.

THE A. C. BOHRNSTEDT CO.

Branch Offices { SALEM, OREGON
CRESWELL, OREGON

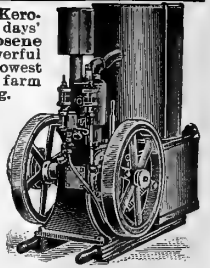
917 Andrus Building, Minneapolis, Minnesota

Use KEROSENE Engine FREE!

Amazing "DETROIT" Kerosene Engine shipped on 15 days' FREE Trial, proves kerosene cheapest, safest, most powerful fuel. If satisfied, pay lowest price ever given on reliable farm engine; if not, pay nothing.

Gasoline Going Up!

Automobile owners are burning up so much gasoline that the world's supply is running short. Gasoline is 9c to 15c higher than coal oil. Still going up. Two pints of coal oil do work of three pints gasoline. No waste, no evaporation, no explosion from coal oil.

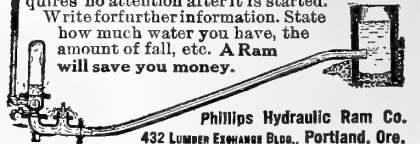


Amazing "DETROIT"

The "DETROIT" is the only engine that handles coal oil successfully; uses alcohol, gasoline and benzine, too. Starts without cranking. Basic patent—only three moving parts—no cams—no sprockets—no gears—no valves—the utmost in simplicity, power and strength. Mounted on skids. All sizes, 2 to 20 h. p., in stock ready to ship. Complete engine tested just before crating. Comes all ready to run. Pumps, saws, threshes, churns, separates milk, grinds feed, shells corn, runs home electric-lighting plant. Prices (stripped), \$29.50 up. Sent any place on 15 days' Free Trial. Don't buy an engine till you investigate amazing, money-saving, power-saving "DETROIT." Thousands in use. Costs only postal to find out. If you are first in your neighborhood to write, we will allow you Special Extra-Low Introductory price. Write! Detroit Engine Works, 507 Bellevue Ave., Detroit, Mich.

PUMPS WATER

for your Home, your Stock, or for Irrigation, without care or adjustment. No springs; no weights. Does not even have to be oiled. The Phillips Hydraulic Ram—Simple in construction—nothing to get out of order. Pumps a large amount of water to a low height or a small amount to a greater height. Requires no attention after it is started. Write for further information. State how much water you have, the amount of fall, etc. A Ram will save you money.



Phillips Hydraulic Ram Co.
432 LUMBER EXCHANGE BLDG., PORTLAND, ORE.

STORAGE

Ship your Furniture to us
to be stored
until you are located

Transfer & Livery Co.

Hood River, Oregon

Use Labels! It Pays

**A GOOD COMBINATION
AND A WINNER**

**1ST GOOD FRUIT
2ND GOOD PACKING
3RD GOOD LABELS**

THE LABEL HELPS.

Schmidt Lithograph Co.

E. SHELLEY MORGAN, MANAGER,

408 WELLS FARGO BLDG.

PORTLAND, OREGON.

SAMPLES AND PRICES ON APPLICATION

Rogue River Fruit and Produce Association

Packers and Shippers of
Rogue River Fruit

Finest flavored—Longest keepers

PEARS	APPLES
Bartlett	Newtown
Howell	"Autocrat of the Breakfast Table"
Bosc	Spitzenberg
Anjou	Jonathan
Comice	Ben Davis
Winter Nelis	

TWELVE SHIPPING STATIONS

Modern Economy Code
K. S. MILLER, Manager

Why Bother with Irrigation?

ASK

**PHOENIX LUMBER CO.
SPOKANE, WASH.**

ABOUT

Cut Over Lands

YOU CAN BUY CHEAP

BETTER FRUIT

Has no peer in the Northwest.

And so we have established

The Fruit Journal

along similar lines in behalf of the great irrigated fruit districts of the Rocky Mountain region, a companion paper to this, your favorite fruit magazine.

We have made it up-to-date, clean, high class editorially, mechanically and pictorially.

The subscription rate is \$1.00 per year. It is worth it.

**THE INTERMOUNTAIN
FRUIT JOURNAL**

Grand Junction, Colorado

*Ask the People Using Our Boxes About
Quality and Service*

WE MAKE EVERYTHING IN FRUIT PACKAGES

Multnomah Lumber & Box Co.

Jobbers of Pearson Cement-Coated Box Nails

Portland, Oregon

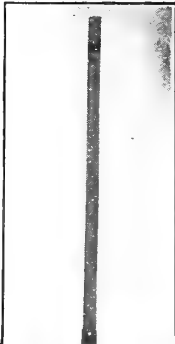


Nine Kimball Cultivators in operation on property of Dufur Orchard Company, Dufur, Oregon, owned by the Churchill-Matthews Company, 510 Spalding Building, Portland, Oregon. This company is using at this time thirty-five Kimball Cultivators on their Dufur, Sheridan, Drain and Cottage Grove properties. This speaks volumes for home-produced machinery. Why go East for yours?

The Kimball Cultivator

Great Weeds and Fern Exterminator

Hood River, Oregon, Feb. 26, 1910.
 W. A. Johnston, The Dalles, Oregon.
 Dear Sir: I use three "Kimball Cultivators" in my orchard. There is nothing better as a weeder, dust mulcher, or to stir the soil. Yours truly,
 E. H. Shepard, Editor "Better Fruit."



Ninety per cent Hood River Orchardists use this machine.
 Send for illustrated descriptive booklet.



RETAIL PRICE SCHEDULE

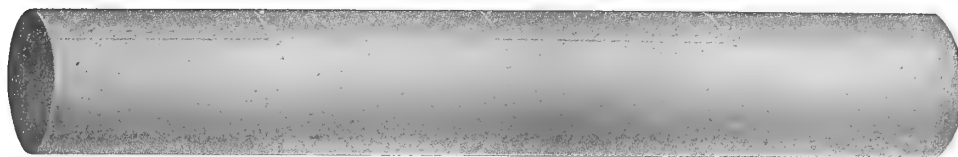
No. 4—4½ feet, 6 blades, weight complete 70 lbs. . . . \$13.50	No. 11—12 feet, 15 blades, weight complete 185 lbs. . \$30.00
No. 5—5½ feet, 7 blades, weight complete 85 lbs. . . . 15.00	No. 13—One 8½ and one 9 feet, 23 blades, gangs, fully rigged, weight 300 lbs. 47.50
No. 6—6 feet, 8 blades, weight complete 100 lbs. . . . 17.50	Extra Frames \$1.00 per foot; weight 10 lbs. per foot.
No. 7—7 feet, 9 blades, weight complete 115 lbs. . . . 18.50	Extra Blades \$1.50 each; weight 5 lbs. each.
No. 8—8½ feet, 11 blades, weight complete 125 lbs. . . 20.00	TERMS: Cash with order, except to dealers with established credit. All quotations f.o.b. The Dalles, Oregon.
No. 9—10 feet, 13 blades, weight complete 140 lbs. . . 25.00	
No. 10—12 feet, 10 blades, open center, weight complete 160 lbs. 22.50	

W. A. JOHNSTON, Manufacturer

Long Distance Phone, Red 991

Office and Factory, 422 East Third Street, The Dalles, Oregon

ANYTHING IN SHEET STEEL



STEEL PIPES SAVE WATER

STEEL PIPES SAVE LABOR

YOU DO NOT HAVE TO WAIT FOR STEEL PIPES TO
"SOAK UP" AND THEY LAST INDEFINITELY

WE MANUFACTURE

Galvanized Steel Pipe

Storage Tanks

Galvanized Steel Culverts

Pressure Tanks

Asphaltum Coated Pipe

Steel Flumes

Columbia Hydraulic Rams

COLUMBIA ENGINEERING WORKS, Portland, Oregon

Really, Are Those Trees Grown Without Irrigation

Yes, sir, absolutely.

How old are they?

This summer's growth.

What! do you mean to say those trees have grown five or six feet this summer without irrigation?

That's what they have—but let me explain further:

Those trees are budded—not grafted.

They have a three-year-old whole-root (not piece-root) feeding them.

Observe their uniform height and caliper; their bright, smooth, clean bark; heavy, luxuriant foliage, absolutely free from scale, aphid, etc. This condition is due to proper cultivation, character of soil, intelligent personal supervision, ideal climatic condition, in short, putting into this year's crop of trees what it has taken us a lifetime devoted strictly to the nursery business to learn.

Many people think all trees are alike.

Might as well say all trees in a forest are of equal value and will produce the same number of feet of lumber. But will they? It's what they produce that counts.

ORENCO TREES ARE NOTED FOR EARLY FRUITING. It makes them worth more, but we don't ask more.

If you are planting an orchard for profit select the best trees.

If you're planting for pastime select those you can get for a song.

Orenco trees are grown right—will be dug, shipped and delivered right, and if you plant them properly will fulfill our claims for them.

IF YOU WANT ORENCO TREES, ACT NOW.

OREGON NURSERY COMPANY
ORENCO, OREGON



A sample of our yearling trees,
the "Nunbetter" kind

The Acknowledged "AUTHORITY"

on Credits
Trading Rules and Grades
Laws and Commerce

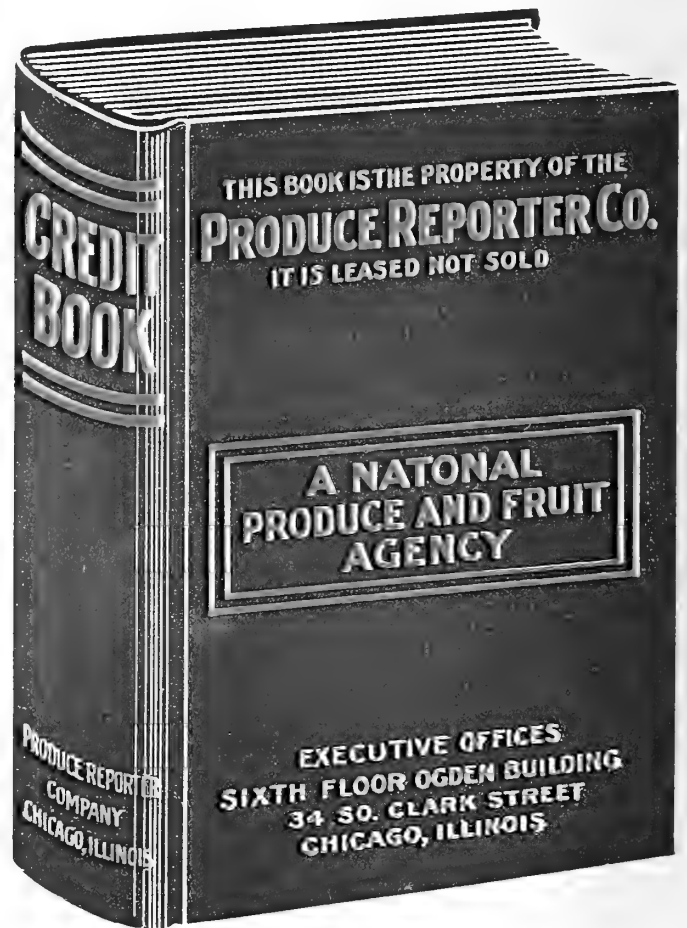
It is on every prominent

Dealer's Desk

Shippers
Commission Merchants
Brokers

Indispensable

to them
Why not to you?



It's an ASSET—Not an EXPENSE

As Necessary as Your Bank Book

Write for Explanation of Service. Furnished to Members Only

PRODUCE REPORTER COMPANY

CHICAGO

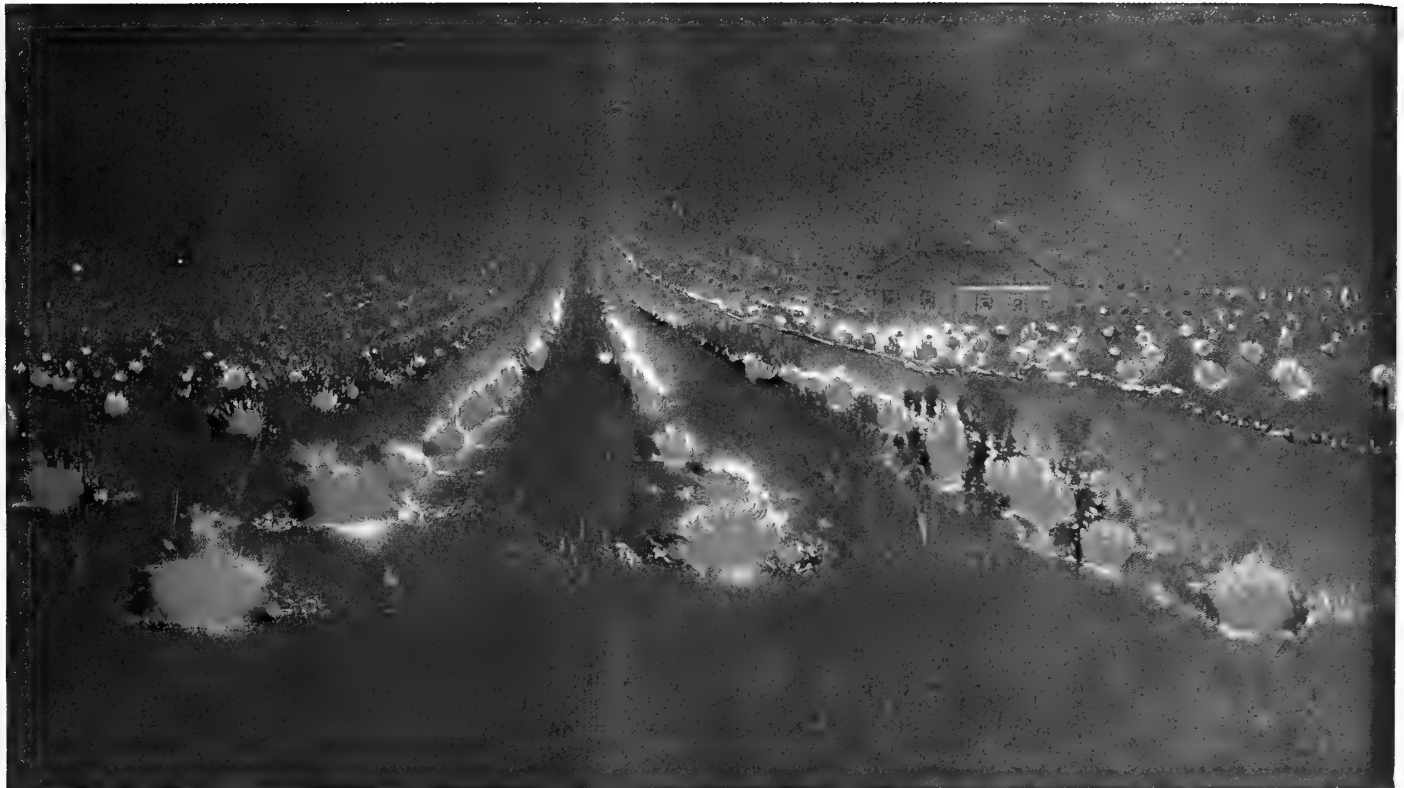
BETTER FRUIT

VOLUME VI

NOVEMBER, 1911

NUMBER 5

SPECIAL ORCHARD HEATING EDITION



By courtesy of F. E. Dean, Grand Junction, Colorado

ORCHARD HEATING

Night scene showing one of the large orchards at Palisades, Colorado, indicating how extensively orchard heating is carried on

“EAT AN APPLE EVERY DAY—KEEP THE DOCTOR AWAY”

BETTER FRUIT PUBLISHING COMPANY, PUBLISHERS, HOOD RIVER, OREGON

Subscription \$1.00 per Year in the United States and Canada; Foreign, Including Postage, \$1.50

Single Copy 10 Cents

Dangerous Fruit Pests are Unknown
in the famous

Bitter Root Valley

on Montana's Pacific Slope
Where the Wormless Apples Grow

Smudging Is Unnecessary

There has not been a killing frost on the bench lands in the growing season in the history of the Valley. There are no dust storms.

Pure water and sunshine 300 days in the year make ideal health conditions.

Net profits annually range from \$2,000 to \$5,000

on a matured apple orchard of only ten acres.

Undeveloped land in this remarkable fruit district can still be bought for **less money** than is asked in other valleys less perfectly adapted by nature for successful fruit growing. Values now range from \$250 to \$350 per acre.

Developed tracts of ten acres, with contract to cultivate and care for same to five-year maturity, cost only \$5,000 if purchased now. Easy terms of payment for both developed and undeveloped land.

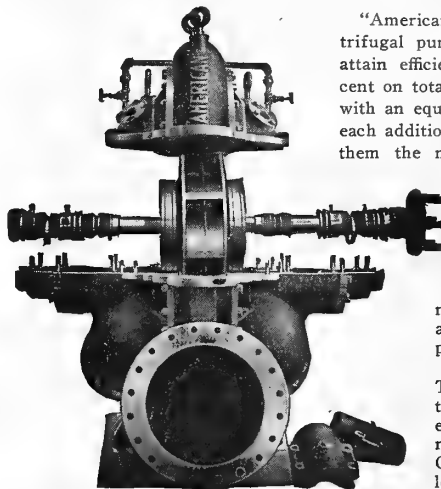
Detailed information upon request.

Bitter Root Valley Irrigation Co.

First National Bank Building, CHICAGO

All the Grand Prizes and All the Gold Medals
Given by the Alaska-Yukon-Pacific Exposition at Seattle
in 1909 to pumps were awarded to

"AMERICAN" PUMPING MACHINERY



"American" single stage centrifugal pumps are guaranteed to attain efficiencies of 60 to 80 per cent on total heads up to 125 feet, with an equal increase in head for each additional stage, which makes them the most economical pump made for irrigation purposes.

"American" centrifugals are made in both horizontal and vertical styles, in any size, in any number of stages, and are equipped with any power.

Write for "Efficiency Tests of American Centrifugals," by the most eminent hydraulic engineer on the Pacific Coast. Complete catalogue, No. 104, free.

The American Well Works

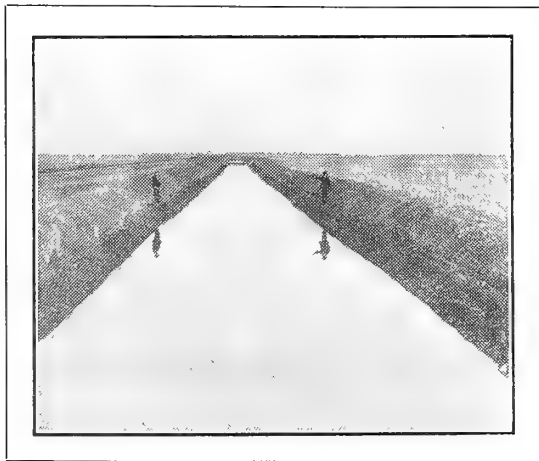
General Office and Works: Aurora, Illinois, U. S. A.
Chicago Office: First National Bank Building

PACIFIC COAST SALES AGENCIES:

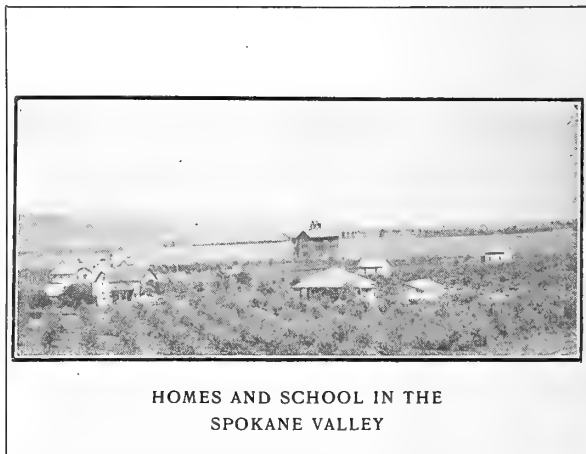
70 FREMONT STREET, SAN FRANCISCO
341 SOUTH LOS ANGELES STREET, LOS ANGELES
SECOND AND ASH STREETS, PORTLAND, OREGON
1246 FIRST AVENUE SOUTH, SEATTLE
305 COLUMBIA BUILDING, SPOKANE

THE GRAVITY IRRIGATION SYSTEM OF THE SPOKANE VALLEY

Has developed the greatest apple and berry district of the West. **Nearness to market** causes larger net returns than in any other locality. Seventy-two trains daily through the valley. Every modern convenience. "Life's journey is swift; let us live by the way." The Spokane Valley has the unique distinction of being the only established apple district near a big city. Think what that means and investigate. Five thousand contented settlers.



THE BEST
IRRIGATION
SYSTEM
IN THE
WEST



HOMES AND SCHOOL IN THE
SPOKANE VALLEY

SPOKANE VALLEY IRRIGATED LAND CO.

401 SPRAGUE AVENUE, SPOKANE, WASHINGTON

A Simple Illustration in Marketing Methods

STATEMENT OF PRICES OBTAINED F.O.B. CASHMERE, AND TIME ELAPSING BETWEEN DATE OF SHIPMENT AND DATE OF FULL REMITTANCE, BY THE NORTHWESTERN FRUIT EXCHANGE

TO

THE CASHMERE FRUIT GROWERS' UNION

Car	Number	Date Shipped	Date Payment	Time	Variety	Sizes (Inclusive)	Extra Fancy	Fancy	"C"
GN	91612	9-23	9-29	6 days	Grimes Golden	3½, 4, 4½ and 5	\$1.40	....	.90
GN	91064	9-30	10-7	7 "	Jonathans	3½, 4, 4½ and 5	1.40	1.30	.90
					Grimes Golden	3½, 4, 4½ and 5	1.60	1.25	.90
					Bellflower	3½, 4, 4½	1.25	....	.90
					R. I. Greening	3½, 4, 4½	1.20	....	.90
GN	91748	9-23	10-9	16 "	N. Y. Pippins	3½, 4, 4½	....	1.00	.85
				Mixed car	Fall Spitz	3½, 4, 4½	1.60	....	.90
					Roxbury Russet	3½, 4, 4½	1.25	....	....
					Maiden Blush	3½, 4, 4½	....	1.25	.90
CBQ	38572	9-29	10-17	18 days	Jonathans	3½, 4	1.75	....	....
GN	90352	10-10	10-18	8 "	Mixed Choice	All sizes	....	....	.90
GN	91588	10-9	10-18	9 "	Mixed Choice	" "	....	....	.90
GN	91744	10-11	10-18	7 "	Mixed Choice	" "	....	....	.90
GN	90440	10-12	10-21	9 "	Stayman Winesap	3, 3½, 4, 4½	1.60	1.40	....
GN	91330	10-14	10-21	7 "	Black Bens	3½, 4, 4½	1.35	1.25	....
GN	90512	10-13	10-21	8 "	Spitzenbergs	3, 3½, 4, 4½	2.00	1.75	....
GN	92060	10-12	10-24	12 "	Spitzenbergs	3, 3½, 4, 4½	2.00	1.75	1.25
GN	91528	10-11	10-24	13 "	Jonathans	3½, 4, 4½	1.50	1.50	....
GN	92192	10-13	10-24	11 "	Mixed Choice	All sizes	....	....	.90
IC	52265	10-3	10-24	21 "	Jonathans	{ 3½, 4 4½	1.50 1.35	........	........
CBQ	39614	9-30	10-24	24 "	Jonathans	3½, 4, 4½ and 5	1.50	1.35	1.00
GN	90308	10-16	10-25	9 "	Mixed Choice	All sizes	....	....	.90
GN	91140	10-16	10-25	9 "	{ Winesaps Spitzenbergs	3½, 4, 4½ and 5 3, 3½, 4, 4½	2.00 2.25	.... 2.00	1.25 1.50
CB&Q	39526	10-5	10-25	20 "	Jonathans	3½, 4	1.50	1.25	....
GN	91006	10-6	10-26	20 "	Jonathans	3½, 4, 4½	1.50	1.35	1.00
GN	90348	10-18	10-26	8 "	Mixed Choice	All sizes	....	....	.90
GN	90824	10-9	10-27	18 "	Mixed Choice	" "	....	....	.95
GN	90594	10-20	10-28	8 "	Mixed Choice	" "	....	....	.90
GN	91426	10-20	10-28	8 "	Mixed Choice	" "	....	....	.90
GN	90648	10-19	10-30	11 "	Arkansas Black	3, 3½, 4, 4½	1.85	....	1.35
GN	90774	10-24	10-31	7 "	Mixed Choice	All sizes	....	....	.90
GN	91768	10-23	10-31	8 "	Mixed Choice	" "	....	....	.90
GN	90584	10-17	10-31	14 "	Winesaps	3½, 4, 4½ and 5	2.00	1.75	1.25
CBQ	38734	10-12	10-31	19 "	Rome Beauty	3 and 3½	1.60	1.35	....
URT	372	10-10	10-31	21 "	Staymans	3½, 4, 4½	1.50	1.25	1.00
CBQ	38077	10-5	10-31	26 "	Jonathans	4½-tier only	1.60	1.40	....
GN	90934	10-6	10-31	25 "	Jonathans	4 and 4½	1.60	1.40	....
CBQ	38875	10-9	10-31	22 "	Jonathans	4 and 4½	1.60	1.40	....

Average time from shipment to payment, 13 days. These cars form a small portion of those to be shipped by the Cashmere Union in 1911. They cover those paid for up to October 31. All cars shipped to October 14, and many since, have been settled for. **Each car was sold before shipment, and the majority of the entire number shipped, sold before picking!** Every sale was F.O.B. Not a single rejection! Not a diversion necessary! What is the moral?

Northwestern Fruit Exchange

Head Offices, Spalding Building, PORTLAND

IF YOU WANT TO
MARKET YOUR
FRUIT

RIGHT

ALWAYS SHIP TO

W. B. Glafke Co.

WHOLESALE FRUITS
AND PRODUCE

108-110 Front Street
PORTLAND, OREGON

W. H. DRYER

W. W. BOLLAM

DRYER, BOLLAM & CO.
GENERAL COMMISSION MERCHANTS

138 FRONT STREET

PHONES: MAIN 2246
A 2248

PORTLAND, OREGON

Levy & Spiegl

WHOLESALE
FRUITS & PRODUCE
Commission Merchants

SOLICIT YOUR CONSIGNMENTS

Top Prices and Prompt Returns
PORTLAND, OREGON

Correspondence Solicited

RYAN & VIRDEN CO.

BUTTE, MONTANA

Branch Houses:

Livingston, Bozeman, Billings
Montana
Pocatello, Idaho
Salt Lake City, Utah

Wholesale Fruit and Produce

WE HAVE MODERN COLD STORAGE FACILITIES
ESSENTIAL FOR HANDLING YOUR PRODUCTS
*A strong house that gives reliable market
reports and prompt cash returns*

The Old Reliable
BELL & CO.

Incorporated

WHOLESALE
FRUITS AND
PRODUCE

112-114 Front Street
PORTLAND, OREGON

Richey & Gilbert Co.

H. M. GILBERT, *President and Manager*

Growers and Shippers of
**YAKIMA VALLEY FRUITS
AND PRODUCE**

Specialties: Apples, Peaches, ..
Pears and Cantaloupes

TOPPENISH, WASHINGTON

W. F. LARAWAY

DOCTOR OF OPHTHALMOLOGY

EYES TESTED  LENSES
GROUND

Over 30 Years' Experience

Telescopes, Field Glasses
Magnifiers to examine scale

Hood River Oregon *and* Glenwood Iowa

Mark Levy & Co.

COMMISSION
MERCHANTS

WHOLESALE FRUITS

121-123 FRONT AND
200 WASHINGTON ST.

PORTLAND, OREGON

T. O'MALLEY CO.

COMMISSION MERCHANTS

Wholesale Fruits and Produce

We make a specialty
in Fancy Apples, Pears and
Strawberries

130 Front Street, Portland, Oregon

SGOBEL & DAY

Established 1869

235-238 West Street

NEW YORK

Strictly commission house. Specialists in apples,
pears and prunes. Exporters of Newtown Pippins
to their own representatives in England

QUALITY
QUALITY
QUALITY

STEINHARDT & KELLY

101 PARK PLACE, NEW YORK

THE MOST EXTENSIVE OPERATORS IN
HIGH CLASS FRUITS IN THE WORLD

THE Messrs. Steinhardt & Kelly take great pleasure in advising the fruit growers of the Northwest that a member of the firm will as usual make his annual trip to the Coast sometime during the latter part of August and the early part of September, for the purpose of acquiring, both by the outright purchase or such other method as agreeable to the growers, the large amount of reserve stock in all varieties of fruit which their business demands. Particularly do the Messrs. Steinhardt & Kelly wish to draw the attention of the growers to their practically unlimited outlet for fancy fruit and to their sincere belief in their ability to handle and dispose of the crops of the most extensive districts at prevailing market rates with celerity and dispatch.

¶ The Messrs. Steinhardt & Kelly might also incidentally mention that they have completed arrangements giving them cold storage space for several hundred carloads in the very best cold storage warehouses in the East and Middle West.

¶ All correspondence will get the prompt personal attention of a member of the firm

Ship Your *APPLES* and *PEARS* to the *Purely Commission and Absolutely Reliable House*

W. DENNIS & SONS

LIMITED

COVENT GARDEN MARKET
LONDON

and

CUMBERLAND STREET
LIVERPOOL

SLOCOM'S BOOK STORE

Office Supplies
Stationery

Ledgers, Journals, Time Books
Memorandum Books
Rubber Stamps

Souvenir Postals Picture Frames

SEATTLE

Increased 194 per cent in population, according to Uncle Sam's last census. This is more than any other large city in the PACIFIC NORTHWEST.

WASHINGTON

Leads all states of the Union in growth, having increased 120.4 per cent, according to the same authority.

If you want accurate information about Seattle and Washington, subscribe for

PACIFIC NORTHWEST COMMERCE

The official publication of the Seattle Chamber of Commerce. Comes monthly, \$1.50 a year.

Address

PACIFIC NORTHWEST COMMERCE

Suite 842 Central Building
SEATTLE, WASHINGTON

Burpee's Seeds that Grow

140 VARIETIES ANY QUANTITY

Plenty of stock in our 40,000 pounds

Growing Plants as season requires

All makes high grade

Pruning Tools

Garden Tools

Hose and Spray Nozzles

International Stock and

Poultry Food

International Remedies

Incubators and Brooders

Everything for Building

Everything for Furnishing

Stewart Hardware & Furniture Co.

22,000 feet floor space. Hood River, Oregon

Spitzenbergs & Newtowns

From the
Hood River Valley,
Oregon

Took the first prize on carload entry at the Third National Apple Show, Spokane, Washington, and Chicago, Illinois, 1910.

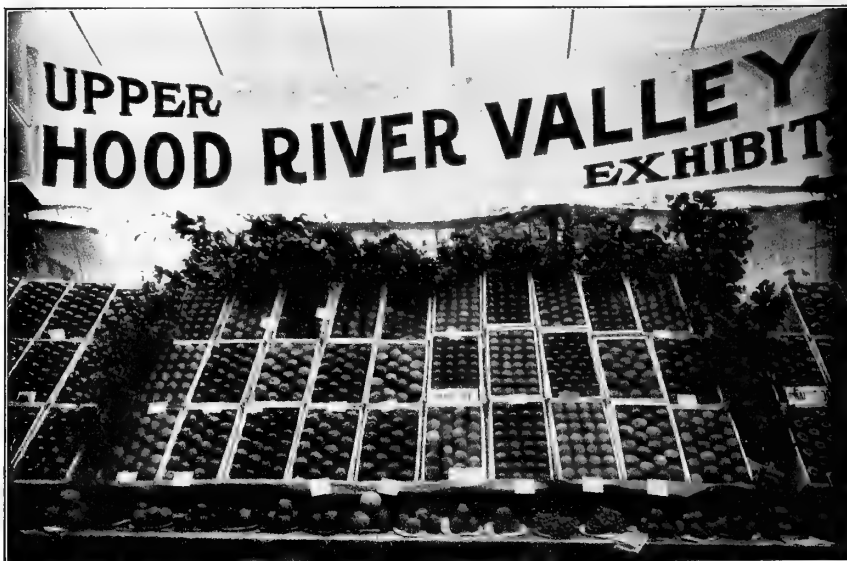
The Spitzenberg car scored, out of a possible 1,000 points, 997. The Newtown car, out of a possible 990 points, scored 988.

The Spitzenberg carload also won the championship carload prize at this show.

Can You Beat It?

We have got land improved and unimproved that is growing such fruit and that can grow it.

We are agents for the Mount Hood Railroad Company's logged off lands in Upper Hood River Valley. Many started in a small way; today they are independent. You can begin today. It pays to see us. Send today for large list of Hood River orchard land, improved and unimproved, and handsome illustrated booklet.



The above picture shows a prize-winning exhibit of Upper Hood River Valley apples at the Hood River Apple Show

W. J. Baker & Company

Hood River
Oregon

The oldest real estate firm in Hood River. Best apple land our specialty

TREES APPLE, CHERRY TREES PEAR, PEACH

MILTON NURSERY COMPANY
A. MILLER & SONS, Inc.

You cannot afford to take a chance in buying trees to plant for future profit. It requires knowledge, experience and equipment to grow reliable nursery stock.

OUR 33 YEARS' EXPERIENCE in growing first-class trees, true to name, for commercial orchards, insures our customers against any risk as to quality and genuineness of stock.

Orders are now being booked for fall delivery 1911. Catalog and price list free for the asking.
Address all communications to

MILTON NURSERY COMPANY, Milton, Oregon

Stanley-Smith Lumber Co.

WHOLESALE AND RETAIL

LUMBER

Lath, Shingles, Wood, Etc.

HOOD RIVER, OREGON

Ryan & Newton Company

Wholesale Fruits & Produce
Spokane, Washington

We have modern cold storage facilities essential for the handling of your products

Reliable Market Reports

PROMPT CASH RETURNS

YAKIMA COUNTY HORTICULTURAL UNION

North Yakima, Washington
C. R. Paddock, Manager

Apples, Pears, Peaches, Cherries
Plums, Prunes, Apricots, Grapes
and Cantaloupes

Mixed carloads start about July 20. Straight carloads in season. Our fruit is the very best grade; pack guaranteed

We use Revised Economy Code

THE NORTHERN PACIFIC RAILWAY

OPERATES DAILY FROM PORTLAND, TACOMA, SEATTLE
ON A 72-HOUR SCHEDULE

Solid Through Train to Chicago

WITHOUT CHANGE

Composed of standard drawing room sleeping cars, leather upholstered tourist sleeping cars, coaches and dining cars. Train is electric lighted throughout, with electric light in each berth



Ask for Through Tickets East via Spokane
and Northern Pacific Railway

Via St. Paul and Minneapolis and the Burlington Route
Stops at principal cities. Close connections for Eastern trains

THREE OTHER TRANSCONTINENTAL TRAINS
INCLUDING

The North Coast Limited

Carrying only passengers holding
first-class tickets

Mississippi Valley Limited

A complete through train to St. Louis
with Library-Observation car

WRITE FOR FULL INFORMATION

A. D. CHARLTON, ASSISTANT GENERAL PASSENGER AGENT, PORTLAND, OREGON

Grafted Walnut Trees

We do not grow regular nursery stock, but make a specialty of first-class grafted Walnut Trees. While we are growing and grafting our own trees for our 250-acre tract, we decided to grow some trees for sale.

In doing so we believe we are offering the very best trees that can be bought at any price. Vrooman Franquettes grafted on Royal Hybrid and California Black roots.

Our supply has never been equal to the demand, so if you want to be sure and have your order filled, order early.

Ferd Groner

Rose Mound Farm

HILLSBORO, OREGON

Three Vital Points for Buyers of Printing

Quality: The highest that brains applied to the best modern equipment can produce.

Service: Promptness and the utmost care exercised from inception to completion of all orders.

Cost: The lowest possible, consistent with quality and good service.

You may pay more elsewhere, but you cannot get more quality.

F. W. Baltes and Company
Printers and Binders, First and Oak, Portland

IDEAL NURSERY STOCK

We have all of the Standard Varieties for the Northwest and Invite Inspection of what we have to offer.

Our scions are selected with care from Hood River orchards. Our stock is grown in Hood River
Reasonable Prices and Special Inducements to Large Planters.

We also have a very fine block of Clark Seedling Strawberry Plants to offer.
Also small fruits for the home garden.

IF INTERESTED WRITE FOR PRICES AND CATALOGUE TO

IDEAL FRUIT AND NURSERY CO., Hood River, Oregon

WOULDN'T YOU

Like to move to a new country if it was not for the PIONEERING?

OPPORTUNITY

Is a new fruit district (under irrigation five years) but three miles from the city of Spokane in the famous Spokane valley. All our tracts have electric lights, domestic water, telephones, in fact every modern convenience. Large profits and an ideal home.

Get particulars from **CALLISON & IMUS**, Exclusive Agents
326 W. First Avenue, Spokane, Washington

Mosier Fruit Growers' Association

APPLES

PRUNES

PLUMS

CHERRIES

PEACHES

PEARS

"Fancy Fruit in a Fancy Pack"

Quality Apples
a Specialty

MOSIER, OREGON

The HARDIE TRIPLEX

The Sprayer with the Trouble Left Out



Each year demonstrates the fact that the Hardie Triplex is best adapted to Northwestern orchard conditions.

This machine is built to work successfully in any kind of an orchard, whether it is closely set or open, level or hilly.

By using good materials in construction, we give you light weight without sacrifice of strength.

All the liquid you need and at an even continuous high pressure.

A Hardie Triplex means to you Better Spraying in less time and at lowest cost.

A postal card brings you our new 64-page catalog; giving a detailed description of the construction of our Triplex and twenty other hand and power sprayers; new spraying devices, etc.

Write for it today.

The Hardie Manufacturing Company

Hudson, Michigan

49 North Front Street, Portland, Oregon

WHITE SALMON ORCHARD LANDS

The following improved ranch listed for sale for a few days:

80 acres with 30 acres set to apples, of which 16 acres are in bearing; balance of orchard, young trees one year old; 40 acres slashed and burned, ready to grub; 10 acres pasture. New apple house, 4-room residence, milk house and barn. Spring water piped to all buildings from springs on the ranch. Three acres in strawberries, also some pears and other fruits for home use. Ranch located only 2½ miles from White Salmon; fine view of the Columbia River, Mount Hood and the Hood River Valley. Ranch produced over 2,000 boxes of apples last year and should produce over 3,000 boxes next year. Owner will sell (if sold at once), including the crop, for only \$25,000.00, on these very easy terms: \$10,000.00 cash, \$2,000.00 in one year, \$1,750.00 in two years, balance \$1,625.00 a year until 1920. Interest 6 per cent. A BARGAIN AT THE ABOVE PRICE AND TERMS.

Another good buy is 10 or 20 acres two miles out, with spring water, for only \$100.00 an acre.

40 acres, out 12 miles, all good soil and location, only \$50.00 an acre.

80 acres, out 10 miles from railway station on North Bank Railway, \$62.50 an acre, including good house and 4 acres cleared ready to plant; also spring water.

For more information and BARGAINS IN ORCHARD LANDS, write or see

H. W. DAY REALTY CO., White Salmon, Washington



This Year's Growth

Pretty good isn't it. That's the way we grow stock here. No wonder we have so many satisfied customers.

Do you want trees like these? They mean money for you. Better buy good stock while you're at it; it's the cheapest.

More
Salesmen
Wanted



Toppenish
Washington

Do You Want a Home

in the midst of a delightful environment? A resort city with all modern improvements, mineral springs, scenic attractions, etc. Homeseekers needed to develop small tracts in the vicinity of ASHLAND, in the famed Rogue River Valley of Southern Oregon. For information regarding fruit, gardening, poultry, dairy products and stock-raising, address COMMERCIAL CLUB, Ashland, Oregon.

Advertisers please mention "Better Fruit" in correspondence.

Some Talk Dutch, Some Talk German

SOME TALK EITHER

English, Irish, Swede, Danish, Italian,
Japanese or Chinese

We talk business.

We have the trees that please all nationalities.

Why? Because they are grown right. Proper care is given to varieties. They are packed correctly for shipping. They are delivered on time. Our prices are right. Write for catalogue or call our salesman.

IF YOU CAN SELL GOODS WE HAVE
AN OPPORTUNITY FOR YOU

Capital City Nursery Company

Rooms 413-415 U.S. National Bank Building, SALEM, OREGON



Nine Kimball Cultivators in operation on property of Dufur Orchard Company, Dufur, Oregon, owned by the Churchill-Matthews Company, 510 Spalding Building, Portland, Oregon. This company is using at this time thirty-five Kimball Cultivators on their Dufur, Sheridan, Drain and Cottage Grove properties. This speaks volumes for home-produced machinery. Why go East for yours?

The Kimball Cultivator

Great Weeds and Fern Exterminator

Hood River, Oregon, Feb. 26, 1910.
 W. A. Johnston, The Dalles, Oregon.
 Dear Sir: I use three "Kimball Cultivators" in my orchard. There is nothing better as a weeder, dust mulcher, or to stir the soil. Yours truly,
 E. H. Shepard, Editor "Better Fruit."



Ninety per cent Hood River Orchardists use this machine.
 Send for illustrated descriptive booklet.



RETAIL PRICE SCHEDULE

No. 4—4½ feet, 6 blades, weight complete 70 lbs. . . . \$13.50	No. 11—12 feet, 15 blades, weight complete 185 lbs. . \$30.00
No. 5—5½ feet, 7 blades, weight complete 85 lbs. . . . 15.00	No. 13—One 8½ and one 9 feet, 23 blades, gangs, fully rigged, weight 300 lbs. 47.50
No. 6—6 feet, 8 blades, weight complete 100 lbs. 17.50	Extra Frames \$1.00 per foot; weight 10 lbs. per foot.
No. 7—7 feet, 9 blades, weight complete 115 lbs. 18.50	Extra Blades \$1.50 each; weight 5 lbs. each.
No. 8—8½ feet, 11 blades, weight complete 125 lbs. . . . 20.00	TERMS: Cash with order, except to dealers with established credit. All quotations f.o.b. The Dalles, Oregon.
No. 9—10 feet, 13 blades, weight complete 140 lbs. . . . 25.00	
No. 10—12 feet, 10 blades, open center, weight complete 160 lbs. 22.50	

W. A. JOHNSTON, Manufacturer

Long Distance Phone, Red 991

Office and Factory, 422 East Third Street, The Dalles, Oregon

HARDING-SHAW CO.

LEADING
BROKERS
Carlots
Box
Apples

Wire Us
Your
F. O. B.
Prices.
We Will
Place
Them
Before
the
Buyers

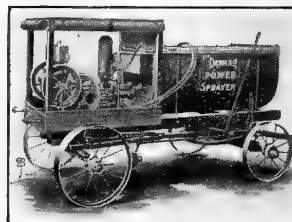
Cor. S. WATER & CLARK STREETS
CHICAGO, ILLINOIS

Deming

This is the day of the power sprayer. The growers who first advocated spraying and were the "pioneers" in using spray pumps, used hand outfits, and spent a lot of time going over their trees.

Today they are still the leaders—for they have "graduated" from the hand sprayer class. They know now that the power sprayer is a real economy—saving time, doing more work and better work.

Deming
Power
Sprayers
for



Growers
who "Get
Things
Done"

Thoroughly reliable, always ready for business. We make several different types—2½, 3 and 3½ H.P. special engines. Every outfit carefully tested before we ship.

Owners of smaller orchards will be interested in our famous "Samson," "Century" and "Simplex" outfits—and our reliable nozzles and attachments. Catalogue free. Our dealer near you will be glad to supply your wants. Write for his name.

CRANE CO., Pacific Coast Agents
Portland Seattle Spokane San Francisco

THE DEMING COMPANY, Manufacturers
335 Success Building, Salem, Ohio

Makers of Hand, Windmill and Power Pumps for All Uses

SPRAY PUMPS

This Light Weight Grader Will Solve Your Irrigation Problems

It is an all-steel one-man machine. It weighs only 600 pounds. It will stir your soil, level your land, cut laterals, pick up dirt and drop it where you want it, and cut ditches 24 to 36 inches deep at a cost of 2 cents a rod. It will do more work than big heavy graders in less time and with less effort. One man with two horses operates it. Ditches cut with the 20th Century Grader are "V" shaped, with firm, solid sides—no fear of their being washed down.

20th Century Grader

is a many purpose, easily operated machine that pays for itself over and over again and puts money into your pocket.

To get big results your work must be right, so you must have the right machine.

Let us tell you what others say about this wonderful machine. We want to prove to your satisfaction that it's a genuine money-maker. There are many uses to which the 20th Century Grader is specially adapted and many ways you can make big money by using it on your ownland and on your neighbors'.

Write for our interesting and valuable free book giving full information about this money-making machine, what it has done for thousands and will do for you.



THE BAKER MANUFACTURING CO.
542 Hunter Building
CHICAGO, ILLINOIS



STANDARD SIZE
Capacity, One Gallon
Burns 8 hours

PRICE
Black Iron, 20c each
Galvanized, 23c each



LARGE SIZE
Capacity, Two Gallons
Burns 12 hours

PRICE
Black Iron, 26c each
Galvanized, 30c each

And Still to the Fore

The BOLTON ORCHARD HEATER

The Pioneer—Without a Peer

Absolutely essential to every grower. Drastic tests of last spring proved its infallibility. Operation perfect and simple. Construction unexcelled



Automatic
ELECTRIC ALARM
Thermometers

The Watch Dog of the Orchard

\$22.50
DELIVERED

Specify alarm temperature required. It is advisable to have it set several degrees above the danger point.



The experimental stage has long since passed. Equip now. Next season may be more severe than last.

**DON'T HESITATE
DON'T DELAY**

Send for our new booklet.
It will tell you how to save your fruit.

The Bolton Orchard Heater

of today is constructively perfect.
Better than ever.
Costs no more.

Endorsed by California Fruit Growers' Exchange and forty other Fruit Associations.

THE FROST PREVENTION CO.

Bank of Italy Building, SAN FRANCISCO, CALIFORNIA

GEORGE H. PARKER, Oregon Agent, 403 West D Street, Grants Pass, Oregon

FRED H. HAMMER, So. California Agent, 107 So. Broadway, Los Angeles, California

YAKIMA REX SPRAY CO., Northwest States Agents, North Yakima, Washington

L. W. FISHER, Middle West Agent, 109 Temple Block, Kansas City, Missouri

John Amicon Brother & Company

Third and Naghten Streets, COLUMBUS, OHIO

Located on the Pennsylvania System Tracks and B. & O. Ry.

ALSO BRANCHES

Our market contains 200,000 inhabitants located in the central part of the state with many railroad and electric lines passing through here. 1,000,000 people in surrounding territory, who depend on this market for their supplies.

We want car lots of Western Apples. We are the heaviest operators in the state of Ohio in Western Box Apples.

Write today, stating number of cars you will ship; also state varieties. Look up our financial standing; ask any National Bank in city of Columbus.



Spray Your Fruit for Codling Moth with
Grasselli Arsenate of Lead
 IT IS THE BEST

DISTRIBUTERS IN THE NORTHWEST:

Inland Seed Co., Spokane, Washington
 Hardie Manufacturing Co., Portland, Oregon
 Samuel Loney & Co., Walla Walla, Washington
 Missoula Drug Co., Missoula, Montana
 Western Hardware & Implement Co., Lewiston, Idaho
 Salem Fruit Union, Salem, Oregon
 Hood River Apple Growers' Union, Hood River, Oregon
 C. J. Sinsel, Boise, Idaho
 Yakima County Horticulturists' Union, North Yakima, Washington
 Darrow Bros. Seed & Supply Co., Twin Falls, Idaho
 Rogue River Fruit and Produce Ass'n, Medford, Oregon
 And in all consuming districts.

Winners of the GRAND SWEEPSTAKE PRIZE of \$1,000.00 for best car of Apples shown at the National Apple Show, Spokane, Washington, were as follows:

1908—M. Horan, Wenatchee, Washington.
 1909—Tronson & Guthrie, Eagle Point, Oregon.
 1910—C. H. Sproat, Hood River, Oregon.

All the above sprayed with Grasselli Arsenate of Lead.

MANUFACTURED BY

THE GRASSELLI CHEMICAL CO.

Established 1839

MAIN OFFICE: CLEVELAND, OHIO

DISTRIBUTERS IN ALL THE FRUIT GROWING DISTRICTS

For further information write nearest distributor named above, or The Grasselli Chemical Co., St. Paul.

Branch Offices	{	New York	Chicago	St. Paul
		St. Louis	Cincinnati	Birmingham
		New Orleans	Milwaukee	Detroit

W. E. BIGALOW, President

Capital and Surplus \$100,000.00
Established 1883

H. J. BIGALOW, Secretary and Treasurer

REFERENCES:

The First National Bank, Cleveland
All Commercial Agencies
The Produce Reporter Company
Any reliable house in our line in the
United States



SOME OF OUR SHIPPERS—REFERENCES
California Growers' Exchange, Los Angeles, Cal.
California Fruit Distributors.
Earl Fruit Company.
Pioneer Fruit Company.
Producers' Fruit Company, Sacramento, Cal.
Stewart Fruit Company, Los Angeles, Cal.
Atwood Grape Fruit Company, Manavista, Fla.
Florida Citrus Exchange, Tampa, Fla.
W. G. Martin, Castleberry, Ala.
Sylvester Fruit Co., Sylvester, Ga.
Gibson Fruit Co., Chicago, Ill.
Mills Bros., Chicago, Ill.

*Commission
Merchants*

*Jobbers and
Wholesalers*

CLEVELAND, OHIO

*Apples, Plums, Prunes, Pears,
Peaches, Grapes*

We have the largest and best trade in the Cleveland territory; our facilities are unsurpassed
We have had years of experience in handling box apples and fancy fruits

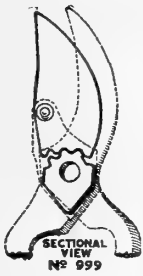
We solicit your correspondence and shipments

Searight Pruning Tools

ARE CLASS AND QUALITY THROUGH AND THROUGH

They are made of the very best of materials and designed on practical and scientific principles. Not cheap nor built for cheap trade, but when strength, durability, capacity, ease of operation, and desirable qualities are considered, they stand alone. Cheap tools are generally expensive, while high grade, desirable tools are cheap at any reasonable price.

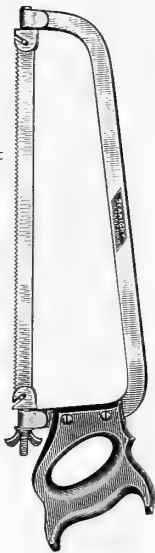
Searight Tools Are Guaranteed
Insist on seeing and trying them
A card will bring information



Length 9 inches
Pivotal Draw-Cut
Hand Pruner



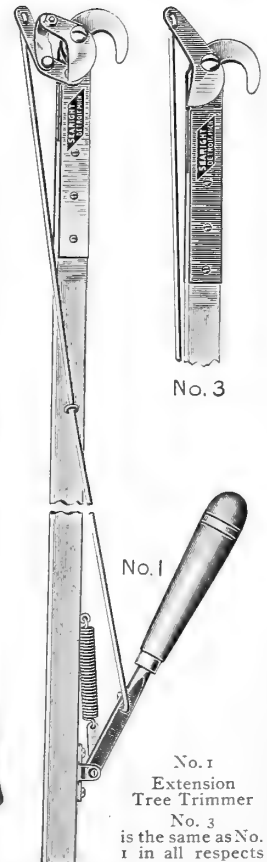
No. 888
Plain Hand Pruner



No. 18
Hand Pruning Saw



No. 777
Two-Hand Pruner



No. 1
Extension
Tree Trimmer
No. 3
is the same as No. 1 in all respects except the compound lever attachment and blade

DETROIT SHEAR COMPANY

899 Greenwood Avenue

DETROIT, MICHIGAN

Central Oregon



Is Now Reached via the Deschutes Branch

Oregon-Washington Railroad & Navigation Co.

For both Passenger and Freight Traffic to and from Madras,
Metolius, Culver, Opal City, Redmond, Bend and
other Central Oregon points

SCHEDULE

Lv. Portland	{ 7:50 A.M.	Lv. Opal City	8:15 A.M.
	10:00 A.M.	Lv. Metolius	8:43 A.M.
Lv. The Dalles	12:40 P.M.	Lv. Madras	9:00 A.M.
Lv. Deschutes Jc.	1:30 P.M.	Ar. Deschutes Jc.	1:15 P.M.
Ar. Madras	5:45 P.M.	Ar. The Dalles	1:55 P.M.
Ar. Metolius	6:00 P.M.	Ar. Portland	5:45 P.M.
Ar. Opal City	6:30 P.M.		

Auto and regular stage connections to La Pine, Fort Rock, Silver Lake,
Prineville, Burns, Klamath Falls and other inland points

The Direct, Quick and Natural Route between Portland and All Points in Central Oregon

Call on any O.-W. R. & N. Agent for any information desired, or address

WM. McMURRAY
GENERAL PASSENGER AGENT
PORTLAND, OREGON

The Best of the World's Best Apples

ARE GROWN AT
MOSIER, OREGON
ON THE COLUMBIA

Amid the most perfect of climatic, scenic and social conditions, and are shipped to

The Far Corners of the Earth

Over our splendid systems of rail and water transportation, commanding the very highest prices.

LAND at Mosier may be had at a more reasonable price than in any other strictly high class, PROVEN apple district. Let us mail you a partial list of land for sale, with any other information you may care to have.

We also bring land into bearing at absolute cost, under our original selling method. If you can't look after your place in person, ask about our plan.

D. D. HAIL CO.
MOSIER, OREGON

NO TROUBLE TO ANSWER QUESTIONS

What Constitutes a Good Spray Pump?

- High Pressure - to throw a strong, fine spray.
- A Pump—of sufficient capacity under slow speed.
- An Agitator—to keep mixture well stirred so that it cannot clog pipes and nozzles.
- Some Method of Cleaning the strainer.

Ask any fruit farmer with experience. He will tell you that the most annoying thing is to find pump, suction or nozzles clogged when he has a tank full of spray mixture in the orchard and must clean out before his sprayer will work.

Here We Come In Automatic Brushes with Mechanical Agitators furnished with Empire King Barrel Pump and Watson-Ospraymo Potato Sprayer, also with Leader-Triplex Gasoline Engine Machines of 10 gallons per minute capacity, and capable of a nozzle pressure of 250 to 300 pounds.

These Triplex Pumps are run only 40 to 50 revolutions per minute. This slow speed means long life, greater efficiency, less up-keep cost, the weight is not too heavy for two horses—1550 pounds with 2 H.P. engine and 150 gallon tank, including wagon with five-inch tires; or with 3½ H.P. engine and 200 gallon tank, 1800 pounds.

Insist on
This Trade Mark



The prices are not too high for efficiency, durability, capacity and satisfaction.

Are you interested? A postal will bring you into touch with our nearest agency.

FIELD FORCE PUMP CO.
Dept. B ELMIRA, N. Y.

Western Pacific Railway

The New Transcontinental Highway

REACHES a rich agricultural territory hitherto without a railroad.

OPENS new markets to the merchant and orchardist and a virgin field to the land-seeker.

A one per cent maximum grade, obtained at the cost of millions, makes possible the fastest freight service ever given to California shippers

DAILY through merchandise cars for package freight

FROM Boston, New York, Chicago, St. Louis and Kansas City

FOR all points in Northern and Central California.

For rates and routing instructions, etc., write H. M. ADAMS, F. T. M., Mills Building, San Francisco

The New Transcontinental Highway

Western Pacific Railway

ACID BLAST ETCHED PLATES

We have installed the only etching machines in the State of Oregon

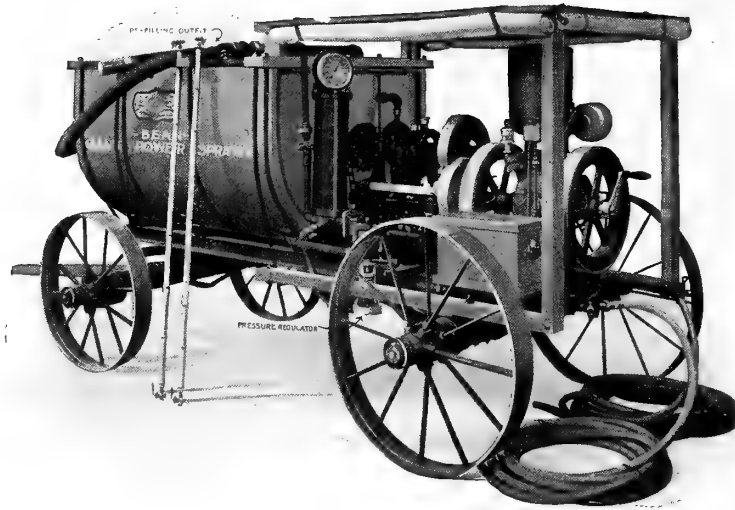
Blast etched cuts have a printing quality which has never before been obtainable with process engraved plates

THEY COST THE SAME AS THE OTHER KIND

WE MAKE CUTS THAT PRINT

HICKS - CHATTEN ENGRAVING CO.
607 BLAKE-MCFALL BLDG., PORTLAND, OREGON

The Bean Giant



THE BEAN GIANT

The most perfect power sprayer ever put on the market. It has immense capacity, is built low down and is easily moved, affords **CONSTANT** high pressure, and is free from breakdowns.

A new feature—the Bean Refiller—fills the 200-gallon tank in five minutes. No movable parts. Costs less than our rotary, or any other, supply pump. Note the illustration carefully.

SIGN THIS IF YOU WANT A COPY OF OUR NEW CATALOG

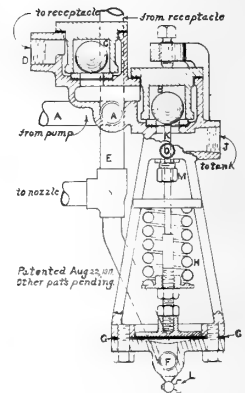
Bean Spray Pump Co.
213 West Julian Street, San Jose, California.
Please send me a copy of your new Catalog as soon as it comes from the press.

If you want our salesman to call check here.....

BEAN SPRAY PUMP CO.

213 West Julian Street, San Jose, California

EASTERN FACTORY AT CLEVELAND, OHIO



The Bean Pressure Regulator

The greatest single improvement ever added to a power sprayer. It enables the operator to maintain an even pressure at any desired gauge. We cannot go into minute description in this limited space, but we will gladly send you a descriptive circular that explains this new feature thoroughly.

This unique regulator relieves the engine whenever the nozzles are partly or wholly shut off—and uses the full energy only when all nozzles are in use.

In the course of a day, from one-fourth to one-third of the gasoline and the same proportion of wear and tear on the engine and pump are saved by the use of this remarkable feature. *And it is always safe and dependable.*

PHOTOGRAPHS CANNOT LIE—They show exactly what comes before the camera. Half-tones are exact reproductions of photographs and are necessarily true to nature.



A block of Bing, Lambert, Royal Ann (Napoleon) as the camera shows it

Sweet Cherry

For the western cherry grower we have thousands upon thousands of handsome 1-yr. and 2-yr. trees, grown in the finest cherry soil in the world. Bing, Lambert and Royal Ann (Napoleon) constitute the bulk of our sweet cherry blocks, and these three varieties are the ones that are planted almost exclusively and are the ones that have made the cherry regions of the West famous. They are unfailing money makers.

Sweet cherries can be grown only in favored localities; the area is so limited that over production cannot be considered even among the possibilities—at least for many years. Therefore, these regions must increase their plantings as the demand for the fruit is increasing with each season—much more rapidly than the production, and the markets have never been one-tenth supplied. They should be planted by the thousands of acres. Cherry growing for the canners—to say nothing of the great and growing markets for the fresh fruit—is becoming one of the great industries of the West and it is only fairly well begun. The markets of the world are open to the producer.

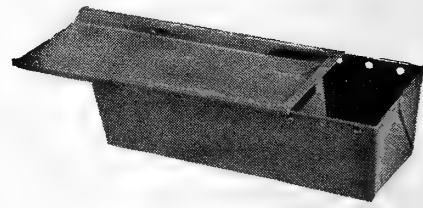
Condensed Stark Year Book, 1912, is now in the hands of the printers and will be sent free to any reader of **Better Fruit**. Write for it today, and when writing tell us your planting plans. Perhaps some lessons we have learned in our many years of experience in nursery and orchard will help you steer clear of some of the orchard mistakes that cost many planters dearly. We will be glad to be of any service. The help of our Special Service Department is yours for the asking.

Stark Bro's Nurseries & Orchards Co.

Louisiana, Missouri. Lock Box 12 A.

The Hamilton Reservoir Orchard Heater

The King of All
Orchard Heaters



It is the best, considered by any standard.
It is the most POWERFUL because of the REGULATED FIRE.
It is the most ECONOMICAL because of the REGULATED FIRE.
It is the simplest in operation because of the REGULATED FIRE.
It delivers any amount of heat desired AT THE TIME IT IS NEEDED because of the REGULATED FIRE.

It gives a rise of temperature exactly in proportion to the amount of oil consumed, and it is possible to consume any amount of oil necessary, and no other type does.

It meets ALL THE REQUIREMENTS of a successful orchard heater, and no other type does.

We challenge anyone to successfully dispute these claims. Satisfy yourself that we are right. Read

Two Bulletins

Published in this paper. Study Oregon Bulletin No. 110 and note what round types of heaters did in careful operations. Note the size and conditions of the orchard, the temperatures of the night, the wind and other features. Note carefully the temperature rise maintained with the equipment used, the temperatures at 2 A. M. and 6 A. M. and when the greatest rise was experienced, and what it was. Please study also Bulletin No. 32, by Professor R. F. Howard of the Horticulture Department of University of Nebraska, and the results he secured against a heavy wind with the Sliding Cover type, which permitted of the Regulated Fire. Note carefully what he says about different types of heaters, and which has proven the best and most economical in action against frost. A study of the two pieces of literature in a comparative way will give you more reliable information on different types of heaters than anything any manufacturer can. We give a letter here that further explains how the Reservoir heater, with the Regulated Fire, operates. Compare this with these bulletins. We have scores more like it. Write for them and for full information about the only heater that made good in Texas last winter. Remember, you can't save your oil and your fruit at the same time.

Palisade, Colorado, May 27, 1911.

Mr. James L. Hamilton, Grand Junction, Colorado.

My Dear Sir: The results from using your orchard heaters this season have been so satisfactory and demonstrated to me so fully that fruit can be saved every season by intelligently using them, that I am impelled to write you quite fully how I saved my splendid crop. I have about four and one-half acres in fruit and used 250 heaters of the three-gallon size. At sundown on the night of April 12 it registered, according to my government-tested thermometer, 36 degrees. I kept close watch and by 10 p. m. it had gone down to 30 degrees. Knowing it was close to the danger point, I prepared for lighting. At 10:30 I began firing, for the temperature had reached 29 degrees. I first opened the heaters on every other row, moving the covers to the second hole. By this method I raised and maintained the temperature at 36 to 37 degrees. I kept watch of the variations of temperature on the outside and found that it was gradually growing colder. By midnight the thermometer indicated 26 on the outside and on the inside of my orchard it had dropped to 34 degrees, and by 4 a. m. the mercury indicated 24 degrees on the outside and on the inside 30. I then fired all the remaining heaters, leaving those first lighted open at the second hole and opening the others at the third hole. I then went back to the thermometers and found the mercury had gone lower, and at 5 a. m. indicated the low temperature of 21 degrees on the outside; at the same time the temperature remained at 30 degrees on the inside. Knowing that I had considerable reserve power in my heaters, I from this time on kept watch, so if it became necessary I could apply same. I burned them as last adjusted till 7:30 in the morning without refilling, making nine hours' heating period, consuming, as near as I can tell, about 500 gallons of oil during the nine hours' heating on the entire tract. The wind varied considerably during the heating. The sliding cover feature of the heater is, in my opinion, the most valuable economic device of the heater. This enabled me to control, first, the amount of oil consumed, and second, the increasing or decreasing of the heat as required, very rapidly. It is not often that nine or ten hours of continuous heating is required, but it is always safe to keep the heaters well filled and enough of them to do the work in extreme cases like the one we have experienced this season. By being prepared and properly adjusting the sliding cover, refilling is not necessary when the heat is most needed. Economy, too, is not a small item. I am now fully convinced that your orchard heater will do the work claimed for it, and I, as well as others who used them, as they must or should be used, this season, under the most adverse conditions, can show most gratifying results.

Very truly,

(Signed)

W. A. RHOADES.

Good Agents
Wanted Everywhere

Hamilton Orchard Heater Co. Grand Junction
Colorado

BETTER FRUIT

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

Frost Injury Prevention Methods in Rogue River Valley

By P. J. O'Gara, Pathologist and Special Meteorological Observer United States Weather Bureau

PROTECTION against frost injury is by no means a new thing, although perusal of some recent writings and discussions would lead one to believe that it is. As a matter of fact, however, the protection of plants and fruits from frost injury dates back perhaps more than two thousand years. It is known that the Romans practiced heating and smudging as a protection against frost injury; this fact is vouched for by Pliny, who recommended the practice. Smudging was also recommended by Olivier de Serres, a French agriculturist, in the sixteenth century. He recommended the use of wet straw and half-rotten manures so as to produce a heavy smoke. In the latter part of the eighteenth century the practice of smudging was compulsory in parts of Germany, and failure to comply with certain set regulations resulted in prosecution before an officer of the law who imposed exemplary punishment. It is also recorded by Boussingault that the Indians of Peru practiced frost prevention, and that this was inherited from the pre-Spanish civilization. A reference to the literature which we have at hand shows some of the earlier work in frost prevention was by no means so crude as one would suppose. As a matter of fact, some of the modern practices are less scientific in their adaptations than the earliest attempts at frost prevention of which we have any record. During the eighties and early nineties the French vine growers did some remarkable work; and we find them even at that time using heavy oils as fuel, placing these oils in flat ironware dishes. There were also used many prepared fuels, which would render a very dense smoke. There had also been devised systems of automatic lighting which were more or less successful. These systems were operated by a mercuric column, not very much unlike some of our modern automatic alarm thermometers. Even at this time it was understood that there is a certain advantage in co-operation in frost prevention since the work done by one grower near by aided in the protection of the crops of others. About the same time that the French vine growers were carrying on their work in frost prevention by certain heating and smudging devices, our California and Florida orange growers were experimenting. At this time some of the deciduous fruit growers of the Sacramento Valley and elsewhere in California were also working along

this line. It is remarkable that some of this work did not bear as good results as it should, since it has only been within recent years that fruit and vegetable growers throughout the United States have made a practice of protecting their crops from frost injury. Even now the practice is not as general as it should be, but this is largely true because the public in general has had very little reliable information and data on the subject of frost prevention. Furthermore, widely sep-

harvester; but if the grain grower of the past had refused to gather his grain until the modern self-binder was invented humanity would have disappeared from the surface of the earth. The fuel pot for frost prevention may be considered as inefficient and as crude as is the steam engine of today which utilizes only a small percentage of the heat energy in the fuel consumed beneath the steam boiler; but this is no argument against the oil pot, as the steam engine is one of the most useful of all modern machines and will keep its place at the head of all prime movers until a better machine is invented. There is always someone to be found who will frown upon the present method of doing things, believing that he has, or perhaps will have, something which will be better. However, the orchardists cannot wait for the man who has an undeveloped idea, but must take the very best means at hand, though it be crude, to protect himself from loss. It must be understood at the outset that the orchardist cannot afford to equip his orchard with apparatus of too costly a nature; it must be simple, or at least easily workable, and not too delicate for practical use.

The protection of orchards from frost injury is not an experiment in Rogue River Valley. There are probably some who may think it is, but a perusal of the records in the office of the pathologist and entomologist will show that the experimental stage in practical orchard heating has passed. A glance over the valley will show the large commercial orchards equipped with fuel pots for burning crude oil, distillate and coal, while others are protected by means of wood, which has proven very successful. Will anyone say that a commercial orchardist who has for the past four seasons saved his crop, valued at more than \$1,000 per acre, is much in need of advice? If the cost of saving his crop is well below the maximum it would seem that, for him, his method must be the best. During the past season of frosts the Rogue River Valley orchardists did not experiment. In saving the crops from frost injury a safe approximation would put the number of fires used at fifty thousand. A large number of these were fuel pots burning crude oil and distillate, but there was also a very large number of wood fires, which, though somewhat clumsier to handle, were none the less effective in obtaining the desired results, namely,

Features of this Issue

MODERN METHODS IN FROST PREVENTION IN THE ROGUE RIVER VALLEY

FORECASTING FROST IN THE NORTH PACIFIC STATES

ARTICLES ON SUCCESSFUL ORCHARD HEATING METHODS

NATIONAL COUNTRY LIFE CONGRESS

PRELIMINARY FROST FIGHTING STUDIES IN THE ROGUE RIVER VALLEY

THE FRUIT GROWER'S THERMOMETER

ORCHARD MANAGEMENT IN NEW ENGLAND

(Continued from last issue)

arated districts, with their different varieties of fruits and different climatic conditions, cannot rely entirely upon practices and results obtained under conditions wholly dissimilar. However, the knowledge gained during the past few years is such that the methods now used have a more general application than former ones. In the discussion which is to follow, frost prevention by means of heating and smudging only will be considered. The various other methods, such as irrigating, sprinkling or spraying with water, will not be discussed.

The present methods of frost prevention by means of fires and smudges, using the various types of oil pots and heaters, are by no means perfect. Perhaps in time, and very shortly too, we will have some method of orchard protection that is better than the oil pot now in use. Someone has said that the so-called smudge pot is as crude an appliance for the prevention of frost injury as the ancient sickle is for reaping. Today, no one would think of using the sickle in place of the modern



Figure 1—Fir Cordwood Used in the Potter & Goold Orchard, Medford, Oregon
Note how the wood is pushed into the flame. Pear crop valued at \$1,000 an acre was saved at a cost of four dollars an acre for firing.

saving the crops from damage. To be specific, the Burrell orchard, including the George B. Carpenter orchard, used perhaps 8,000 pots; Bear Creek, 3,600; Snowy Butte, 2,000; Fiero, 2,000; Butz and Beckwith, 1,000. These few instances are given to show what some of the orchardists are doing. Last year, the total number of orders for fuel pots, including those for burning coal, approximated 15,000; this year a total of perhaps 20,000 more were ordered, making a grand total of 35,000 pots used in Jackson County. Josephine County also ordered quite a large number, and such orchards as the Eisman and Pritchard are fully equipped, and have been for the past two or three seasons.

In a commercial way, the types of pots used were the Fresno, Bolton and Hamilton. The Troutman pot was used only in an experimental plot and was demonstrated by an agent of the company manufacturing it. The Ideal coal pot was in use during last season's frost period, so that it has been in the valley two seasons. It is not the object of this article to discuss the relative merits of the different types of pots. The writer, however, has contended that the simplest type, which, of course, will be the least expensive, is the one which will grow in favor with the fruit growers. As has been stated in previous articles, the lard pail type is just as efficient as the Fresno pot with its row of holes near the upper rim. The Bolton pot has one disadvantage with respect to the arrester, or partial cover, which is placed over the mouth of the pot. No doubt in burning 28-degree test distillate this type of pot will work very nicely, but with crude oil or slop distillate the heavy coating of soot will tend to clog the openings, and, in the course of a night's use, will have a marked effect

in reducing the efficiency of the pot. It may even clog so much as to put out the flame. However, this pot used open and without arrester, may be equal to the Fresno or lard pail type, and has proven so in actual test, since, burned that way, it is practically the same as the other two types. The Hamilton heater is so arranged as to increase or decrease the burning surface so as to regulate the amount of heat. This pot, which is made in the form of a rectangular trough, is not so saving of fuel as might be supposed, since there is often a tendency for the flame to burn back of the apron which hangs downward from the

sliding cover, and which regulates, or is supposed to regulate, the amount of fuel burned. The Ideal coal heater is designed to hold 25 to 30 pounds of coal, and is very satisfactory so far as heating is concerned, but the fact that a great deal of time is required to lay the fires, or prepare the heaters, is somewhat against their use. There are a large number of heaters on the market, each one with its particular claim for efficiency; but as yet, with the fuels we have here, it is a question as to what superiority one type may have over another. So far there has been no real efficiency test made in any part of the country where heaters have been used side by side under absolutely like conditions. Manufacturers have been unwilling to make such competitive tests; and, in some cases where such tests were supposed to be made, one manufacturer would not accede to the conditions imposed by the other. This has been the case in a test which was to have been carried out in this valley during the past season. A competitive test made by a dozen manufacturers would be of considerable interest to the fruit growers, and would tend to eliminate such heaters as prove to be inefficient. However, where only two types were used in a test which was in no way competitive little interest was shown. Furthermore, when a so-called test is made under conditions where it is almost impossible to lose out little can be said that would be favorable. An orchard with old spreading trees and the fruiting area rather high is very easy to protect under our conditions. It is the young orchard, which covers only a small part of the ground and traps little heat, with the fruiting area very low down near the ground, that is difficult to protect from frost injury.



Figure 2—Fir Cordwood Used in the Orchard of Potter & Goold, Medford, Oregon
Note the method of piling the sticks, which are in four-foot lengths

A test in such an orchard would really be worth while.

As has been stated before, the fuels used are crude oil, 28-degree test distillate, coal, wood (old rails and cordwood), straw, sawdust and manure, the latter being mainly used to produce a dense smudge. One of the greatest difficulties in the use of crude oil and slop distillate is the presence of water, which tends to extinguish the flame or cause the pots to boil over. The presence of water in crude oil is due to the fact that water is forced into the rifled delivery pipes as a jacket so that the oil will flow readily. Crude oil cannot be forced through long lines of pipe without this water jacket. The water, though small in amount, goes directly into the storage tank, where, if the temperature of the oil rises, the water will sink to the bottom of the tank. It can then be drained off. Often, however, the water, which at low temperatures is very nearly the specific gravity of the oil, remains in pockets, or small globules, distributed through the oil. Outside of the fact that the crude oil often contains water it has a very great tendency to deposit large amounts of soot on the trees, as well as tending to clog certain types of pots. Besides, a very large amount of residuum is left behind so that a second or a third filling will so coat the sides and bottom of the pot that it will hold much less oil in future fillings, and will, therefore, burn for a much shorter period. For instance, a pot that will hold one gallon when clean will not hold more than three-fourths of a gallon after having been burned two or three times. This is a very serious defect, and one that cannot be overlooked. The crude oil from the wells of the Pacific Coast is unlike that of the East or Middle West in that it has an asphaltum base. No matter what the type of pot, a heavy asphaltum oil cannot be perfectly burned; that is to say, combustion is not complete. The heavy asphaltum base requires a much larger amount of oxy-

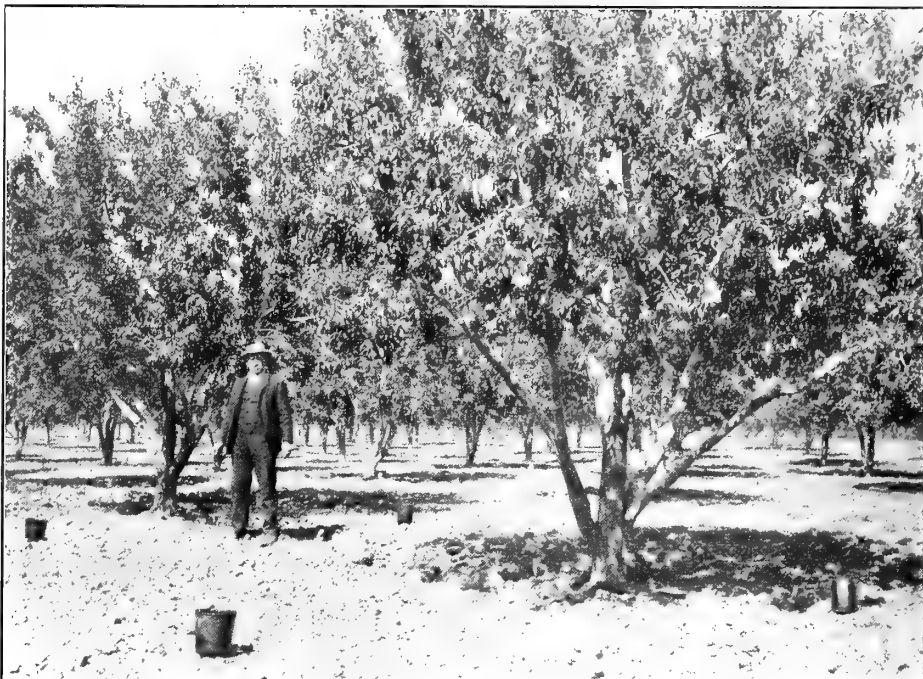


Figure 6—Distillate, 28° Test, Used in the Marshall Orchard, Season of 1910
This crop was saved, while the one across the road was completely destroyed by a temperature of 26 degrees F.

gen than even the best type of pot can furnish, hence the large amount of residuum left on the sides and bottom of the pot. The oils of the East have a paraffine base and burn much better. At this time, however, it would seem impossible to bring this oil in so as to compete with the Pacific Coast product. A certain understanding between the oil companies exists, and, besides, the freight charges would bring the price up to a point where its use would be prohibitive.

The distillate used last year, as has been mentioned before, is a perfect fuel. It burns readily, leaves but very little deposit and does not tend to produce so much soot. This is what is called the 28-degree test. Its cost to the growers is very much above that of crude oil, and, therefore, was not used this year. The distillate used this

year is known as "slop" distillate, and, although it was supposed to test 23 degrees, it has been found to test about 20 degrees, or perhaps a little more. This slop distillate proved to be very little, if any, better than the crude oil, since some of it contained water; and, besides, it tended to produce a great deal of soot. The amount of residuum left in the pots was in many cases nearly equal to that left by the crude oil. Both the crude oil and the slop distillate will eventually be replaced by a better fuel. We will either use a distillate, such as the 28-degree test, or the lighter paraffine oils of the East. The cost of crude oil laid down is about four and one-half cents per gallon, and that of the slop distillate six and one-quarter cents per gallon. The 28-degree test distillate, last year, cost the growers approximately nine cents a gallon. The greatest element of cost in obtaining these crude products is the high freight charge. Crude oil at the wells in California is worth scarcely two cents a gallon, and the distillates, which are refinery products, do not cost more than twice that figure.

By some of the fruit growers wood has been used for several years. This is particularly true of the Gore, Allen, Randell, Brown and Potter and Goold orchards, and several smaller orchards. That wood has been effective in preventing frost injury even when the temperature may run very low is proven by an examination of the orchards where wood was properly used. For instance, the Gore orchard, which was protected by burning old rails, showed few injured fruits even on the lowest branches. In connection with the wood, Mr. Gore used a small amount of crude oil, which he threw upon the wood fires ranged along the east side of the orchard so as to produce a dense smudge just before sun-

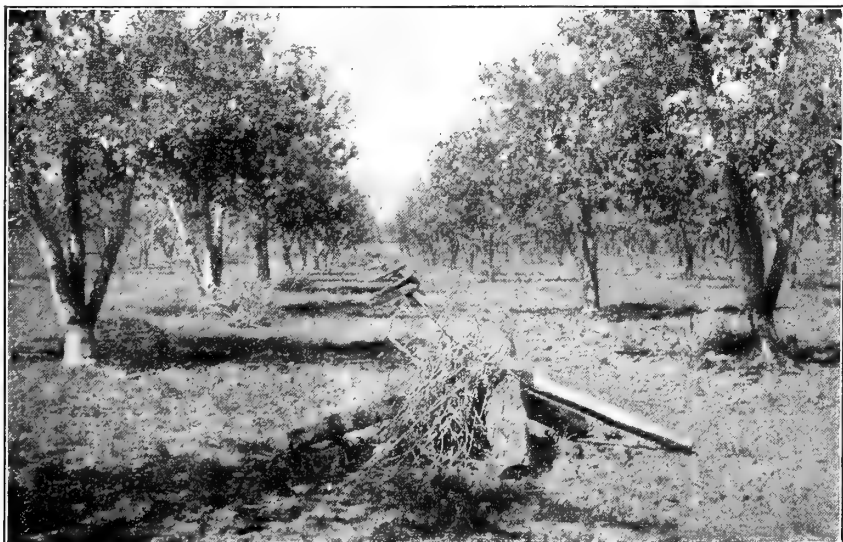


Figure 3—Brush and Cordwood in the Brown Orchard, Medford, Oregon, Season of 1909
Crop of apples valued at \$1,500 an acre was saved by two firings costing in all only \$6.00 an acre



Figure 7—Sixty Fresno Pots to the Acre for Crude Oil, in the Burrell Pear Orchard Medford, Oregon

The temperature was raised 10°, or from 26° to 36° F., on the night of April 13-14, 1910
A crop of pears valued at \$1,000 an acre was saved, at a cost of \$3.00 an acre

rise. This same practice was carried out in the Brown orchard. In the Hollywood orchard, owned by A. C. Allen, wood was also used for its heating effect, and the dense smudge was produced by adding quantities of stable manure to the wood fires. An examination of the orchard shows that the method worked very well. In the Randell and Buckeye orchards the same scheme of using wood and manure was carried out, and excellent results were obtained. In some very small orchards sawdust and shavings, put into large paper sacks and saturated with crude oil, also proved to be quite effective. These fires burned from six to seven hours, giving off a considerable amount of heat and a very dense smudge.

The methods of lighting the different fuels are not difficult. With crude oil and distillate a small amount of gasoline or kerosene, squirted from an oil can onto the surface of the oils, was easily ignited by a torch. In most cases the torches were home-made affairs, but were none the less serviceable. A man could easily light the pots as fast as he could walk. The cover on the pots was quickly thrown off, a few drops of kerosene or gasoline spilled on the surface of the oil and the torch quickly applied; this is the work of but a moment, and scarcely needed a stop on the part of the operator. In order to ignite the wood it is necessary to pile it in a particular way. This is shown by noting the piles of wood in the Gore orchard, as shown in the illustration. Fine material is not absolutely necessary if the wood is dry. A kerosene can and a torch are all that is needed. A small amount of kerosene spilled on the wood, which is piled "dove-tail" fashion, and the torch applied will easily start it. During the

past season of frosts some difficulty was experienced in lighting the wood on account of the fact that during the week previous there had been a heavy precipitation amounting to about 1.27 inches. However, this exigency was overcome by using kindling and a little more kerosene and some crude oil. In using wood the particular thing to keep in mind is that it should be dry. Frost conditions are almost certain to follow a heavy rain, and this was particularly true during this season.

In the spring it is found that during the day, that is between sunrise and sunset, the wind blows mostly from

northerly quarters. These winds are not moisture laden as a rule, the relative humidity often being as low as twenty-five per cent at a temperature of seventy degrees Fahrenheit. During the night when frosts are likely to occur the winds die down altogether, or change to a southerly quarter. The winds from the south are very dry, and the relative humidity is often much lower during the period in which the winds come from the south. If the winds continue to blow from the northwest or westerly quarters, frosts rarely occur, because these winds tend to raise the dewpoint, or, in other words, bring in air with a larger percentage of water vapor present. While the water vapor content of the atmosphere is high, damaging frosts cannot occur. It is only when the dewpoint temperature approaches the freezing point or is below it that we may expect a serious freeze. As a rule it is only on the valley floor that serious injury may be caused by low temperatures during the blooming period or some time thereafter. Even on the valley floor where there may be some slight elevation no frosts occur, while serious injury may result only a few feet below. The hillsides surrounding the valley usually escape frosts altogether, and the average variation in temperature in favor of the lands lying above the valley floor is from five to six degrees; therefore, even though a heavy frost may occur on the valley floor, the temperature may not go to freezing on the uplands. During the past season some records were made by observing temperatures on and near the ground, as well as on the roof of the Garnett-Corey Building, which is fifty feet above the street level. While temperatures ranged as low as twenty-three to twenty-five degrees on the ground and four feet above it, the



Figure 8—Distillate, 28° Test, Used in Fresno Pots, Seventy to the Acre, in the Hill Orchard (Pear), Medford, Oregon. No less than 100 to 125 pots should be used in a young orchard of this type

temperature on the roof was from thirty-two to thirty-five degrees. There is at times, therefore, a difference of twelve degrees or more between the temperature on the ground and at a height of fifty feet above when taken on the valley floor. Under usual conditions we are quite safe in saying that there may be little danger to the crops on the higher lands surrounding the main floor of the valley.

During the week included between April 10 and 17 of this year quite an unusual condition prevailed. Owing to the heavy precipitation, followed by a rather cold wave, there was practically no difference in the temperatures recorded on the valley floor and the surrounding higher ground. The minimum temperatures recorded on the mornings of April 11, 12 and 13 ranged between twenty-seven and one-half and thirty-one and one-half degrees throughout the district generally. In most cases these temperatures did not continue over a very long period of time and were not necessarily damaging. On the morning of the eleventh and twelfth very little firing was necessary, and even on the thirteenth there were only a few spots which required heating for a short time. The maximum daily temperatures for the ninth, tenth, eleventh and twelfth, respectively, were fifty-seven, fifty-six, forty-seven and forty-eight degrees; therefore, there was very little insolation. However, the temperatures on the thirteenth and fourteenth rose to fifty-seven and sixty-seven degrees, respectively. On the mornings of the fourteenth and fifteenth the lowest temperature recorded at the government shelter was twenty-five degrees. This temperature was not the lowest observed in the valley, since some of the lowest spots gave temperatures



Figure 10—Fresno Pots in Winter Nelis Pear Orchard, Showing Manner of Placing so as Not to Interfere with Cultivation, Snowy Butte Orchard, Central Point, Oregon

from three to five degrees lower. The nights preceding the mornings of the fourteenth and fifteenth were clear, hence radiation of all heat absorbed during the day was rapid. The hillsides recorded temperatures fully eight to ten degrees higher, and the only firing necessary was on the valley floor. By referring to the thermograph record for the week beginning April 10 some very important facts may be learned. It will be particularly noted that the low temperatures, such as would produce injury to fruit crops, really continued for a very short time. The curves, instead of being broad and

flat for the mornings of April 14 and 15, are very sharp, and the exact length of time over which any temperature prevailed can easily be made out by noting the time co-ordinates. On the morning of April 14 it will be noted that the curve is so sharp as to almost retrace itself for three or four degrees, showing that the lowest temperature could not have lasted more than fifteen minutes. Another fact which may be made out by studying the curves is the exact time when it became necessary to start the fires. Orchardists are instructed not to let the temperature in a pear orchard in full bloom or setting fruit go below twenty-nine degrees. Supposing the fires were lighted when the temperature reached thirty degrees, one can easily read the time from the chart when it became necessary to light the fires. One can also note the other end of the curve and read the time when it was no longer necessary to maintain the fires and smudges. Besides the frosts which occurred beginning with April 10, other light frosts, which did no material damage and for which it was scarcely necessary to fire, occurred on April 7, 17, 19 and 20. A very few spots had temperatures which ranged below twenty-nine degrees for so short a time that no damage could be done. On April 29 a temperature of twenty-seven and one-half degrees was recorded at Medford, but in some places it ranged about one degree lower for a short time. Firing was general for three hours. The last frost of the season occurred on the morning of May 6, when the temperature registered 31 degrees at Medford. However, temperatures of 27 degrees were recorded generally in the low spots on the valley floor. In every case the low temperatures were accurately forecasted in sufficient time in advance to give the growers time to have everything in readiness. Besides the evening forecast, which gave not only the temperature which might be expected before morning, but also the time when it would become necessary



Figure 9—Pritchard Orchard, Grants Pass, Oregon. Crude Oil Storage Tank

The oil runs by gravity from the large hauling tank wagons into the storage tank and is again taken from the other end by gravity for distributing in the orchard. No pumping is required



Figure 11—Smudging in the Hollywood Orchard, Medford, Oregon, Using Straw, Manure and Rubbish

to fire, tentative morning forecasts were also given. The system of local frost forecasting is one that has been worked out by the writer and has proven entirely reliable for the four years that it has been in use.

Weather forecasting is in every sense a science. Some would have us believe that weather bureau men are endowed with what might be called a great deal of foresight, accompanied with the happy faculty of being able to frequently make shrewd guesses. This is not the case. A weather forecaster takes into account every possible factor which may govern weather conditions and by careful analysis, also taking into account hundreds of observations that have been made in the past, makes up what is called a forecast, which is his judgment based upon observations as to the sort of weather very likely to occur. Unfortunately, the forecaster does not always have at hand such data as may be most needed for this work. Often weather conditions at some distant station, such as barometric pressure, temperature, wind direction and velocity, are not obtainable; in fact several stations may fail to report, due to the breaking down of telegraphic or telephonic communication. The forecaster on the Pacific Slope is very much hampered because there are no stations west of him. Weather moves from west to east, and except for some observations which may be telegraphed from the Chinese coast, Japan, the Philippines, Hawaii and the Aleutian Islands, all trace of storms or other weather conditions is lost, and can only be picked up when they reach the Pacific Coast. As soon as the Pacific Coast stations record weather conditions it is very easy for all districts east to make very accurate forecasts. For instance, the Florida orange growers may be notified from five days to a week in advance of a dangerous freeze. The Pacific Coast may have some service in the future by getting the weather

from the many steamers which now carry wireless, but since these ships move through the weather the data obtained from them is not of the greatest value. A forecaster desires to know not only the type of weather, that is to say, the weather factors, but he must also know the rate of change which these factors are undergoing. For the barometer, it is not so important for him to know at which point it stands at the time of the observation, but the rate it is rising or falling. By this he may have some knowledge as to how the weather is moving. In making up local forecasts, such as frost forecasts, the factors taken into account are the maximum temperature and its duration, direction and velocity of the prevailing winds, the barometer and its fluctuations or trend, the temperature of the dewpoint, condition of the sky—whether clear, cloudy or

clearing—and the weather conditions, so far as obtainable, to the northwest and west of the key station from which the forecasts are to be sent. After getting all this data the forecaster sends out such warnings as, in his judgment, will be helpful to the community served by the forecast. In a district situated as is the Rogue River Valley frost forecasting is perhaps less difficult than in an open plains country. The Rogue River Valley is surrounded on all sides by mountains ranging from 4,000 to 5,000 feet above sea level, and with many peaks much higher. It is, therefore, a valley rarely visited by high winds. During periods of frost it is usually calm, and in the several years during which careful observations have been made the greatest movement of the air recorded during a spring frost has been from one to three miles per hour. This very fact makes it very easy to hold the heat and smoke in the orchards. Contrast this with the severe freezes which have occurred in other districts where wind velocities ranging from twenty to thirty-eight miles per hour were recorded when the thermometer stood at fifteen degrees or more below the freezing point. The fruit growers of the Rogue River Valley little realize the wonderful climatic assets they are so fortunate to have. It can be truly stated that the only reason for losing a crop by frost is carelessness or neglect.

The work of planning the frost fighting campaign really begins the previous fall. If crude oil or distillate is the fuel to be used the pots must be purchased so as to be on the ground not later than the last week of March, even though frosts do not usually occur before the first week of April. The fuel oil is also ordered in tank cars of 6,000 to 10,000 gallons each, and upon delivery are emptied into large storage tanks on the ranches. These tanks are



The Orchard Owned by J. G. Gore, Medford, Oregon
Crop has been saved four years in succession by the use of old rails for fuel purposes. Crop valued at \$1,000 per acre has been saved each season

usually of concrete, and are placed upon an elevation so that the work of unloading the delivery wagons, as well as the subsequent filling of the tank wagons for delivery to the pots in the orchard, is effected by gravity. Pumping crude oil is rather an impossible task, or a difficult one at best, especially when it is cold. Distillate is easier to handle, but the gravity method of handling it is much quicker and saves a lot of work. The method of filling the pots is usually by means of a large hose attached to a gate valve on the delivery tank. Another method is to use large buckets with which to fill the pots. When this method is used the hose is dispensed with, and only a large gate valve or molasses gate is used. Six men working eight hours can easily fill 2,000 pots. The number of pots to be used per acre will vary within wide limits. Large spreading trees, with the fruit borne not lower than four feet from the ground, may easily be protected from the most serious freeze we have experienced during the past four years by using sixty-five to seventy pots per acre. However, it is to be understood that the sides or outside rows should be reinforced by at least two rows of pots. This is especially true of the south and east sides of our orchards, since it is from these quarters that the slight air movement comes during the periods of low temperatures. However, it is a good plan to reinforce all sides so as to meet any emergency. During the past season sixty-five pots burning slop distillate saved the Potter and Gould pear orchard when the temperature outside of the orchard registered twenty degrees by a tested thermometer. The results in this orchard are so clear cut that there is no mis-



Night Scene in Large Pear Orchard, Rogue River Valley, Oregon, During the Danger Period

taking the effectiveness of systematic orchard heating. A few pear trees of the same variety standing about ten rods outside of the heated area lost their entire crop.

As stated before, the number of pots to be used will depend upon the geographical position of the orchard, its elevation, and the size and height of the crop bearing portion of the trees. In a young orchard of perhaps four to eight years of age it will take two or three times as many pots as in an old orchard with spreading limbs almost touching each other and effectively trapping the heat. A perfect knowledge of the frost possibilities of any particular tract will guide one as to the amount of protection necessary. It would be safe to say that from one hundred and fifty to two hundred pots

will be needed in very young orchards situated in what are known as "cold spots." Every orchardist knows, or should know, where these spots are. When wood is the fuel to be used it should be secured early, and must be dry. Most of the firing done by wood has been with old rails which were well seasoned and burned without difficulty. Cordwood has also been used to a somewhat less extent, but nevertheless with entire satisfaction. Wood is very clumsy and much in the way, and there is no doubt that its use will be abandoned in the near future. Some growers, however, are of the opinion that wood is the best fuel, and it is quite probable that for small tracts its use will be continued. There is really no difficulty in handling it if properly placed, but for large tracts I would rather think its use to be quite out of the question. The element of time consumed in placing it as well as the space it takes up in the orchard, thus interfering with cultivation, argues against its use. The number of wood fires necessary for large trees may be all the way from twenty-five to fifty. The fires should not be large, since large fires tend to produce convective air currents and may be more harmful to the orchard as a whole than the same number of small fires. This season one attempt at using wood in a young orchard did not prove very successful because the fires were not numerous enough. In most orchards it was found that the temperature could be raised six to ten degrees. Manure, sawdust and rubbish are used mainly to create a smudge, and are of practically no value in raising the temperature. In using wood these materials are often quite an additional help in holding the heat generated by the burning wood. It often happens that the temperature cannot be kept above the danger point; if this happens toward morning the smudge is beneficial in protecting the frozen blossoms and fruit from the morning sun, which would tend to thaw them too rapidly. It is not the freezing of the fruit that



East and South Sides of Burrell Pear Orchard, Medford, Oregon, Showing Double Rows of Pots This is for protection of sides from which prevailing winds come. This orchard actually set more fruit than it could carry, and very few pears were frost marked. The block contains Bartlett, Anjou, Howell, Clairgeau and Winter Nelis. Thousands of props were used to hold up the immense crop.



Coal Heaters Used in the Phipps Orchard, Season of 1910

causes the injury; it is the thawing. Blossoms may be frozen solid for several hours and not be injured if thawed out very slowly. Freezing causes the water to be abstracted from the cell protoplasm. The protoplasm has taken this water up from the soil very slowly. If the water which has been abstracted from it can be returned very slowly the cell will recover its former activities. No matter what fuel is to be used a plentiful supply should be distributed in the orchards. Even if fifty pots will do the work it is better to have one hundred or more for each acre even in an orchard of old trees. The same may be said of wood. It is only necessary to light as many fires as will keep the temperature above the danger point. It is as great a mistake to light too many fires as it is to light too few, for the reason that burning unnecessary fuel may cause a shortage at a time when lack of fuel would mean a total loss. Once the temperature goes very much below the danger point it is hard to raise it, and if this happens very near sunrise a smudge dense enough to protect the frozen blossoms may be hard to secure or to keep hanging over the orchards. It is best to take no chances.

Good thermometers should not be overlooked, and no fewer than two or three per acre should be used for the best results. These instruments should not be the very cheap kind, although it is not advised that they should be very expensive. All thermometers should be tested and the correction for the different points on the scale carefully marked so as to be easily read. A thermometer with its correction is just as good as one that reads absolutely true. As a matter of fact, the very best thermometers are not accurate, and must have corrections made for different parts of the scale. For

the orchardist, it is usually sufficient to know within at least half a degree of the correct temperature reading, since he is quite certain to keep on the safe side at all times. Besides the thermometers in the field, the frost alarm thermometer, which is designed to awaken one when a certain temperature has been reached, may be more or less advisable. Of course, all a frost alarm thermometer can do is to indicate that a certain temperature has been reached. It is usually made to ring at, say, thirty-three or thirty-two degrees, and does not necessarily indicate that dangerous temperatures will follow. During the past the local forecasting station has indicated very nearly the hour when it would be necessary to fire as well as forecasting the possible temperature, so that with this in mind those who had no frost

alarm thermometers got along very well with a good alarm clock. It would be a serious mistake to begin lighting up without knowing whether or not the temperature would go below the danger point; this is where the local forecaster's work is of greatest value.

During the periods of dangerous frosts the local station kept constant watch of weather conditions day and night. Even after the forecasts were given out, the writer, who is in charge of the local United States Weather Bureau Station, called up the growers throughout the entire district, advising them of any change as well as instructing them in the matter of firing. This was most necessary because it was known that the amount of fuel on hand was not large enough to warrant any waste by starting the fires prematurely. During the week beginning with April 10 the local weather bureau office did not close its door for a single hour day or night, but kept in constant touch with every interested orchardist. As a matter of fact, when it was known that a frost would occur the office remained open all night, and this during the entire frost season. However, the local office would have been powerless had it not been for the efficiency of the operators and the officials of the Pacific Telephone and Telegraph Company, who gave us excellent service. The growers cannot be too thankful to the young ladies who manipulated the switchboard through the long nights of anxiety. Mr. Buchter, the local manager of the company, also deserves the praise due him for his part in maintaining such valuable service. During the entire season not a single error was made, and this is remarkable considering the number of calls answered. It must not be understood that the local United States Weather Bureau office should have all the credit for this work. The writer feels very much indebted for the able assistance given this office by District Forecaster E. A. Beals, of the Portland Weather Bureau Station. It has been entirely through

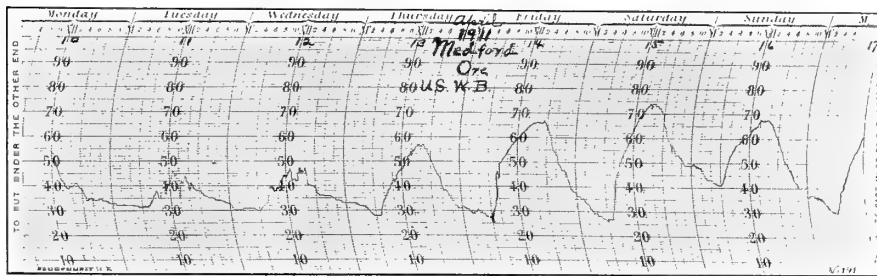


Foothill Orchard Owned by George B. Carpenter, Medford, Oregon

This is a young orchard of Bartlett, Anjou, Howell and Winter Nelis pears. The protection from frost injury was so perfect that more than eighty per cent of the crop packed extra fancy. Considering the age of the trees and Mr. Carpenter's first attempt at orchard heating, the result is worthy of special mention.

Mr. Beals' efforts that the local office is now equipped with an almost complete set of meteorological instruments, and also receives the promptest attention from the district station, especially during danger periods. The district forecasts were remarkably accurate considering the wide separation of the two stations.

In all that has been published no figures have been given to show what a certain quantity of fuel will do under actual conditions. Of course, this cannot be accurately stated, but we can give what we might expect under set or ideal conditions. We will take as an instance the protection of a pear orchard with the trees set twenty-five feet apart on the square. With the trees in good bearing the maximum height at which fruit is borne is not more than fifteen feet, and is usually much below this. We will consider each pear tree as growing in a cubical space which, under normal atmospheric pressure at our elevation above sea level (1,400 feet) and at a temperature of thirty-two degrees Fahrenheit, contains, in round numbers, 600 pounds of air. If this space contained 600 pounds of water it would require 600 British Thermal heat units to raise the temperature through one degree Fahrenheit, but since the space is filled with air under the above conditions it will take only one-fourth as many heat units to raise the temperature one degree within such space. If one oil pot is provided for such a space, that is, one pot per tree, we will have seventy pots per acre. Each pot will have to take care of 600 pounds of air. Most of the crude oils used as fuels for orchard heating in this district average nearly eight pounds per gallon, and it has been found by laboratory test that a pound (one pint) has a calorific, or heat value, of about 18,000 British Thermal units. Some oils test higher, some lower. In burning tests in the field under actual frost conditions it has been found that for the lard pail type of pot, such as the Bolton, with or without perforations in the upper



Official Thermograph Record, United States Weather Bureau, Medford, Oregon April 10 to 17 inclusive

Note the short space of time during which low temperatures prevailed

rim, two pounds of oil are consumed per hour. Naturally the oil consumption is greater when the pots are first lighted, and this is also true where there is considerable air movement. Of course, combustion is not perfect, hence the total calorific power of the oil is not utilized. However, since we are dealing only in round numbers we will suppose that combustion is fairly complete. Then two pounds of oil will give off 36,000 heat units per hour, or 600 per minute. Now, since the cubical space occupied by one pear tree contains about 600 pounds of air at our average pressure and at a temperature of thirty-two degrees, it means that each minute 600 heat units are expended on 600 pounds of air, or sufficient to raise the temperature of this mass of air through four degrees Fahrenheit. We have not taken into account the small amount of water vapor present under frost conditions, as this would not appreciably affect the calculation. It is supposed, of course, that the air is not in motion, and that there is no radiation of heat beyond the imaginary cubical space occupied by the tree. In actual practice we know that radiation does take place, and that there is usually some air movement. Of course, this is offset to a very great extent in old orchards by the trapping of the heat and the braking effect on wind currents, due to the extended branches, but in young orchards, covering but a small ground area, air movement and radiation are

practically the same as in the open. There is one thing to be said, however, under our conditions. Upward radiation of heat is not so great as one would suppose. During the past four years a large number of observations have shown that the temperature of the atmosphere during a freeze rarely reaches the danger point at a height of fifteen to twenty feet above the level of the valley floor. Since this is true, there would be no tendency for heat to be radiated from below into this upper stratum of warmer air—in fact the heat movement would rather be the reverse, that is, downward. As previously explained in another part of this article, frosts which occur in this valley are due to depression rather than elevation. It is the cold air coming from very high elevations in the surrounding mountains that flows downward into the valley floor, tending to push the warmer air upward. For a while radiation from the ground, which has taken in heat during the hours of sunshine, tends to warm this cold air. But to return. We have shown that with no wind and with one oil pot for every pear tree the temperature may be raised four degrees per minute within the calculated space. But if the air moved only one hundred feet per minute, or a little more than one mile per hour, the temperature could never rise more than four degrees above the temperature of the incoming cold air. At about four miles per hour it could rise but one degree. This would be true only in the outside tree rows, on the side from which the air movement came. For all the rows beyond the first, or outside row, the heat units generated in the first row would be added to the heat generated inside. This interesting calculation shows that an orchard in the form of a solid square would not be so difficult to save from frost injury as one of the same area of only a few rows. During the past four seasons this has been demonstrated in several of our orchards. In the Potter and Goold orchard the main body of pears has easily been saved when temperatures ran as low as twenty degrees outside, while two rows of pear trees extending beyond the main body of the pear orchard but surrounded by apple trees fully larger lost most of their crop, although protected by a greater number of fires. It might be said, of course, that no fires were built among the apple trees. We read of orchards



Crude Oil Tank in Palmer Investment Company's Orchard, Medford, Oregon

Built of reinforced concrete of a 1-2-4 mixture and designed to hold 45,000 gallons. Protected from injury by the oil by a special inside coat furnished by the Trus-Con Company. Tank is filled by gravity and oil delivered from it by gravity through 1,780 feet of 4-inch pipe. Eighty yards of concrete used in construction, outside measurements being 28x37 feet. Two-gallon pots will be used for frost prevention, in an orchard of one hundred acres of pears and apples.



Picking Time in Potter & Goold Anjou Pear Orchard, Medford, Oregon

This orchard saved by combination of wood and crude oil with pots. Orchards adjoining on all sides lost practically entire crop on account of failure to fire or to properly carry out the work. Many of the trees in this block actually bore too many pears.

that have been saved when the wind blew twenty miles per hour and the thermometer stood at eighteen to twenty degrees, but there is no doubt that this comes from those who have patent heating devices to sell and have made no careful tests with accurate instruments. If under ideal conditions a wind velocity of about four miles per hour would permit of a rise of only one degree on the windward side, what would happen in a gale of twenty miles per hour with the temperature at eighteen to twenty degrees. Some beautifully colored literature is put out by certain concerns showing how a certain device will make a gallon of oil burn twice as long as we have found it in actual practice and yet give off more heat. No orchard heating device on the market effects perfect combustion of crude oil or distillate, therefore the theoretical figures given above are hardly approached in practice. In some tests carried out in this district the beneficial results of certain devices did not show up when it came time to harvest the fruit. The time to tell whether orchard heating has been successful or not is when the fruit is picked and brought to the packing house. Just to make fruit stick upon the trees is not protection. A misshapen or frost marked fruit is not commercial either for fancy box trade or for the cannery. Canneries do not want badly frost marked pears, as the waste is too great. In the above calculation we have considered only crude oil, but practically the same figures will apply to all the heavier distillates. It might be well to mention something in regard to other fuels we have used in this district. A pound of dry pine wood, under perfect combustion, will generate about 6,000 heat

units. A pound of oak contains practically the same number of heat units. Coal, under the same conditions, has approximately 12,000 heat units. The average weight of a cord of pine is about 2,000 pounds, and that of oak is about 4,000 pounds. These figures are, of course, only approximate, but they will serve as a basis for calculation in case anyone should desire to use wood or coal for orchard heating purposes. The use of wood and coal has been discussed in previous articles, also in United States farmer's bulletin No. 401, which may be obtained by addressing a letter to the United States Department of Agriculture, Washington, D. C.

Wherever it is found necessary to protect orchards from frost injury each fruit grower should provide himself early in advance of the season for firing not only with fuel, pots or other heating apparatus, but also with a sufficient number of thermometers. It is also advised that each fruit grower should have a good maximum-minimum thermometer. A dewpoint apparatus or psychrometer for determining the dewpoint temperature, accompanied with tables, would also be a valuable part of the equipment. The dewpoint apparatus is simply two fairly good thermometers fixed together, with one of the bulbs covered with linen. A string tied into the rings of sufficient length to whirl the instrument completes it. In using the instrument, wet the covered bulb and whirl rapidly so that evaporation will take place from the wet surface. When the mercury in the wet bulb thermometer cannot be lowered any further it should be read simultaneously with the dry bulb thermometer. The readings are referred to tables

(See U. S. Farmers' Bulletin No. 401) which give the dewpoint temperature. The dewpoint temperature, when found in the early evening, is usually in close agreement with the minimum temperature the following morning, providing the sky remains clear and there is no wind. This is true during only a part of the year. The following data taken from the records made by the Medford United States Weather Bureau Station for the years 1909, 1910 and 1911 will show that the above statement holds good. It will be noted that the dewpoint temperatures observed, both when frosts occurred and when they did not, agree fairly well with the minimum temperature:

Year	Date	Time	Dew-point	Temp. during night
1909	April 19	6:45 p. m.	29°	29°
1910	April 3	6:30 p. m.	27°	27°
1910	April 9	6:30 p. m.	44°	44°
1910	April 11	6:30 p. m.	41°	40°
1910	April 13	6:30 p. m.	29°	26°
1910	April 25	6:30 p. m.	42°	44°
1910	May 2	6:30 p. m.	40°	42°
1911	April 14	6:30 p. m.	23°	22°
1911	April 25	6:30 p. m.	41°	43½°
1911	April 28	6:30 p. m.	31°	27½°

These figures are taken at random from the records and represent pretty fairly all the data which have been recorded during the above years throughout the frost season. The minimum temperatures are for such nights as remained clear and with very slight air movement, which was from the south. An aneroid barometer is also a valuable instrument. By carefully noting the movement of this instrument one may readily learn to predict with more or less certainty the kind of weather to be expected. With the pressure high the chances are that frost may be expected and the reverse when the pressure is low. In making readings with all meteorological instruments there should be a set time for observations. Random readings, taken at odd times, are of very little value. A careful record will surely repay the observer many times for his trouble. It would be a very fine practice for each grower to be able to tell what were his maximum and minimum temperatures, barometer, wind direction and estimate of velocity, dewpoint temperatures and rainfall for each day in the year. This data would not only be valuable to himself, but to the district as a whole. Lastly, whenever it is possible get the weather from the nearest United States Weather Bureau Station. The local observer is usually better equipped to tell what weather conditions are likely to be expected and what emergencies are to be provided for than anyone else. He is also able to tell what temperatures are injurious to the several kinds of fruits through the season. Injurious temperatures are not the same for all varieties, nor are they the same for any one variety during different stages of its growth. Tables have been published by this office giving all this data, and it is hoped that every orchardist has filed a copy in some convenient place.

The Forecasting of Frost in the North Pacific Coast States

By Edward A. Beals, District Forecaster, Stationed at Portland

FROST is caused by the surface of the ground being cooled by radiation which occasions the adjacent air also to cool by radiation and conduction. When the process is carried far enough the moisture that is in the air begins to collect on vegetation, and when the temperature is at the freezing point or below the deposit is in the form of ice crystals known as frost. Points and minute particles cool the most rapidly because in comparison with their volume they present the largest surfaces for radiation and thus lose their heat more quickly than large objects with relatively small radiating surfaces. Frost can form on bare ground or other objects the same as on vegetation if the cooling process is carried far enough, but it is on points and small particles that it first appears.

The weather conditions most favorable for the formation of frost are clear and still nights with a high and rising barometer. If a small amount of rain has fallen during the day, or if the soil is moderately damp from previous rains, the likelihood of a frost occurring is intensified, but if the ground is very wet the danger of frost is lessened. A small amount of moisture cools the surface of the earth by evaporation, but a large amount so increases the humidity that radiation is greatly retarded and the cooling is checked more than enough to offset the increase through evaporation. In order that frost may form the air must first be cooled down to the dewpoint, which nearly always happens in moderately moist climates, but in very dry localities the temperature falls low enough to be damaging without any frost forming, simply because the air is not cooled down to the dewpoint. Such occurrences are called dry freezes, and they are just as injurious as hoar frost, which is the technical name of the common white frost. General freezes sometimes occur when the part played by radiation is small and the cooling is done by a slow settling of the colder air aloft, which is then mixed with that below by a moderate breeze, and the whole mass attains a temperature below freezing. Fortunately such conditions are rare, but when they do occur the damage is as great on the side hills as on the valley floors, and it is practically impossible to raise the temperature by fires on account of the wind, which carries the air away before it has become heated to any appreciable extent. Damage by freezes of this character are seldom as severe as expected, as the weather is usually cloudy, or partly cloudy, in the morning and the thawing process is a slow one. It is generally conceded that plants will stand a severe freeze, in fact can be encrusted in ice and escape all injury if they are thawed out very slowly; therefore smudges, to be effective, should be started just before daybreak and kept going for several

hours to prevent the sun from warming up the plants too quickly.

We hear a great deal nowadays about the part the dewpoint plays in frost predictions and a brief explanation of the physical problems underlying this question will probably make the subject better understood by those who have not given the matter careful study. The dewpoint is the temperature of saturation. There is always

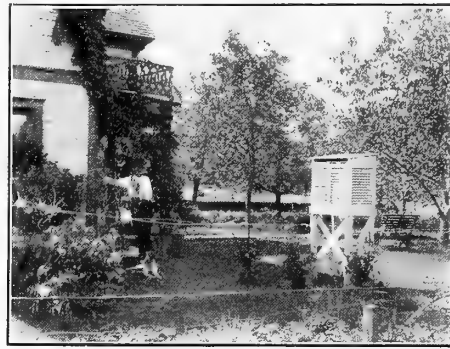


Figure 2—"Key" Station A, Looking Northwest Clarkston, Washington

vapor of water in the air, and it is just as invisible as the air itself. When the temperature falls to the dewpoint some of this vapor is condensed into water or ice spicules. The former may be dew and the latter frost. In the process of condensation the potential energy acquired during the process of vaporization becomes kinetic energy, and we say latent heat is liberated. It is assumed that the temperature of saturation, or, in other words, the dewpoint will not change to any material

extent during the night, and if the dewpoint is above freezing in the evening there will be sufficient latent heat liberated when the thermometer reaches that point to prevent it from sinking any lower, and consequently there will be no frost the next morning. If, however, the temperature of saturation is below freezing there is nothing to prevent the temperature from falling below that point and a frost is to be expected. If this theory fitted the facts it would be very easy to predict frost, but unfortunately there are nights when the dewpoint is above thirty-two degrees that are followed by frost and nights when it is below that are not followed by frost.

In the course of investigations by the writer he has come to the conclusion that in a very dry locality like that of the Yakima Valley a knowledge of the dewpoint the evening before is of very little value in determining whether or not to expect frost the next morning, but in the Rogue River Valley, and perhaps in the Boise district, it is helpful to the local man, but of no great benefit to the district forecaster. The information would be as helpful to the district man as to the local man if it were not for the lateness of the hour when the dewpoint observations must be taken to be of value. The local man can use the information if not available until nine o'clock at night, or even a little later, but this hour would be too late for the district man to collect observations and disseminate warnings. The district forecaster relies on his charts, which contain weather information

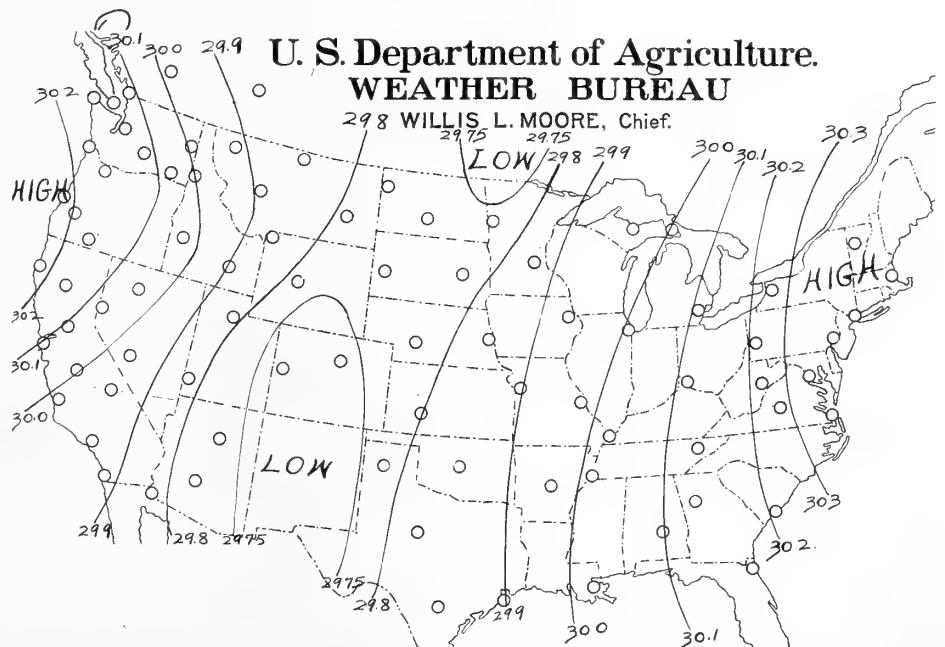


Figure 1—Composite Chart from Seven Observations (P. M.) Taken March 25, April 6, 10, 11, 12, 13, and May 5, 1911

Explanatory Notes: Observations taken at 5 p. m., 120th meridian time. The lines, or isobars, pass through points of equal air pressure (reduced to sea level). Mean of minimum temperatures occurring next morning: Blaine, Washington, 34; Seattle, Washington, 36; Spokane, Washington, 30; Lewiston, Idaho, 32; Walla Walla, Washington, 35; North Yakima, Washington, 27; Moxee, Washington, 22; Baker, Oregon, 24; Boise, Idaho, 29; Pocatello, Idaho, 27; Portland, Oregon, 36; Grants Pass, Oregon, 28; Medford, Oregon, 29; Hood River, 31; Roseburg, Oregon, 32.

over a wide extent of territory, and from them he notes where it is getting colder or warmer, and where rain is falling and where fair weather prevails. These changes are usually first felt in the West and they drift eastward. It is his business to judge the areas where similar changes will occur as far ahead as possible.

Frosts and freezing temperatures usually accompany areas where the barometer readings are above normal, and Figure 1 is presented to show a composite chart typical of frost conditions in the North Pacific States. There are many modifications of this type having a particular bearing on individual localities, but their explanation cannot be given in a short article of this nature, for to do so would require an explanation of the dynamic forces underlying their behavior, and our story would become too long and technical to be readable, except to those who have made a special study of meteorology. The weather bureau has for many years issued frost warnings in every state, but it is only in recent years that the work has been specialized to meet local wants. Formerly frost warnings merely mentioned the fact that the conditions were favorable for a light or heavy frost, as the case might be, and that is still the rule in those places where no heating is done. Forecasts of this character, however, will not answer for the up-to-date orchardist who has gone to the expense of heaters and fuel and is prepared to lay out several hundred dollars a night for supplies and labor to

insure his crop against frost. He wants to know just how cold it will get and when he should start his fires, so as to judge as to the probable length of time he will have to keep them burning. This information the weather bureau is prepared to furnish in part, and the part it does not furnish can be obtained by the individual without much expense of labor and time.

In the plain and prairie states of the West and Middle West frosts occur over large areas in about equal degrees of intensity, but in the rugged country with which we have to deal the conditions are far different and the problem of judging the degree of cold is more complex. Our valleys where fruit is raised are at different heights above the sea; they run in different directions and their floors have different physical contours, which makes the occurrence of frost a local question instead of a general one for the entire district. In order, therefore, to insure the utmost accuracy in frost predictions it is necessary for the weather bureau to have a trained man on the ground to look after the interests of each particular section. It is the duty of the local man to amplify the district forecasts to meet local wants and to advise generally with the horticulturists as to the way they can cooperate to get the best results for their individual needs. A well equipped weather station should be located in the fruit district (see Figure 2) and be under the direct supervision of a weather bureau agent in charge of the local work. Sometimes if the district

is large two or more of these stations are needed in one valley. They are called "key" stations, and the temperatures that occur at these stations are the temperatures covered in the predictions of frost disseminated in that particular locality. The individual orchardist should ascertain the average variations between the temperatures at the nearest "key" station and those that prevail in his orchard. With this knowledge he can judge when, for example, a temperature of twenty-eight degrees is forecasted just about how cold it will get at his place, and he will know whether to start his fires or not. As to the time of starting fires the local man will advise so far as he can, but it is not always possible to say just when they should be started, and each individual will have to rely to a greater or less extent upon his own judgment on this point. The frost warning service of the weather bureau has been well organized for two years in the Rogue River Valley, where under the management of Professor O'Gara it has attained a high degree of efficiency. Last year the service was localized in the Yakima Valley under the management of a trained assistant from the Portland weather office, and at Boise and Lewiston under the management of the local observers permanently detailed in those cities. Next year it is expected that the service will be somewhat extended, depending upon the wants of the different communities and the amount of money available for the work.

Successful Orchard Heating Methods

By J. R. Wentworth, Secretary National Orchard Heater Company

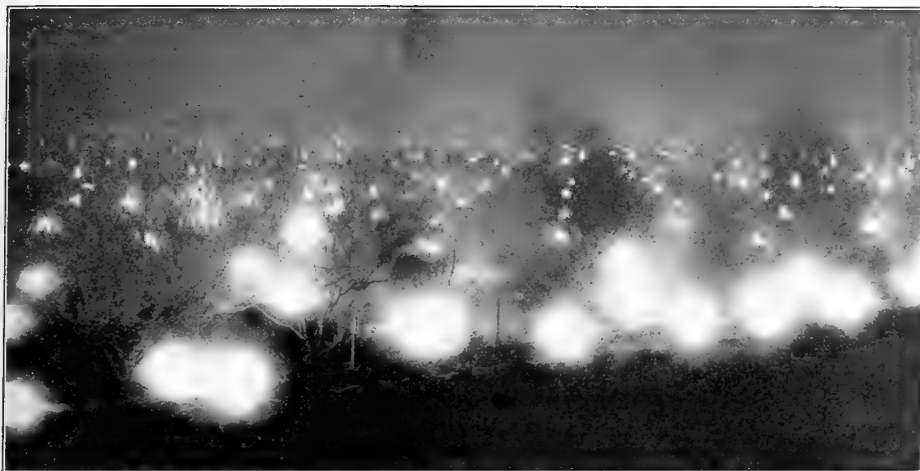
ORCHARD HEATING occupies a position of the first rank today in fruit belts where the industry is conducted under intensive methods and for large profits as the only practical means of combating frost, and thus insure a full crop year by year. The day of taking a chance with the weather elements and risking a large financial return with the ravages of frost is a time of the past, as all up-to-date fruit growers are wide awake to the necessity of bringing their orchards into a state of the greatest productivity. Much has been done in the development of orchard heating, but little has been written of value to the fruit grower as to the proper means of carrying on this important work of the fruit industry. The success of orchard heating operations is obtainable at only a small item of expense as compared with the returns from abundant crops when the heating is conducted with practical equipment and upon intelligent methods. It is right here in this article that the writer wishes to point out the necessity and the important features of orchard heating practice, as its handling means much in the volume and value of the fruit produced in this country.

The crop of 1911 abundantly testifies to the part orchard heating has played in the past season's product. From an analysis of crop reports coming to me from fruit growers using our heaters I



Picking Pears on Lu Morse Place, "Fruitridge"
Grand Junction, Colorado
This orchard was protected by coal heaters

am proud to say that the orchard heater has this year put thousands of dollars into the pockets of orchardists which would otherwise have been swept away last spring by frost. Many growers have made mention of the fact that their crops were saved, while their neighbors, who did not use the orchard heater, suffered almost entire loss of their crop. The orchard heater, during the past year, has enjoyed eminent success, and with greater knowledge of its value in fruit raising the next few years will see its advent widespread through every fruit raising belt of the world. We don't wish to be understood that everyone using heaters the past year saved all their fruit, but where failures occurred there was a reason; some did not have enough heaters, others ran out of fuel and a few did the work in an indifferent and negligent manner; but where enough heaters were used, with plenty of fuel and handled intelligently, full crops were saved. Orchard heating is an unquestioned success when conducted under proper methods and equipment, but unless it is operated on these lines it is a poor investment to the fruit grower, so the following paragraphs will be devoted to this subject:



Courtesy of National Orchard Heater, Grand Junction, Colorado
Orchard Protected by National Orchard Oil Heaters

It is of prime importance to be equipped with the necessary apparatus for conducting the work in a practical and profitable manner. In the first place plenty of heaters should be provided. It is advisable to use at least eighty heaters per acre for orchards and a greater number for small fruits and vegetables—say one hundred per acre. In conjunction with the heaters a storage place for fuel (either cistern or tanks) should be provided to hold the oil, with tank wagons of 300 to 400 gallons capacity to be used in filling the heaters from the storage, and tested thermometers are essentially necessary. In equipping an orchard the heaters should be put in place at least several days in advance of the time when frost is expected. The thermometers should be placed in the area to be heated at convenient points for the purpose of noting the temperature. It is proper to use at least two thermometers, placed about two hundred yards distant from the heaters, so that they will not be affected when the heaters are lighted, and other thermometers should be distributed in the heated area to note the rise or fall in temperature. It is of great importance that these thermometers should be hung a uniform height—about four feet from the ground is considered about right. During the heating period all thermometers should be inspected at least every thirty minutes and readings taken. Plenty of help should be on hand to watch the temperature during the operations, and if necessary to refill heaters. With thermometers installed the next step is to arrange the heaters. From knowledge obtained by long experience and observation, this is the most important feature connected with the work. A double row of heaters about sixteen feet apart should be arranged on the border of the area where the temperature is to be raised, provided the orchard is not surrounded with neighbors' orchards which are being heated at the same time. Heaters should then be distributed through the balance of the orchard by placing them between the rows, but never directly under the trees. With the heaters installed and

the thermometers set the orchard is equipped ready to combat with frost at any time. A word as to lighting is of sufficient import to be mentioned. In case there be a wind at the critical time commence lighting on the windward side and set the outside rows of heaters going, so that the breeze may carry the heat directly across the full area of the orchard.

In the table given herewith is enumerated the principal degrees of temperature which are considered by the best authorities as the danger points which should be avoided by heating operations. It is a mistake to believe that the greatest danger from frost comes when the trees are in full bloom, for it may be cited that in the case of apples, even after the fruit has formed and commenced to increase in size, the stem is the tenderest part and will not withstand temperature below thirty-two degrees. The tabulation is made for peaches, though the danger point for apples corresponds very closely with this fruit:

	Above zero
Buds beginning to show pink.....	15°
Buds almost open.....	25°
Blossoms newly opened.....	27°
Petals beginning to fall.....	29°
"Shucks" (calyx tubes) beginning to shed.....	32°

Of course, it is understood that to insure safety heating operations should begin prior to the fall of temperature to the points mentioned above at the various stages of the development of the fruit. In installing an orchard heating equipment the fact that much of the success in the operations depends in selecting the proper style of heater to be used should not be lost sight of, as this, like every other industry, has experienced the misfortune of having orchard heaters placed on the market which are both impractical and unworthy. The best authorities on this subject consider the small type of heater essentially necessary to obtain the best results, for a blanket of heat is the element sought to dispel frost. With a large number of small heaters throughout the orchard this heat blanket is readily obtained and its efficiency is appreciated by any practical minded fruit grower. The efforts to obtain a uniform heat throughout the orchard area where large heaters

have been used have not met with the best success, due to the fact that the large flame generating the heat creates a vacuum which exhausts the warm air, shoots it up above the trees, and with this exhaustion the space surrounding the heaters and enveloping the trees is immediately filled with cold air from above. Thus the air is kept in motion, while the purpose of heating is to secure a steady blanket of heat throughout the orchard. The National Heater is designed in a small size for the reason that the best results are obtained therefrom, and it is only a question of time before all heaters will be constructed on these lines. Smoke which is incidental to orchard heating operations may be of some benefit in deep valleys, where the smoke would lie as a blanket and act as a resistant force to the heat, but the value of smoke as a safeguard against frost cannot be depended upon, it having been found by experience and experiments that heat is the one essential element required. The writer of this brief article will take pleasure in giving detailed information on the above subject not specified in this contribution.

Editor Better Fruit:

Just got your bully September issue and I see you have again placed us under obligations by boosting the National Apple Show in three or four places. Anyone who reads "Better Fruit" cannot keep away from reading the splendid articles you have published. Incidentally right here I want to again express my admiration for your enterprise in printing the technical articles on the science of packing apples. You have devoted a lot of space in this issue, as in every issue, to this subject, and I do not believe you could have done a better thing for the apple growers of country. Last year you got out a packing number, and my copy was so thumbed until it resembled a dog-eared book of school days. Now you come back with another number far more extensive and with articles from several different authorities. I often wonder whether the apple growers of the Northwest really appreciate how much your magazine does for them. This is not written in spirit of flattery or anything of the kind. I have always been an intense admirer of Shepard and "Better Fruit," and I am now even more so than ever. Yours very truly, Ren H. Rice, Secretary National Apple Show.

Editor Better Fruit:

I enclose one dollar for renewal of my subscription to your excellent magazine. We find that we cannot get along very well without "Better Fruit." Speaking from the standpoint of an ex-newspaper man I am certainly surprised to notice the steady improvement in the publication which long since seemed to me to have reached perfection. You are surely entitled to much praise for the hard work and high ideals evidenced in the appearance of the magazine; it certainly outclasses any other horticultural publication of my acquaintance. Yours very truly, W. H. Fortier, Loom Lake, Washington.

Editor Better Fruit:

Accept my thanks for the marked copy of the September edition of "Better Fruit" with mention of the National Irrigation Congress, and the article by Mr. R. Insinger of Spokane, chairman of the board of governors of the National Irrigation Congress. "Better Fruit" continues to improve in quality, upon which you are to be complimented. I enclose a dollar check for one year's subscription, as I have failed to received copy the past few months. Yours very truly, Arthur Hooker, Secretary National Irrigation Congress.

Editor Better Fruit:

We feel that the money spent in advertising in your publication is going to bring us the very best results. Such has been our experience in the past year, and we wish to acknowledge your publication as one of the very best, for results have satisfied us on this point. Very truly yours, The Frost Prevention Company, E. B. McPherson, Orchard Heating Expert.



The Old Pike Street Market, Seattle, Washington

The long row of sheds shown in the above photograph were erected by the City of Seattle and are rented daily by the city to the farmers who wish to use them. The stands in this section are known as the "umbrella stands" and have proved very satisfactory. They were erected solely for transient farmers and rent for a mere nominal sum of from 10 to 20 cents per day. Drawing is made the previous day for booths to be occupied the next day. This is done because the south stands are worth considerably more than those at the north end. It is possible for a farmer at the south end to make \$200 or \$300 per day while the man at the north end is lucky to make \$5 to \$10 per day. These stands are well patronized by the people and the farmers seem very well pleased with results. This picture was taken in warm weather and hence so many wagons and stands opposite the sheds. In wet weather the side of the street is not used except at the farmer's own risk.

Successful Orchard Heating and Heaters

By Frank E. Barney, Manager Ideal Orchard Heater Company

YOU have asked me to write an article on the subject of orchard heating for your November issue of "Better Fruit." As your magazine has a large circulation in fruit sections that have lost heavily by frosts and freezes I know that your special issue on this subject of fruit bloom protection from frosts and freezes will be read with interest. Your issue on this subject published one year ago was replete with good articles and information upon this subject. It would certainly pay any grower who is thinking of installing an equipment of heaters to secure a copy of "Better Fruit" for October, 1910, and read it through. Much progress has been made in frost fighting. This has resulted from the harder freezes experienced the past few years. Where forty to fifty twenty-five pound capacity heaters per acre were thought sufficient to combat damaging frosts to fruit in bloom three years ago, now sixty to eighty fifty-pound capacity heaters per acre are deemed essential to combat the freezes of fourteen and sixteen degrees which have occurred when the fruit was in full bloom. Of course, with an equipment of this capacity ample heat is secured to combat the most severe freezes which rarely, though sometimes do occur. With this equipment the grower can save one hundred per cent of a crop if he does his part properly.

How should the grower prepare to secure the best results after buying his equipment of heaters? He should buy high grade tested thermometers and place one at least to every two acres to be protected; if garden one to every

acre. One or two self-registering thermometers placed in coldest area outside of orchard are a great aid to the frost fighters in governing the heat inside of orchard. They will register the coldest temperature during the night. The grower should not neglect to supply himself with plenty of good reliable thermometers and consult them often during a cold night, as a cold wave is apt to cause the mercury to fall below the danger point in a short time. The thermometer readings form the chart by which the captain directs his men in manipulating the heaters. For fuel small lump coal, known as four-inch or egg size, should be provided at the rate of two tons per acre. Usually one ton per acre is all that is required, but it is essential to have a supply on hand equal to any emergency and adequate for any season. If the coal is free from slack the results will be much more satisfactory. A fifty-pound bale of waste is ample to start five hundred fires. As waste is saturated with oil, a sufficient amount of crude oil should be provided. Old pine railroad ties, sawed into six-inch lengths and split to size, afford the cheapest and best kindling supply. It is so easy and cheap to prepare a supply of kindling in this way that a large amount should be worked up ahead of heating time, as the time is then required for other work.

Where over five acres are to be protected a coal bunker should be built. The bottom of this should be inclined and high enough so that coal will slide easily into a low wagon without shoveling. This may be built on a side hill or have a raised platform

on one side from which the coal is unloaded. A box should be attached to each side of a low wagon to hold kindling and waste. By systematizing the work in this manner three men can fill one thousand heaters in eight to ten hours. As the heaters are placed in the rows between the trees the wagon with fuel is driven between the rows of heaters. It might be remarked in passing that the large heaters now being sold hold sufficient coal to last through the longest cold period without refilling. By lighting a portion of the heaters and more as the cold becomes more intense any degree of frost may be successfully combated. The lighting of the heaters is the fun of orchard heating. An acre of coal heaters are lit in four to five minutes, or as fast as a man or boy can run and apply the torch.

Frost fighting is like war, and when a siege is imminent a sentry is placed on guard. It is his duty to attend the telephone and receive the weather bureau reports and watch the thermometers. When the mercury falls to near freezing point he sounds an alarm and the force of frost fighters is called. These consist of hired hands, neighbors who have no bearing orchards to protect and townsmen. The latter come hurrying to the country in buggies and automobiles. I have saved three good crops three years in succession with coal heaters, and had I not disposed of my place would continue to use coal as a fuel to protect my fruit buds. It has not cost me over ten dollars per acre for fuel and labor to save my fruit any year. It has been my observation that one kind of fuel requires as much labor and attention in handling as another. It therefore depends upon the cost of different fuels in different localities which is the more expedient to use. One thing has been fully demonstrated. It pays to use some kind of heating appliance, and pays in big returns.

Editor Better Fruit:

We will gladly pay your price for advertising, as it is comparatively lower than any advertising we have yet experienced—having brought us a rather surprising flow of splendid inquiry, and from distant sections as well as local—in fact from coast to coast, and British Columbia as well. The results we expect therefrom most certainly justify the charge for space in your excellent magazine. Respectfully, Ideal Irrigation Pump Co., Seattle, Washington, James C. Langley, manager.

Editor Better Fruit:

We appreciate very much the fact of your sending us an additional copy, and the writer shall be pleased to take it home and put in some of his leisure time in going through same. There is no need to compliment you further on your publication, as it is a well recognized fact that it is the best, most thorough and conservative publication of this nature in the Pacific Northwest, and we think it is appreciated as such by all its readers. Yours very truly, Churchill-Matthews Company, by E. W. Matthews, Portland, Oregon.

Editor Better Fruit:

Personally I have been much impressed with the high quality of "Better Fruit" both in point of typographical excellence and character of contents. I have often remarked that I didn't see how you were able to turn out so good a paper with the class of advertising patronage at your command. Wishing you a good measure of success in your chosen field, we are yours truly, Deere & Company, Department of Publicity, Frank D. Blake, Director.

Successful Fruit Growers' Thermometer and How to Use It

By Edward L. Wells, Section Director United States Weather Bureau

THE time was when agriculture and horticulture were largely a matter of muscle, but that time is past. The horticulturist of today must be a scientist if he is to achieve success. He must know something of chemistry, plant physiology and entomology, and the recent developments that have been made not only in orchard heating, but in extending the growing of tender fruits into new regions make it essential that he should also be something of a meteorologist. The problems of weather and climate as they affect the horticulturist are many and varied. A new one is met with at every operation, from the preparation of the soil to the marketing of the product. In attempting a solution of any of these problems it is essential that accurate instruments be used and that the observations be carefully made. When a job of surveying is to be done we call in a man who not only has an instrument that is accurate, but one who knows how to mount it, adjust it and read it closely. He must understand the principles underlying the operation of the instrument, and if it becomes defective he must be able to recognize the fact at once. Note the contrast between this careful work and much of the work done in studying weather conditions. We get a ten cent thermometer, or perhaps one that has been put out by some enterprising firm as an advertisement. Then we mount it almost anywhere without any particular care as to its immediate surroundings, and expect it to give us the true air temperature. One thermometer will be under a porch, near a frequently opened door, another will be entirely exposed to the sky, others will be on the side of a house, one may be near the ground and others some distance above it, and they will be read at different hours. Every man will swear



Figure 1—Ordinary Thermometer

by his own thermometer and will be convinced that all the others are wrong. The horticulturist or any other student of weather conditions should have, like the surveyor, instruments that are above reproach; he should have them mounted so as to give the true conditions; he should understand how they are made, what defects are likely to occur and how those defects may be remedied.

In selecting a thermometer one of the first things to be noted is to see that it bears the name of some reputable maker. A thermometer without a name is evidence that the maker is ashamed of it. The next important item is to see that the degree marks are etched directly on the glass tube. Where the graduations are upon the back only a

high degree of accuracy cannot be had. A thermometer in which mercury is used is preferable to a spirit thermometer, for in the latter some of the alcohol is likely to evaporate or to adhere to the upper part of the tube in small drops and thus leave the column somewhat shorter than it should be. A

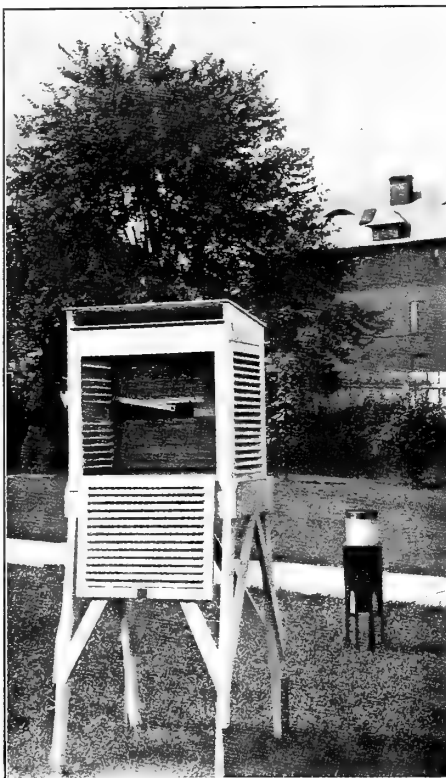


Figure 6—Thermometer Shelter and Rain Gauge for Co-operative Observers

really good thermometer has the bulb entirely exposed to the air, preferably projecting below the back. The most sensitive thermometers are those having a small cylindrical bulb. In Figure 1 is shown the type of thermometer used by the United States Weather Bureau for exact work. This thermometer, however, is not self-registering, and therefore tells nothing except the actual temperature at the moment. In Figure 2 are shown two thermometers, one of which indicates the highest temperature for a given period and the other the lowest temperature. The lower instrument in the illustration is called a maximum thermometer. It is

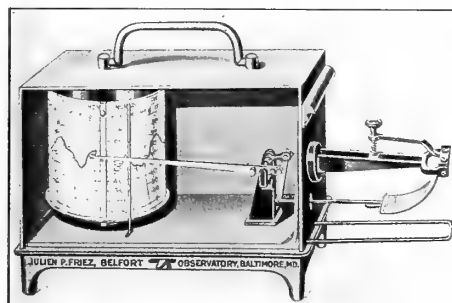


Figure 4—Thermograph, or Self-Registering Thermometer

a mercurial thermometer, and just above the bulb there is a constriction in the tube which offers no material hindrance to the flow of the mercury while the temperature is rising, but when the temperature falls the mercury that has been forced into the tube by the expansion of that in the bulb will not of itself return, so that the thermometer continues to indicate the highest temperature until the mercury has been forced back by whirling the instrument rapidly upon the bearing to which the top is attached. The upper instrument is an alcohol thermometer, and indicates the lowest temperature by means of an index, which can be seen in the illustration, extending from about fifty-eight to seventy-two degrees. This index always remains immersed in the alcohol, going down when the temperature falls and remaining stationary when the temperature rises, so that the end of the index farthest from the bulb of the thermometer always stands at the lowest temperature. This instrument is called a minimum thermometer. It is reset by lifting the bulb end, which allows the index to slide along till it reaches the end of the alcohol column. These thermometers should always be mounted in a nearly horizontal position. An improved support for the pair is shown in Figure 3. At times it is highly desirable to have a continuous record of the temperature. In the problem of frost fighting it is necessary to note the duration of dangerous temperatures; in studying the climate of a certain locality with reference to its adaptability to the growing of particularly tender fruits it is necessary to know how long the temperature can be depended upon to remain above a certain point. For this purpose a thermograph is needed. This instrument, shown in Figure 4, makes a con-

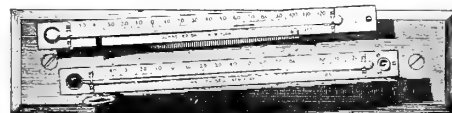


Figure 2—Maximum and Minimum Thermometer

tinuous record of the rise and fall of the temperature. It is subject to some inaccuracies, but by comparing it with a standard thermometer once or twice a day a very accurate record can be kept. In making a forecast of frost it is highly desirable to know the dew-point, that is, the point to which the temperature must fall before dew or frost can begin to form. This varies from time to time, being high when the air is moist and low when it is dry. If the dewpoint is well above thirty-two degrees at sunset there is little danger of frost that night. If it is below thirty-two degrees frost is much more likely to occur. The instrument ordinarily used to find the dew-point is called a psychrometer. One

style of psychrometer is shown in Figure 5. It consists of two sensitive thermometers, mounted upon a common back having a swiveled handle by

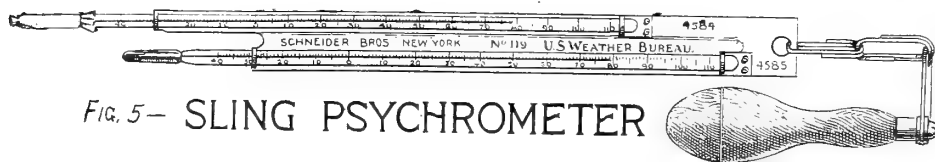


FIG. 5— SLING PSYCHROMETER

which it may be whirled. The bulb of one of the thermometers is wrapped in clean muslin. In taking an observation the muslin is thoroughly wet and the instrument rapidly whirled. As soon as the moisture on the wet bulb begins to evaporate the wet thermometer will show a lower temperature than is indicated by the dry thermometer. The drier the air is the greater will be the difference between the readings of the two thermometers. By means of tables that have been prepared the dew-point can be determined from the readings of this instrument.

The best of instruments will not give accurate results unless properly exposed. It is a mistake to suppose that a thermometer always gives the temperature of the air by which it is surrounded. The temperature shown by any other thermometer is the temperature of the thermometer itself. When the thermometer is protected from the direct or reflected rays of the sun and from excessive radiation to the open sky, is remote from any source of artificial heat and is where the air can circulate freely about it its temperature will be substantially that of the air, and therefore its readings will be accurate. When it is exposed to the direct or reflected rays of the sun its temperature will be higher than that of the air, as will also be the case when it is near some source of artificial heat. When it is freely exposed to the open sky at



Figure 3—Improved Thermometer Supports Townsend Pattern

night its temperature will be lower than that of the air. Thermometers exposed at different heights above the ground will not give results that are comparable. In the daytime, if the sun is shining, the surface of the ground becomes warmer than the air and the lower layers of air are noticeably warmer than the upper layers. At night, particularly on clear, still nights the conditions are reversed. In order to secure a proper exposure for the thermometers from which its records are obtained the weather bureau has adopted a shelter, such as is shown in Figure 6. It is about twenty inches wide, thirty inches long and thirty inches high, and has a double roof,

removable floor and louvered sides. Such a shelter can be constructed by anyone familiar with the use of carpenter's tools. It is painted white

because white attracts less heat than any other color. It is mounted over the sod, preferably with the floor about five feet from the ground, with

the door opening toward the north. It has been impossible, within the limits of this article, to go into detail with reference to the scientific reasons underlying many of the statements made. If any of the readers of "Better Fruit" desire to go further into the matter it is suggested that they write the nearest local office of the United States Weather Bureau. If any fruit grower desires to have his thermometers examined for defects the official in charge of any local office of the weather bureau will be glad to render this service.

Protection of Orchards from Frost

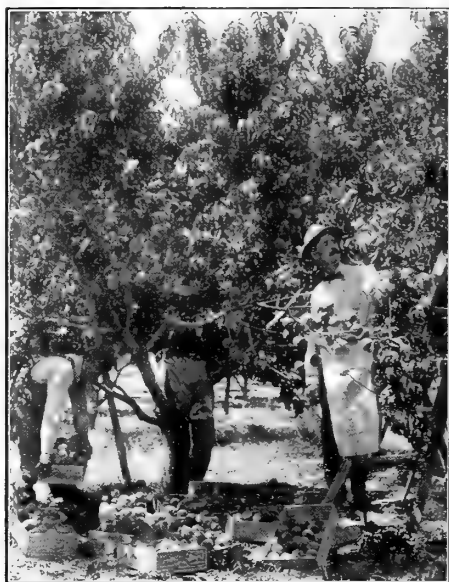
By R. F. Howard, Professor Department of Horticulture, University of Nebraska

THE purpose of this article is to deal with the problem of frost protection from the standpoint of Nebraska conditions. Though it is written with special reference to the apple, the practice may be altered somewhat and applied to the other orchard fruits and small fruits equally well. It would be difficult to estimate the amount of damage done from year to year by the late spring frosts. Often whole states are reduced to a partial crop in a single night. Again the effect may be extremely local. It is not uncommon to be able to trace the line of injury almost to a definite row in an orchard with a sharp difference in elevation. Orchards planted on high places with lower land adjacent allow better air drainage and are much less apt to be caught by frosts than those planted in low, poorly drained places. Commercial orchard planting has been checked as much by the uncertainty of the crop due to the spring freezes as it has by all the insect and fungous trouble combined. All of the up-to-date practices in orchard management, such as spraying, cultivating, pruning, sorting and packing, have done much in the way of fostering better fruit and in creating a demand for it. These things all combined have not done more in putting the business on a firm basis than the practice of orchard heating. The man who has hesitated to invest his money in commercial apple growing solely on account of the frequent crop failures due to frosts need no longer do so. With a modest amount invested in heating apparatus, and with devoted attention to his business for three or four weeks he can make apple growing as safe as other commercial pursuits.

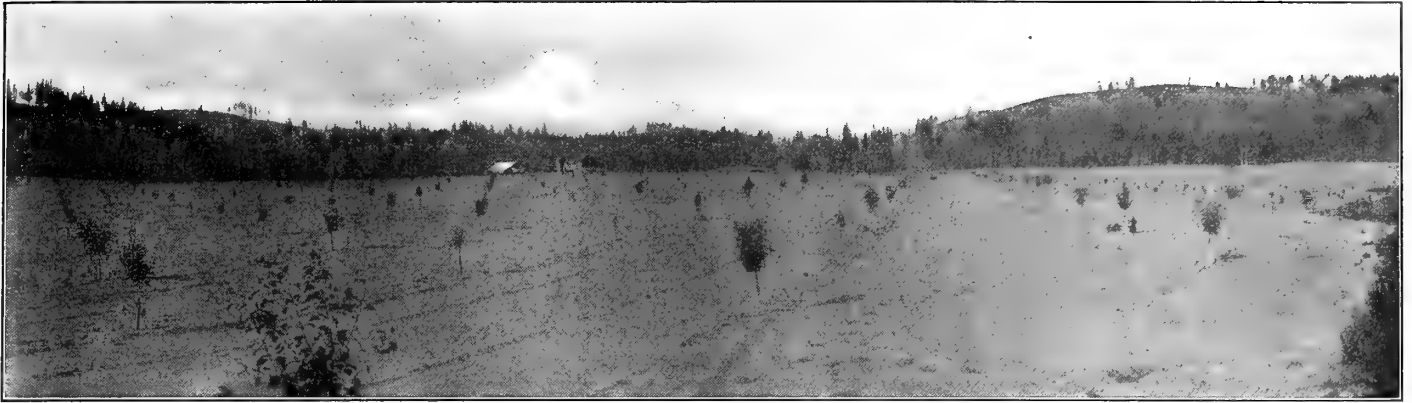
The practice of smudging to prevent frost injury probably had its beginning in this country some forty years ago in the vine and citrus fruit region of California. Smudging to prevent frost injury is to be distinguished from orchard heating in that its chief source of protection is in retaining the radiated heat from the earth and not in the heat actually produced by the burning fuel. In theory a blanket of smoke over the orchard on a still, frosty night will hold the earth's radiated heat sufficiently to prevent the temperature from getting down to the danger point.

However, in practice this does not always occur. If there is much wind the smoke passes rapidly away, and on a perfectly still night, being lighter than the surrounding air, it rises instead of hanging over the orchard as a blanket. If the conditions are just right, that is, a slight breeze and not too cold, crops may often be saved by smudging. Many instances have been cited where crops have been saved in this way, but unusual conditions, such as a fifteen-mile wind, eight to ten degrees below freezing could not be controlled by smudging effect alone. The material to be used for producing smoke will depend largely upon what is available. Any one of several things may be used. Dampened straw with coal tar poured over it makes a dense smoke. Brush heaps, composed of the prunings and dead trees from the orchard often make the most convenient material.

Orchard heating as distinguished from smudging consists in raising the temperature by means of many small fires scattered throughout the orchard. Of course, some smoke is produced no matter what heater or fuel is used,



Elberta Peach Orchard Scene, Grand Junction Colorado
Showing a yield of twenty-three boxes to the tree. Oil heaters were used to protect this orchard against frost.



The Almire Fruit Farm, situated in the Upper Hood River Valley, seven miles from the snow line of Mount Hood, containing 151 acres, of which 116 acres are set to Newtowns, Jonathans and Arkansas Blacks. This orchard is owned by Mr. A. Millard, Omaha, Nebraska, and is managed by Mr. J. F. Thompson

but it is the heat that is of primary importance. This method of fighting frost was begun on a commercial scale about four years ago. The fact that most of the intensive orchard sections of the irrigated West, as well as some of the best cared for orchards in every apple producing state in the Union were heated last spring indicates how successful the practice has been. No less than eight types of heaters have been put on the market. This is also suggestive of the extent with which they are being used.

There are two general types of heaters, those made for burning coal and those made for burning oil. Most of them are made of stove pipe iron. If dipped into oil and protected from the weather while not in use they should last from five to ten years. The coal heaters are built either the shape of an ordinary bucket with a partially open bottom or cone shaped with perforations in the sides to give draft. They are fitted with legs, and hold about a peck. Owing to the greater amount of labor connected with operating the coal heaters they are not considered as economical as the others, except possibly in coal producing localities, where it may be had for less than five dollars per ton. Another objectionable feature is that they cannot be put out as readily nor the amount of heat controlled at will, as in case of the oil burning ones. There are several types of oil heaters on the market, each one claiming some superior point of merit over the others. Those types holding less than eight quarts are apt to need refilling before sunrise. This is almost sure to be true if it is necessary to light them before midnight. The type of heater with no device for regulating the amount of burning surface is not the most economical. It is usually necessary to have twice the amount of heat at day-break as it is at the time of firing up. The heater whose top is not adjustable is going to give less heat the longer it burns instead of more. The heaters with reservoir attachments have an advantage over the others in that they hold oil enough to last from two to five operations and do away with the laborious task of refilling while they are in action. The type of heater that

leaves the least residuum or coke after the oil is burned is the one that furnishes the most heat from a given amount of fuel. Those that are made with holes at the side near the burning surface of the oil allow air to rush in and accomplish this better by furnishing a more perfect combustion. What one should demand of a heater—other things being equal—is that it be large enough not to need refilling during one operation; that it burn the oil economically; that it be constructed in such a way that the burning surface may be readily adjusted to suit the needs, and that it be of such shape as to allow economical storing while not in use.

The question of oil is an important one. Not all grades of oil will burn in these heaters. The ordinary crude oil used for driveways is too crude, that is, too much of the inflammable part of it, such as kerosene and gasoline, has been removed. On the other hand, one

should not buy an oil with more of the kerosene and gasoline in it than is necessary for it to burn well, as it costs more. Several of the large oil firms are putting out a product they term "fuel oil" that is well adapted for this purpose. It may be bought at the refineries in tank car lots at about three cents per gallon. Facilities for handling the oil is a matter that should not be put off until the last minute. It would be poor business policy on the part of the grower to depend upon storing enough in his heaters to last through the season, even though they be of the reservoir type. If it should become necessary to heat three or four consecutive nights without a supply near at hand to draw from the chances are he would not be able to get it in time. Orchard heating is not like plowing corn, where you get returns in proportion to the amount of work done. It requires a finished job. The



Courtesy of P. H. Troutman, Round Crest Orchard Heater Company, Canon City, Colorado
Copyrighted 1911, P. H. Troutman & Babberger
Smudging the Troutman Orchard



Courtesy of Dean Photo Company, Grand Junction, Colorado
Midnight Scene in Mr. Nichol's Orchard, Grand Junction, Colorado, Protecting His Orchard by the Use of Oil Heaters

only safe plan to follow is to have some sort of device in the orchard for storing a quantity of oil. This may be done either in galvanized or wooden tanks or in a cement cistern. If one is heating ten acres or more the cistern plan is the better. By taking advantage of a hillside one can handle his oil with gravity, thus avoiding the expense and labor of hand hauling, as pumping is well nigh impossible. The heaters may be filled with buckets from barrels on a low wagon, but a tank wagon holding two to four hundred gallons is much better. By means of a one and one-half inch hose—the ordinary garden hose is too small—with a stop-cock at the free end one row can be filled at almost a continuous drive.

The arrangement of the heaters in the orchard will depend somewhat on the type used. If the small upright kind with the non-adjustable top be used about seventy or eighty per acre will be needed. The ones with a sliding top arrangement, so that the burning surface can be increased to approximately one hundred square inches if necessary, can be placed at the rate of about fifty per acre. Unless the trees are headed high it is better to arrange the heaters between the rows instead of directly under the trees. Every possible arrangement in the way of placing and filling should be done ten days before they are expected to be used. A short delay at the last minute may prove very expensive. When the heaters are filled the lids should be closed to keep out the rain. If the oil is mixed with water there will be sputtering that causes some waste while they are burning. The question of lighting up is a small matter if one uses the following method. Provide one man with a can of gasoline and let him run down the row, draw the lids and dash on about a tablespoonful per heater. Another man to pass a lighted torch over the gasoline is all that is necessary to start them going. The

gasoline, which ignites very easily, will generate enough heat to start the oil burning. In this way two men can fire up six acres in thirty minutes. Special cans for lighting may be bought on the market for about four dollars each. They are made in such a way that by pulling a trigger a definite amount of gasoline is discharged. The advantage of these lighters is that one man, by carrying a torch in the other hand, can do the work of two.

Just what constitutes the danger point will depend upon the stage of development the buds are in. Peach buds are more susceptible to premature starting than apple buds. After artificially freezing thousands of peach buds in different stages of growth, the Missouri Experiment Station briefly summarizes the matter as follows: (a) Fully dormant peach buds can stand eight or nine degrees below zero. When they are appreciably swollen zero is the danger point. When the buds are showing pink they can stand fifteen degrees above zero. When the buds are almost open twenty-five degrees is the danger point. When they are newly opened about twenty-six degrees would be the point of danger. When the petals are beginning to fall twenty-eight degrees above zero is cold enough to cause uneasiness. When the petals are off they can stand thirty degrees above zero. When the "shucks" (calyx lobes) are beginning to fall thirty-two degrees above zero is the danger point. The apple buds differ from the peach in that they are not fully developed and ready to start into premature growth with the first few sunny days in March. In mid-winter they can commonly withstand as low a temperature as the twigs themselves without injury. After the cluster buds have opened and the individual flower buds have begun to show color there is danger from that time until warm weather is assured. When the buds have grown sufficiently to

show the petals they can withstand from ten to twelve degrees of freezing. As they open up farther their ability to withstand cold becomes less and less. When the flowers are fully opened four degrees of freezing would be sufficient to destroy most of the crop. After the flowers are fertilized two degrees below freezing would be dangerous.

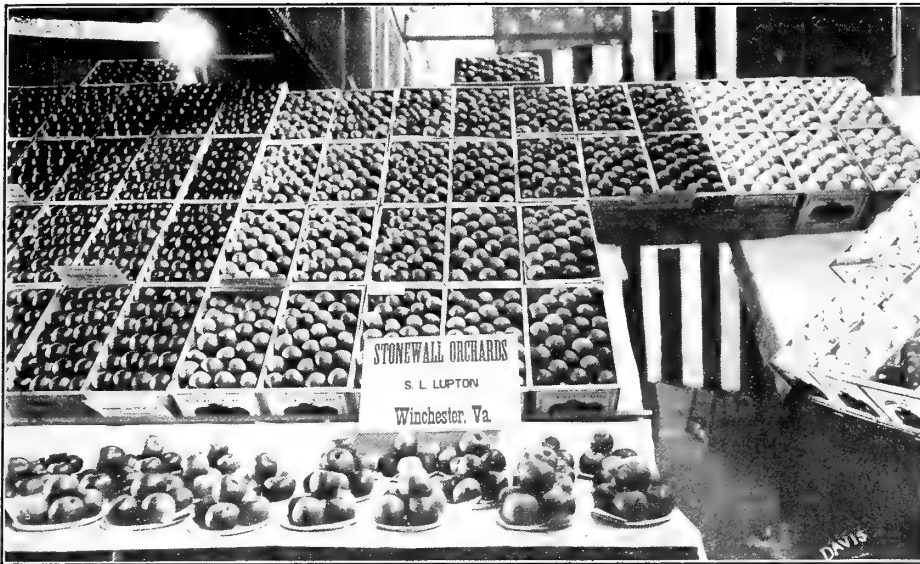
Electric thermometers fully equipped with alarm and batteries can be bought of the leading dealers in laboratory apparatus for about twenty dollars. With one of these delicately tested instruments set at the danger point in the orchard and the alarm at the house, one may avoid having to sit up and watch the temperature. Where there are three or four adjacent growers with telephone connection they might cooperate and have one alarm outfit in common. It is very necessary while the heaters are in action to have a good reliable thermometer outside as a check and two or three in representative places inside the heated area. The ones in the orchard should be suspended from branches about five feet from the ground and as far away from the heaters as it is possible to get. The fires should be started when the temperature gets within a degree or two of the danger point. If the heaters are of the adjustable kind the lid may be drawn only four to five inches or the stop-cock turned only a little at the time of lighting. If the non-adjustable kind be used it may not be necessary to fire up but half of them at first. In taking the temperature readings inside and out one should approach the thermometer facing the wind and hold the lantern far enough away not to affect the mercury. A policeman's electric searchlight is much better for taking the readings than a lantern. It throws out less heat, gives a better light and can be carried in the pocket. It costs from one to three dollars.

Some results from heating the experiment station orchard last spring are suggestive of what might be done with oil heaters. Two acres were heated. The temperature was kept up from three to four degrees higher than that outside against a twenty-mile wind. Sixty heaters per acre of the sliding lid type were used, and at no time were they more than half open. This was highly satisfactory considering the unusual conditions under which they were working. Both the wind and the small area heated had a tendency to make the effect less than what we might expect under normal conditions in a larger orchard. Fifty heaters per acre of this type going half open on an ordinary still, frosty night will raise the temperature eight to twelve degrees

NOTICE

Owing to the fact that the Eastern Land Shows and Governors' special train will draw a number of our representative fruit growers out of the state during the month of December, the executive board of the Washington State Horticultural Association has postponed the next annual meeting at Clarkston to January 4, 5 and 6, 1912. Will you kindly notify all whom you think may be interested?

L. M. BROWN, Secretary.
Walla Walla, Washington, October 3, 1911.



Individual Exhibit, Roanoke Apple Show, 1911, Roanoke, Virginia

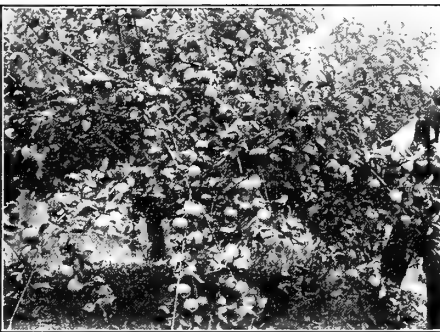
Apple Culture in Virginia

By Dr. E. A. Shubert, Roanoke, Virginia

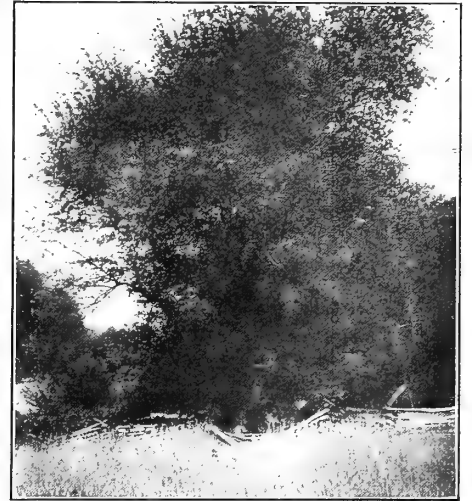
NO state in America offers greater advantages to the fruit grower than Virginia. There are advantages in the combination of suitable soil, climate and nearness to the markets that few other states possess. The yield from her orchards have been excelled by few other states. Sales from apple orchards have been made at from \$500 to \$800 per acre. Mr. Whitacre sold his crop

able crop. The sale from one orchard in Albemarle County, from less than two acres, amounted to \$1,200 net on one crop. All the stone fruits can be profitably grown in Virginia. Fruit culture in this state is rapidly increasing each year. The investments in commercial orchards will in the near future yield enormous profits. Offers of one thousand dollars an acre for good orchards have recently been made in this state. The fruit crop in Virginia brings more money than the wheat crop, or the tobacco crop, or hay crop. The proper handling, packing and sale of our fruit now demands the careful attention of the fruit growers. Fruit and apple lands equal to the best can be had along the mountain slopes of the Shenandoah Valley at an average price of \$15 to \$50 per acre in small tracts, and in tracts of several thousand acres it can be obtained at about one-half these prices. In other words, it is a positive fact that high class apple land can be purchased

along the western slopes of the Blue Ridge Mountains, overlooking the beautiful Shenandoah Valley, intersected here and there by the silver ribbon of ice cold, clear as a crystal mountain trout streams, endowed with a climate unsurpassed and a charming social environment that, combined with the golden sunshine and the invigorating breezes, make this one of nature's beauty spots—delights the traveler—and brings peace, contentment and prosperity to the resident. It is a fact that these mountain slope fruit lands can be had unimproved in large tracts of several thousand acres for even less than half of the price per acre quoted above, and we can prove that these same lands are capable of producing twenty to one hundred times their cost from one year's crop of apples after the trees come into bearing. These lands would be considered cheap in some apple growing states at twenty times the price asked here and still we have almost their advantages,



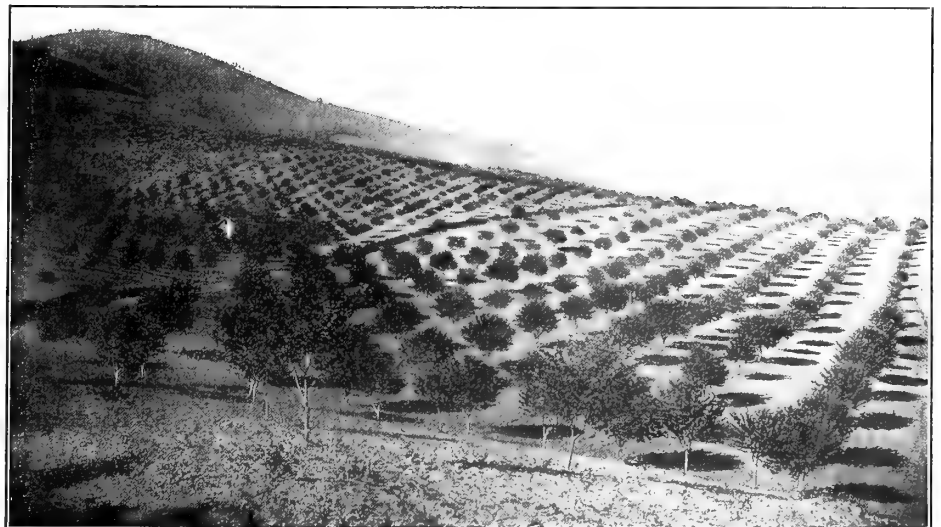
Six-Year York Imperial, Shenandoah Valley Virginia



Old Handy Apple Tree, 103 Years Old
Height 52 feet, spread of limbs 60 feet. Near Stuart, in Patrick County, Virginia

with the great additional advantage of close proximity to railroad and the large Eastern markets. No better opening can be found for the inauguration of an orchard planting campaign on a large commercial basis.

of apples from four acres for \$2,500. An orchard of about forty acres in Botetourt County has several times yielded crops that sold for \$10,000. Dr. Robinson of Albemarle has sold his pippins in London at \$6.75 per barrel. A Northern paper advertises that one famous apple tree has yielded during its life \$350 worth of apples, while it is well known in Nelson County that the really famous old Maxwell Pippin tree yielded in one crop \$110 worth of apples, and is still bearing choice Pippins. The old "Handy" apple tree, still living in Patrick County, has yielded 132 bushels in one year. A well cared for apple orchard in Virginia will bear fruit for fifty years, due to the unsurpassed soil and climate as found in this state. The yield and quality of fruit grown in Virginia has never been surpassed by any other state. Peaches are also a very profit-



Stuart Orchard of 450 Acres, Patrick County, Virginia



Five Acres of Grapes Under Protection
The shoots are not far enough advanced to be in danger

Use Heat and Smoke Combined

A COMBINATION of the principles of smudging and heating is the solution to the problem of protecting fruit against frost, according to the experiences of W. H. Underwood, the apple king of Kansas. This year Mr. Underwood had under protection three hundred and twenty acres of apples, ten acres of grapes and five acres of strawberries. Fires had to be lighted five times in the apple orchard and the strawberry patch. As the grapes were not far enough advanced to be injured by frost it was not necessary to protect them. Mr. Underwood, by simplifying matters, was able to heat three hundred

and twenty acres of apples, requiring less men and less work than last year, when he heated but forty acres.

Instead of the old method of hauling oil all night and constantly refilling heaters to keep the temperature up, he devised a new heater. It is fashioned after the old chicken trough which lets water into a pan from a keg as the water is used. In this manner the heaters, once lighted, burn with the same intensity of heat all through the night. The reservoirs hold enough oil to burn twelve hours continuously. Mr. Underwood advocates the use of smoke along with the heat. With a cloud of black smoke hanging above the orchard it is easy to heat the

interior. The smoke acts as a canopy. Mr. Underwood also believes that a great many fruit growers have made the mistake of not using enough heaters. He believes that seventy or eighty oil heaters should be used to the acre instead of forty and fifty, as some have got along with.—Contributed.

STARK VARIETIES OF TREES

To hundreds of responsible planters throughout the entire country we have sent thousands of trees of Stark Delicious, Stark King David and many other rare fruits for trial. The work of testing newer varieties requires a great deal of time and attention to innumerable details, for new fruits must be thoroughly tried and proven worthy in many different sections of the country before they are given a place. Both Delicious and King David have been tried from New York to California, from Michigan to the Gulf, and without exception they have been highly recommended. This is a splendid record when you consider the effect and changes which different climatic conditions and altitudes have on a variety, as well as the difference in personal tastes.

If you have other Stark trees sent you complimentary for trial, be they apple, peach, cherry or what-not, please report on them. It may be your report on a certain variety that will influence your neighbor or friend, or some tree planter far removed from you, to plant or not to plant it. By making these reports you not only help, to a very great degree, tree planters throughout the country, but you also add much to the great cause of horticulture. Make your report as full and as complete as possible. For information for our publicity department we desire your experience with the Stark Delicious, the Stark King David—all the leading and popular Stark varieties up to date. Give us your record, your orchard yields, the market prices. We will also appreciate photograph of your bearing Stark orchard. Kindly give us this information and we will add your name to our volunteer experimental list for rare sorts for trial. Our desire is to secure reports on new and old varieties and specimens of the new fruits from every fruit region in every state and territory. To all sending report we will mail free a copy of the "Stark Orchard Planting Book," by William H. Stark, also a copy of the "Spray Book," which will be ready shortly. Address Stark Volunteer Experimental Department, Stark Bro's Nurseries and Orchards Company, Louisiana, Missouri. Stark Condensed Year Book, latest edition, now ready. Have you sent for it? It will be forwarded free of charge. Forty-four pages of boiled-down information, wonderful color illustrations of the fruit. Mention "Better Fruit."

Editor Better Fruit:

Your letter of the sixth instant received. We thank you very much for sending us a copy of "Better Fruit." Our advertising with your company has been very satisfactory and we hope it may continue to be so. Yours truly, The Reynolds Electric Company, by Henry F. Reynolds, President, Seattle, Washington.



Troutman Orchard Heater with Troutman Attachment



An Apple Orchard in Full Bloom Protected from Frost by Orchard Heaters



This photograph was taken in Mr. H. W. Pealer's orchard at Hood River. The sprayer used is the "New Way" twin cylinder Success. Photograph loaned us by the New Way Motor Company, Lansing, Michigan

Hood River, Oregon, June 5, 1911.

Mr. Staver, John Deere Plow Company, Portland, Oregon.

Dear Sir: I sent you two photos of the sprayer; I think they are good. I take this opportunity to tell you what I think of the "New Way" Success sprayer. I have run it a lot on all kinds of ground, some of it the steepest sidehill in Hood River, and it has never given me any bother whatever. It has run ten hours several times and shorter periods many times and never missed a stroke or given any trouble, just drive and spray. The engine is something to be proud of; it keeps an even amount of pressure. I don't see where one could want a better sprayer. Hoping you every success, I am, yours truly, H. W. Pealer, Route 2, Box 69.

The National Country Life Congress

By August Wolf, Publicity Man, Spokane Chamber of Commerce

SIXTEEN prominent men in various parts of the United States have been invited to become trustees of the National Country Life Congress, the first annual session convening in Spokane, November 23, 1911, under the auspices of the country life committee of the Spokane Chamber of Commerce and the country life commissions of Washington, Oregon, Idaho and Montana. They are: Charles S. Barrett, Union City, Georgia, president Farmers' Educational and Co-operative Union; B. A. Fowler, Phoenix, Arizona, president National Irrigation Congress; J. H. Worst, North Dakota, president National Dry Farming Congress; Dr. Henry Wallace, Des Moines, president National Conservation Congress; Edward J. Ward, Madison, chief of Civic and Social Center Development, University of Wisconsin; Whitman H. Jordon, Geneva, New York, president American Association of Agricultural Colleges; W. H. Hoard, Fort Atkinson, Wisconsin, editor Hoard's Dairyman; F. D. Coburn, Topeka, secretary Kansas State Board of Agriculture; James J. Hill, St. Paul, chairman board of directors Great Northern Railway Company; Liberty Hyde Bailey, Ithaca, New York, president College of Agriculture, Cornell; G. Harold Powell, Los Angeles, manager Citrus Protective League; Dr. F. W. Gunsaulus, president Armour Institute, Chicago; Walter H. Page, New

York, editor The World's Work; Joseph Chapman, Minneapolis, chairman agricultural committee, Minnesota State Bankers' Association; N. J. Bachelder, Concord, New Hampshire, master of National Grange, and K. L. Butterfield, Amherst, president Massachusetts Agricultural College.

"The National Country Life Congress, which has established headquarters in Spokane, purposes to continue and enlarge upon the good work of the National Country Life Commission," said Fred Niedenhauser, secretary of the organization, "and it is planned to make it a clearing house for progressive ideas and achievement in the essential industry of agriculture. We shall have speakers of national reputation to discuss social and economic problems and devote some time to the redirection of the rural school and church, improvement in soil production, building of permanent highways and the readjustment of methods of marketing products of the farm."

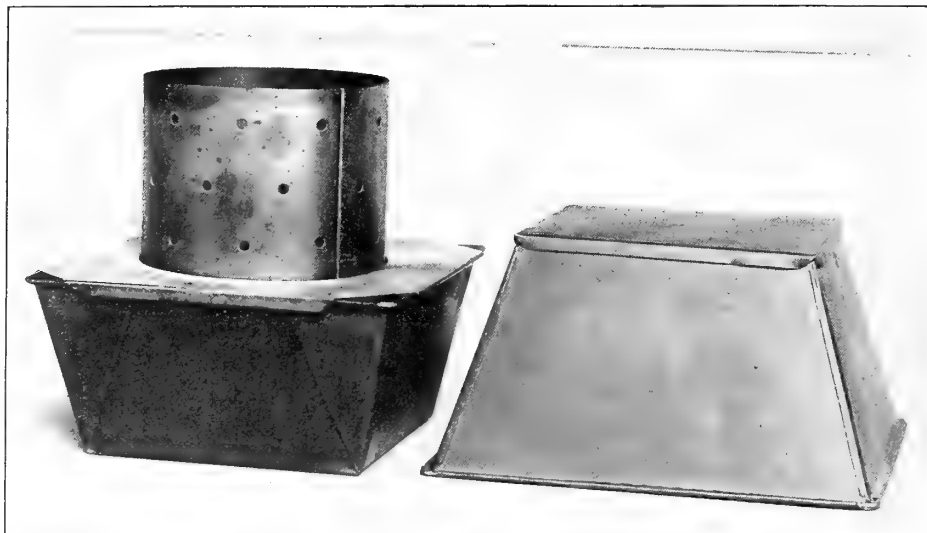
Seven days will be devoted to problems of improving conditions in rural districts at this first annual session. Governor Marion E. Hay of Washington will formally open the congress, and executive officers of Oregon, Idaho, Montana and other states will participate. There will be speakers of national reputation. The keynote of the meeting will be, "What can I do to

better conditions in the rural districts," and it will be demonstrated that the farm question is broader than it is commonly considered, also that it involves the welfare of the capitalist, business man and wage earner fully as much as it does the farmer. David Brown, chairman of the country life committee of the Spokane Chamber of Commerce and head of the Washington state commission, announces this tentative program for the congress: Governors' Day, November 23—The congress will be organized and committees selected for the sessions to follow. Farm Home Day, November 24—The National Grange will have charge of a large portion of the program and several of its leaders will deliver addresses. The chief question for discussion will be on how to make the farm home the best in the world. Country School Day, November 25—Prominent educators and officers of the National Grange will take up plans for the redirection of the rural school. The rural social center will also be discussed by workers of wide experience. Rural Church and Young Men's Christian Association Day, November 26—There will be mass meetings addressed by national and international workers in the movement, and definite plans will be outlined for the development and improvement of the work of these organizations. Producers' Day, November 27—The agricultural colleges and farmers of the country have been invited to take the lead. The questions will be considered from the standpoint of the man on the farm and how he can obtain the best returns from his work. Transportation Day, November 28—Advocates of good roads will speak on the subject of road-making, and there will be short addresses by prominent railroad officials. Market Day, November 29—Organizations interested in improving conditions surrounding the marketing of farm products from the standpoint of the producer as well as the consumer will be represented by speakers. An effort will be made to show how important it is that those engaged in the business of farming may be able to depend with some assurance on a fair profit, based upon the average cost of production. The necessity of the farmer handling his affairs on a business basis figuring the cost of his own time and labor, the same as any other business man, will also be brought out.

"We are now arranging for the attendance of prominent speakers," Mr. Brown said, "and we also expect to have with us some of the foremost educators in the country. H. B. Dewey, state superintendent of schools in Washington, is co-operating with us to make the country school day program a success. All the sessions are open to farm women."

Editor Better Fruit:

We feel that the money spent in advertising in your publication is going to bring us the very best results. Such has been our experience in the past year, and we wish to acknowledge your publication as one of the very best, for results have satisfied us on this point. Very truly yours, The Frost Prevention Company, by E. B. McPherson, San Francisco.



National Orchard Heater

Strawberry Planting News

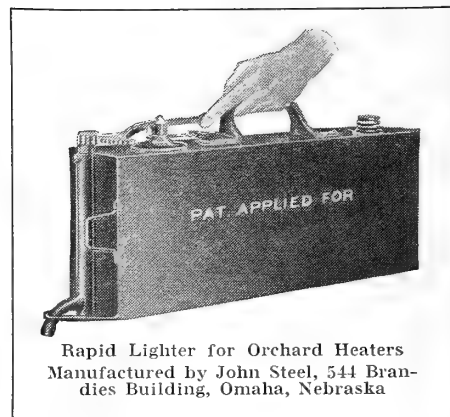
From Western Edition R. M. Kellogg Company's 1912 Year Book

TO Our Pacific Coast and Inter-Mountain State Friends, Greeting: In presenting to you our price list for the season of 1912, we take occasion to announce that we have established two branch strawberry plant farms in your territory—one located at Canby, Oregon, the other at Twin Falls, Idaho. The former will be known as the Pacific Coast Branch, the latter as the Inter-Mountain State Branch of the R. M. Kellogg Co. These branch farms have been created in response to the growing demand for Kellogg thoroughbred strawberry plants in the magnificent horticultural empire lying west of the Rocky Mountains—a demand that has increased beyond our highest expectations during the recent years throughout all that region extending from Denver south and west to Los Angeles, and north and west to Brit-

ish Columbia. To supply to this great territory Kellogg's thoroughbreds, grown in "the Kellogg way" and under the peculiar conditions of soil and climate prevailing there, has been our plan for years, and now our hopes in this respect are realized in two extraordinary crops of plants for delivery in 1912, grown so near to the fields in which they are to be planted as to render delivery safe, prompt and comparatively inexpensive as to transportation charges. The plants with which these branches were stocked were shipped direct from our breeding beds at Three Rivers, Michigan, and have been cultivated in accordance with the methods which have made the Kellogg strain of plants famous in all parts of the world. Growers who have visited the branch farms are enthusiastic in their praises of what they have seen, and as early as the summer of 1911 we were receiving orders for plants for delivery in the spring of 1912. During the season of 1911 we made a large number of deliveries from our Canby farm, and we take pleasure in quoting here a few words from some of the many letters received, indicating the high quality of our Western grown plants: Walter Benedict, Hollywood, California, writes: "I received the plants February 24. Never have seen finer plants, and they arrived in perfect condition. They show more growth than our own, which were set at the same time." Justine Schrupf, San Luis Potosi, Mexico, says: "Plants arrived on March 15, and today (March 26) they are as healthy a lot of plants as I ever have seen." D. J. Coonradt, Honolulu, Hawaii, says: "Received strawberry plants in fine condition, and with such a wonderful root system they should all grow. They arrived in much better condition than I expected." Mrs. Nellie S. Scott, Sam's Valley, Oregon: "We are much pleased with the splendid plants. Thank you!" One British Columbia customer writes that a ship-

ment of plants made from Canby, by error of the express company, was in transit for twenty days, but reached him in perfect condition notwithstanding—a test of their quality and power of endurance of high value.

In addition to the standard varieties which have won popularity in the East as well as in the West, we are growing at Canby the three splendid varieties so popular in the Pacific Coast region—Clark's Seedling, Magoon and Malinda—and shall also be able to supply our customers with Burbank's latest creation, his extraordinary strawberry known as Pategonia. At Twin Falls we are growing all of our standard varieties and for the particular benefit of our Colorado, Idaho, Utah and Montana customers the delicious Jocunda. It is our particular aim to supply our customers everywhere with just those varieties that insure the biggest crops of the very best berries it is possible to produce, and we take pleasure in commending to our friends the unusually valuable list of varieties quoted in our



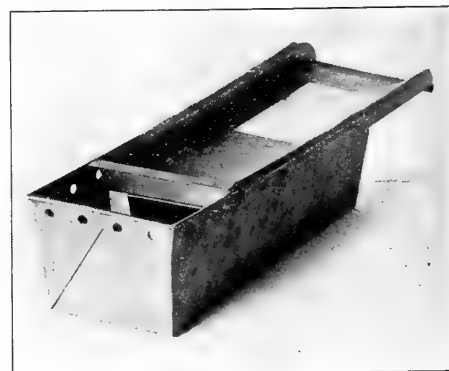
Rapid Lighter for Orchard Heaters
Manufactured by John Steel, 544 Brantley Building, Omaha, Nebraska

catalogue. We expect to begin our shipping season from the Canby branch farm about February 1, and shall begin to ship from Twin Falls as soon as the season will permit, probably as early as March 1. In view of the great shortage of plants in practically all of the states east of the Rockies, a result brought about by the terrible drought and extreme heat of May and June, 1911, it is of importance that customers send in orders at the earliest possible moment. Kindly address all communications and make all remittances payable to R. M. Kellogg Co., Three Rivers, Michigan.



Courtesy of Dean Photo Company
Grand Junction, Colorado

Branch of Elbertas, Grown in Martin's Peach Orchard, Palisade, Colorado
Mr. Martin's orchard was protected by oil heaters.



Hamilton Orchard Heater

Preliminary Frost Fighting Studies in Rogue River Valley

By C. I. Lewis and F. R. Brown, Oregon Agricultural Experiment Station, Corvallis

THE Division of Horticulture of the Oregon Experiment Station began frost fighting investigations in the Rogue River Valley in 1909. In 1908 there had been some loss in the valley, and as a result of this loss C. I. Lewis, horticulturist of the experiment station, was invited to meet the growers at Medford to give an address on frost fighting. A representative of the Southern Pacific Railroad Company was also present. This representative kindly offered to donate some oil in order to enable certain demonstrations to be conducted in frost fighting. It was the general opinion of the growers that frost injury probably would be very slight in the future, and this prevented many growers from undertaking experiments. However, pots were secured and Mr. C. E. Whisler, of the Bear Creek orchard, kindly offered to allow demonstrations to be conducted in his orchard. Mr. Whisler also gave valuable assistance in conducting the experiments. The experiments for that year were in charge of Mr. C. C. Vincent, assistant in the horticultural division, and he was assisted by Mr. C. E. Whisler, and also Mr. W. S. Brown, a graduate of Cornell University, who was giving special assistance to the horticultural division at that time. This meeting was not called in ample time to allow one to make the best of preparations, and most of the work for the year 1909, as shown in this report, was of a negative nature, largely due to three things: First, to an inferior grade of oil; the locomotive oil which was furnished contained too much water and other impurities for frost fighting. Second, a lack of sufficient pots for the work; and, third, unusually low temperatures, twenty-five degrees being recorded. No work was undertaken in 1910, although many growers of the valley resorted to various methods of frost fighting in order to save their crops. Unfortunately, in their rush of work few of them kept data and notes of such nature as to be very valuable in frost fighting work.

The division of horticulture, owing to a lack of assistance and funds, was unable to carry on the work that was desired in 1910. Work was again resumed this past spring on a more extensive and very thorough scale. We were enabled to do this work largely through the kindness of two pot manufacturing companies, namely: The Round Crest Co. of Denver, Colorado, and the Bolton Orchard Heater Co. of San Francisco, California. Mr. Karl L. Wundt, who represented the Round Crest people, made a proposition to the college that these two companies would like to conduct competitive experiments in an orchard in the Rogue River Valley, and asked the division if we could secure an orchard and also be willing to serve on a committee of three to judge the contest.

They also wished the college to take the records of both companies. The college accepted the proposition, although the details were not completed until late in March, which was more or less of a handicap. While some competitive work was conducted a great part of it was never undertaken, owing to a lack of understanding between the two companies. However, the pots and oil were secured and considerable valuable data has been obtained.

Experiment No. 1.—On April 14, 1909, in the block of pears northeast of the pumping plant in the Bear Creek orchard, a smudging experiment was conducted, the fuel being oil furnished by the Southern Pacific Railroad Company, which was used in the Fresno pots (Bolton Orchard Heater). Mr. C. C. Vincent, of the division of horticulture Oregon Experiment Station, and Mr. C. E. Whisler of Medford, Oregon, conducted the work. Forty-five pots were used and thermometers were hung six feet from the ground. The temperatures recorded were the following:

Outside Reading	Reading in Area
3:50 a. m. 28°	3:50 a. m. 28°
4:50 a. m. 25°	4:40 a. m. 27°
5:10 a. m. 25°	5:10 a. m. 26°
5:40 a. m. 25°	5:40 a. m. 26°

There was not a sufficient number of pots to raise the temperature above the danger point and, second, the oil was shown to be of an inferior grade, since it was noted that seven pots exploded the first hour and twenty-five pots had exploded in two hours. This boiling over and exploding of pots troubled us the entire season.

Experiment No. 2 was conducted April 20, 1909, in what is known as the Eisman orchard at Grants Pass. The oil used was furnished by the Southern Pacific Railroad Company and was used in the Fresno pots (Bolton heater). Two hundred and twenty-five pots were used on an area of three acres. This likewise was a very cold night, as the lowest temperature recorded was twenty-five degrees. The temperatures for outside and inside the plots are given in the following table:

Outside Reading	Reading in Area
11:15 p. m. 34°	11:15 p. m. 34°
12:15 a. m. 32°	12:15 a. m. 31°
1:00 a. m. 29°	1:00 a. m. 30°
2:00 a. m. 26°	2:00 a. m. 29°
2:15 a. m. 25°	2:15 a. m. 28°
3:00 a. m. 25°	3:00 a. m. 28°
4:30 a. m. 25°	4:30 a. m. 28°

It was found impossible even with this number of pots to the acre to save a crop with the grade of oil used. It required three men eleven minutes to light the 225 pots. Refuse from gasoline motor car shops saturated with oil was used as wicks to assist in lighting the pots.

In experiment No. 3, conducted April 27, 1909, seventy pots were used in a block of pears in the Bear Creek orchard, Medford, Oregon. This was not an experiment to protect against

frost, as the temperatures were not dangerous, but was more to test the oil in the pots. The temperatures given were recorded in the following tables:

Outside Reading	Reading in Area
3:25 a. m. 52°	3:25 a. m. 52°
4:05 a. m. 49°	4:25 a. m. 51°
4:45 a. m. 49°	4:45 a. m. 52°
5:05 a. m. 48°	5:05 a. m. 52°

It required two men twelve minutes to start seventy pots. Of a total of thirty-eight pots used in six rows seventeen boiled over at 4:05 a. m., clearly demonstrating the impossibility of using this grade of oil.

Experiment No. 4 was conducted April 29, 1909, in the Bear Creek orchard. Mr. C. C. Vincent and Mr. C. E. Whisler were observers:

PLOT 1—Sawdust and shavings.

Outside Reading	Reading in Area
9:00 p. m. 43°	9:00 p. m. 43°
9:40 p. m. 40°	9:30 p. m. 43°
10:40 p. m. 38°	10:30 p. m. 40°

PLOT 2—Coal basket.

Outside Reading	Reading in Area
9:00 p. m. 43°	9:00 p. m. 43°
9:40 p. m. 40°	9:30 p. m. 42°
10:40 p. m. 38°	10:35 p. m. 41°

PLOT 3—Fresno pot (Bolton orchard heater)

Outside Reading	Reading in Area
9:00 p. m. 43°	9:10 p. m. 43°
9:40 p. m. 40°	9:30 p. m. 43°
10:40 p. m. 38°	10:35 p. m. 41°

PLOT 4—Troutman pot.

Outside Reading	Reading in Area
9:00 p. m. 43°	9:00 p. m. 43°
9:40 p. m. 40°	9:30 p. m. 42°
10:40 p. m. 38°	10:40 p. m. 40°

PLOT 5—Fresno (Bolton) pot having cover with two-inch hole.

Outside Reading	Reading in Area
9:00 p. m. 43°	9:10 p. m. 43°
9:40 p. m. 40°	9:45 p. m. 42°
10:40 p. m. 38°	10:45 p. m. 39°

PLOT 6—Fresno (Bolton) pots with sawdust and sand; handful of each in oil to keep from boiling over.

Outside Reading	Reading in Area
9:00 p. m. 43°	9:10 p. m. 43°
9:40 p. m. 40°	10:10 p. m. 42°
10:40 p. m. 38°	10:45 p. m. 40°

PLOT 7—Wood covered with wet straw.

Outside Reading	Reading in Area
9:00 p. m. 43°	9:10 p. m. 43°
9:40 p. m. 40°	10:15 p. m. 45°
10:40 p. m. 38°	10:50 p. m. 43°

PLOT 8—Wood covered with damp manure.

Outside Reading	Reading in Area
9:00 p. m. 43°	9:10 p. m. 43°
9:40 p. m. 40°	9:45 p. m. 45°
10:40 p. m. 38°	10:50 p. m. 41°

PLOT 9—Wood covered with wet sawdust.

Outside Reading	Reading in Area
9:00 p. m. 43°	9:10 p. m. 43°
9:40 p. m. 40°	9:45 p. m. 47°
10:40 p. m. 38°	10:50 p. m. 39°

PLOT 10—Prunings, using paper sack with coal tar residue for a starter.

Outside Reading	Reading in Area
9:00 p. m. 43°	9:10 p. m. 43°
9:40 p. m. 40°	9:45 p. m. 51°
10:40 p. m. 38°	10:50 p. m. 39°

OBSERVATIONS—Plot 3 had two pots out at 10 o'clock; plot 4 had one exploded, three out at 11 o'clock; plot 5 had one exploded, two out at 11 o'clock; plot 6 had three exploded at 11 o'clock; plot 7, fires all out at 11 o'clock; plot 8, fires all out at 11:30 o'clock; plot 9, fires burning at 11 o'clock; plot 10, fires all out at 11 o'clock.

The G. E. Marshall orchard consists of seven acres of seventeen-year-old trees. The block heated is twelve rows in width, there being twenty-eight trees to the row, three rows of Winter Nelis on the west, five rows of Bartlett on the east and four rows of d'Anjous between. The trees were set twenty-five feet each way. The



Plate 1—Bolton Orchard Heaters, Placed 17x25 Feet, Ready for Firing



Plate 2—Troutman Orchard Heaters, Placed 17x25 Feet, Ready for Lighting



Plate 4—Bolton Orchard Heater. From Left to Right: Heater Covered, Heater without Carbon Arrester, and with Carbon Arrester Attached

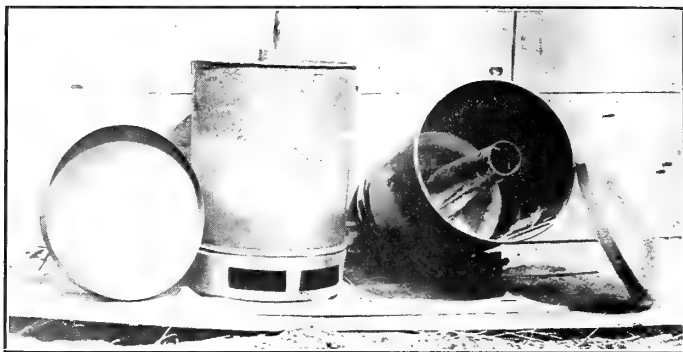


Plate 5—Troutman Heater, Showing the Cover and Draft



Plate 16—Wood Properly Piled for Firing

orchard being very nearly level the conditions were practically the same throughout the entire block. The Bolton heaters were arranged on the north half of the block, being placed 17 feet by 25 feet apart, 299 heaters being used. The Troutman pots were placed on the south half and arranged 17 feet by 25 feet, with a total of 304 heaters. Around the outer edge of the orchard was placed a row of Bolton pots for reinforcement. On the west of this tract was a block of young Bartlett's five years old, 25 feet apart, which were heated with 70 pots per acre. On the east was a block of Yellow Newtowns which was not heated. To the north was a block of trees consisting of the same varieties as the one heated. This was originally a part of the same orchard. Size of trees averaged thirteen feet, nine inches in height, with a spread of twelve feet, seven inches. The northeastern corner and part of the eastern end of this block was slightly higher and the soil much lighter, and slightly higher temperatures were noticed in that part.

The block of red cheek apples, consisting of about two acres, was selected with the idea of obtaining a different arrangement of trees and noting the effect the different distances in planting would have upon the temperatures maintained. Within this block the Troutman heaters were arranged 21 feet each way, making as nearly even distribution as possible of the heaters. The trees in this block are planted on triangular system, the base of which is 50 feet, with the sides $34\frac{1}{2}$ feet, making the shortest distance between trees $34\frac{1}{2}$ feet and the longest 50 feet. The age of the trees is seventeen years and the size averaged 16 feet, 2 inches high, with a spread of 18 feet, 4 inches.

March 27 to April 3 was a period of extremely warm weather, with bright sunshine. The maximum temperature on March 29 and 30 was 86 degrees. Following this period came one of cloud and rain, the temperature being much lower. During the week from April 3 to April 9 very little rain fell, but the temperature was low and the sun shone but very little. April 9 and

during the week following the temperature dropped still lower, ranging on April 10, 11 and 12 about 45 to 50 degrees during the daytime and from 34 to 38 degrees during the night. During this week, and especially on April 10 and 11, some snow fell; in fact during the whole day of April 11 snow fell intermittently. Very little snow remained, however, after it struck. On April 12 the weather cleared and on the night of April 12 a light bank of clouds prevented a low temperature. April 13 also being clear, and the night following being clear a forecast was given out to be prepared for frost. By 12 o'clock the temperature had reached 34 degrees, and dropped steadily until 3 o'clock, when there was an average temperature of 29.6 degrees, with the temperature still dropping, the lowest temperature for the morning being 27 degrees, and occurring between 5 and 5:30. The following day, April 14, was somewhat cloudy and the temperature did not rise very high, remaining around 55 and 60 degrees. In the evening the

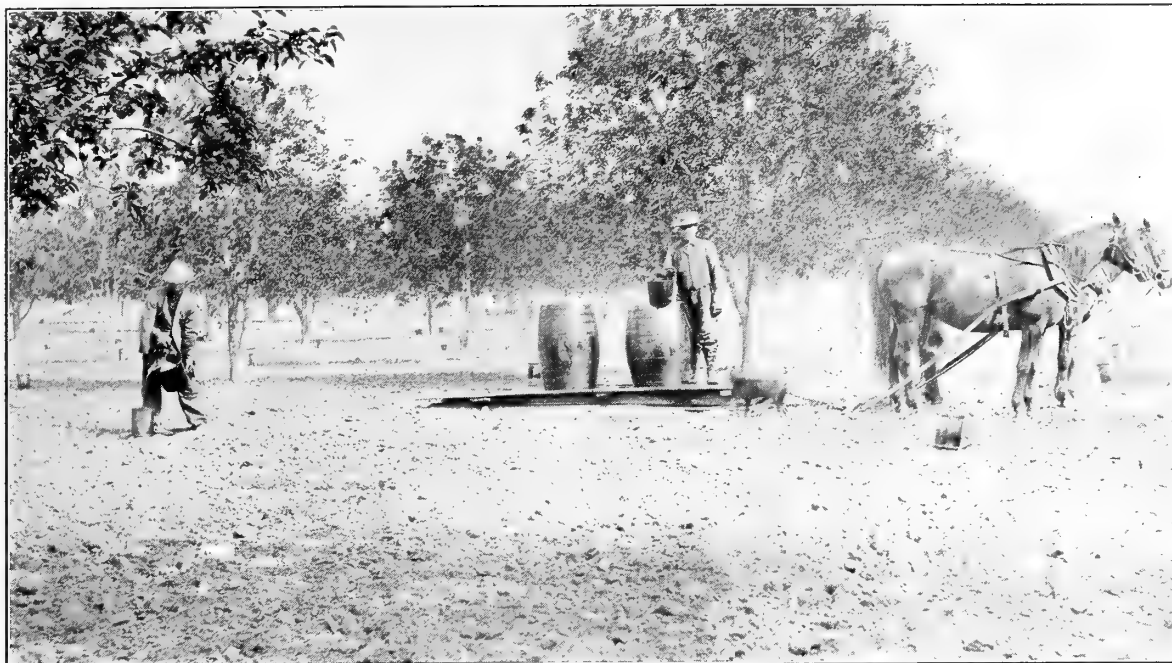


Plate 9—Filling Orchard Heaters in the G. E. Marshall Orchard

sky again cleared and another frost was forecasted. About 3 o'clock in the morning the temperature had reached 30 degrees. At 3:30, for a short period only, the temperature reached 26 degrees. From 3:30 until 5 the temperature varied between 27 and 29 degrees. At 5 o'clock it again dropped to 26 degrees, and remained there until 5:30, and from 5:30 until 6 the temperature remained from 27 to 28 degrees. The day following, April 15, was cool and slightly cloudy, but the temperature had risen enough so that there was no more frost until the following week. The extremely warm period between March 27 and April 3 had forced the bloom out on the Bartlett's and the d'Anjous until they were in full bloom by the fifth of April. The Winter Nelis, however, were just beginning to open on the fifth, and during the cloudy cool weather which followed they opened very slowly, so that they did not come into full bloom until about April 15 or 16. During their blooming period very few bees were noticed in any orchard.

The oil used on all of this work, except in the test with 20 heaters to the acre, was a "slop" distillate testing about 20 degrees Baume. This oil cost 80 cents per barrel at the refinery and the freight rate is \$2.19 per barrel. This oil had been guaranteed free of water, but unfortunately, through some accident or other unexplainable reason, the first carload shipped to the valley contained such a large quantity of water that it could hardly be used. The car of oil used in this test was apparently free from water and gave fairly good results. The oil used for the first test where the 20 heaters per acre were used was of much better grade, being known as 28-degree distillate. The expense of this, however, is almost prohibitive, costing about

nine cents per gallon at Medford. The Union Oil Company, however, has stated that it is quite probable that it will be able to place it at Medford for six cents per gallon. Just what grade of oil will be used in the future we cannot state, as it is still an open question, there being at present about three different grades used in the valley, each having its special advantage. The test which was attempted to determine the relative burning qualities of the three grades proved to be of no value because of the large amount of water contained in the samples. Five gallons each of oil testing 16 degrees, 20 degrees and 28 degrees, respectively, were used. Bolton Orchard Heaters were used in making the test. These were of the lard pail type, each holding one gallon. The five-gallon can of 28-degree distillate which was turned over by a representative of the Union Oil Company of California contained two gallons and one quart of water, so that only one heater was filled with oil containing no water. At the end of three hours all the heaters had gone out, leaving one quart to three quarts of water in each heater. Five Bolton heaters were filled with one gallon each of 20-degree "slop" distillate, and at the end of one hour three had gone out on account of the large amount of water present. Of the remaining two, one burned out clean in three and one-half hours and the other in four and one-half hours. It was noticed that this grade of oil gave off a much more dense smudge than the other two during the first hour and a half. Five heaters were used with one gallon each of 16-degree fuel oil, and of these three contained enough water to cause them to boil over and go out. Of the other two, one burned four and three-quarter hours, leaving one inch of heavy residue. This grade of oil was

much easier to light than either of the distillates for the reason that gasoline was used as a lighter and remained on top, burning very rapidly, whereas on the other grades it mixed slightly with the oil. The test was in no way successful and of very little value, due to the fact that only small amounts of oil were used, and no attempts were made to obtain the temperatures created by the different fuels. The oils in use on the Pacific Coast all have an asphalt base and do not burn up as cleanly as the oil used in the Middle West, which has a paraffine base. At the present time it is not possible to obtain this oil, but if it could be obtained such an oil, testing 28 to 30 degrees, would probably be the best fuel for orchard heating.

The thermometers used in this work were those sent out by the Bausch & Lomb Co. These thermometers are of the laboratory type, graduated in two-degree spaces up to 300 degrees, and were not very satisfactory for this work, owing to the fact that they were graduated so high and were very delicate. However, by careful handling they may be used, as they are very accurate. The ideal thermometer for this work would be one which has a long cylindrical mercury bulb exposed entirely to the atmosphere. The thermometer should be fastened to some substantial back as a protection. In all sixty thermometers were used in the tests. These had been tested at different points on the scale and the corrections noted on the tag accompanying each. All of the thermometers with the exception of three were correct, and read the same at 32 degrees. Three of the number were too high at 30 degrees, but with the corrections always with them could be satisfactorily used. The arrangement of the thermometers was made with the idea

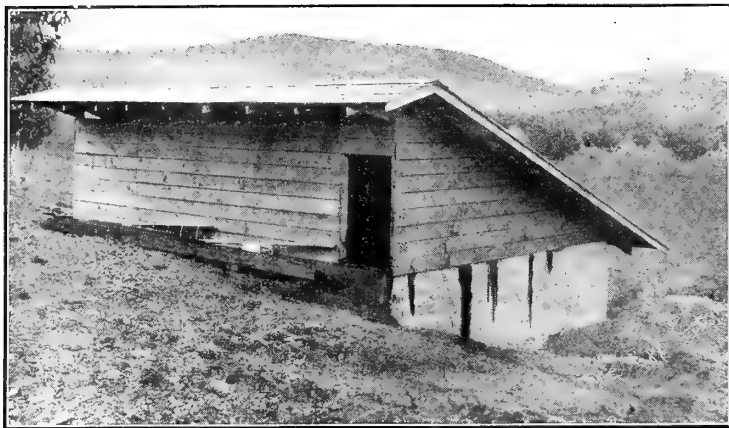


Plate 6—Oil Storage Tank, Foothills Orchard of George Carpenter, Showing Opening for Filling. Orchard Heaters in Orchard in Background

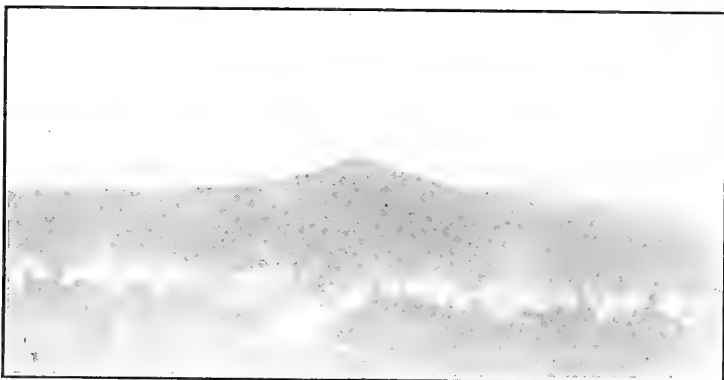


Plate 12—Bolton Orchard Heaters, with Carbon Arresters. Picture taken at 2 a. m. April 14, 1911

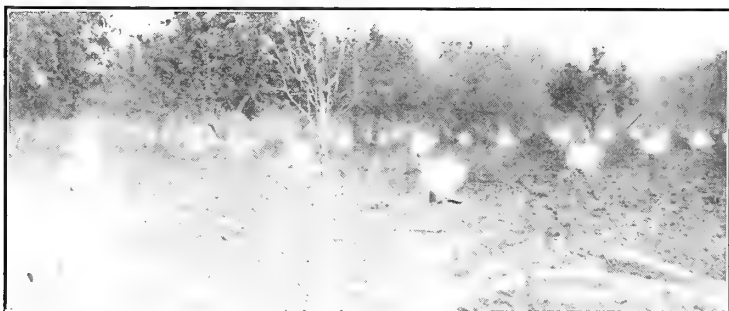


Plate 13—Troutman Heaters Burning. One Hundred Heaters per Acre

of obtaining an even distribution throughout the heated area, and as far as possible obtain a fair outside temperature. Three lines of thermometers were run through each block, one directly through the center and the other two nearer the outside. The outside thermometers were placed on the southeast, east and north of the block; none were placed on the west and none on the northwest, due to the fact that the drift came principally from the east and southeast, and the effect of the heat on the opposite side of the orchard could be noted 300 and 400 feet distant. In fact on the morning of April 15 much difficulty was experienced in getting the outside thermometers away from the effect of the heat. Three thermometers on the north side of the heated area had been placed 150 feet distant from the fires, but showed the effect of the heat to such an extent that they had to be moved entirely. Even then, at a distance of

almost 300 feet when the wind was blowing strongly, a slight difference could be noticed. However, the majority of the thermometers on the outside were arranged along the northeast, east and southeast sides of the heated area, and hence were not affected by the inside temperature. All of the thermometers were hung in the trees about four and one-half feet from the ground, and always placed as far as possible from the burning pots. Thus we were able to obtain the minimum temperature at all times within the heated area. The question of suitable thermometers for orchard work is one which has not been taken up, but is one of very great importance, due to the fact that a valuable crop depends upon the thermometers used. However, a cheap thermometer, if it is carefully tested, may be just as good as some of the higher priced ones, but it would seem that where a large valuation was involved it would be better to

invest in expensive thermometers and have them accurately tested than to depend upon the cheaper grades. The majority of the thermometers which are being used throughout the valley are of a cheap grade with a metal back, the bulb being entirely surrounded by metal, and mostly of a round bulb type. This type of a bulb is not at all as satisfactory as a long cylindrical one, as it is noticed that many of these do not respond very quickly to changes in the temperature. Perhaps one of the best thermometers of similar construction, so far as we were able to judge. It has a particular advantage in that it was graduated to one-degree spaces to 120 degrees, and at 32 degrees had been carefully tested. It also had a long cylindrical bulb which was very sensitive to a change in temperature. The

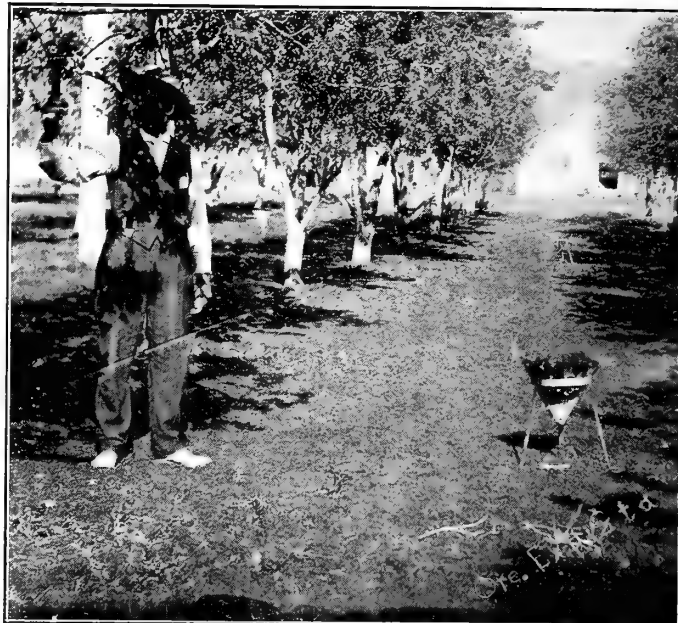


Plate 18—Coal Heaters Ready to Light. Reading Thermometers at the Left, Bear Creek Orchard, 1909

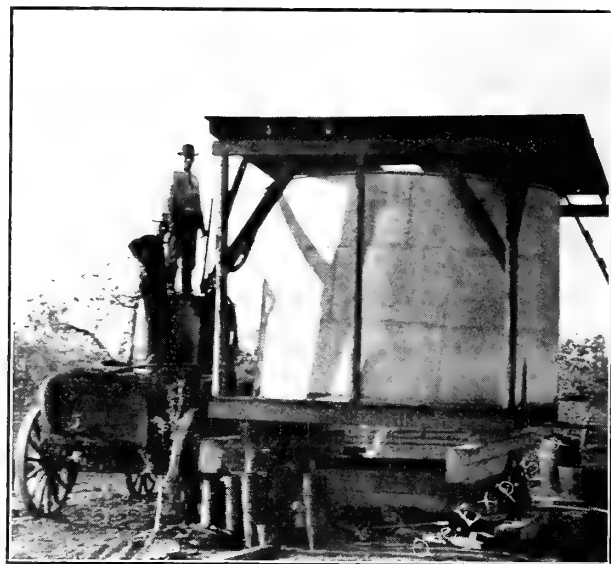


Plate 8 Filling Galvanized Iron Storage Tank in G. E. Marshall Orchard. Outlet on the Right



Plate 14—Troutman Heaters Burning, Showing Method of Reinforcement

thermometers used in the test block were very sensitive, and had they been graduated to but 120 degrees in one-degree spaces would have been all that could have been asked. However, we think it best for general orchard use to have a thermometer with some sort of a rigid back.

Two types of heaters were used in this test. One was the Bolton or Fresno orchard heater, manufactured by the Frost Prevention Co. of San Francisco, and commonly known throughout the Rogue River Valley as the Fresno pot. However, the present company put it out under the name of the Bolton Orchard Heater. It is of a lard pail type, holding one gallon of oil, and has as its special feature a circle of small holes around the top. They also advocate with this the carbon arrester, claiming that with it a double burning period may be had with a loss of only ten per cent of the maximum amount of heat produced. That is, the Bolton pot burning four hours without the arrester will burn eight hours with the arrester, and at the same time produce ninety per cent as much heat. This is one of the simplest of orchard heaters on the market today, and is very popular in the Rogue River Valley. The other type of heater is known as the Troutman heater, manufactured by the Round Crest Orchard Heating Co. of Denver, Colorado. The heater has a capacity of five quarts and is circular in form, but differs from the lard pail type in that it has a draft coming through the bottom of the pots and carried to the center of the burning area by a funnel-shaped opening through the center of the pot. One difficulty was experienced with these heaters which was not noticed in the other, and that was in the filling; it was more difficult to pour the oil into the heater without pouring it through

the opening in the center. This draft funnel through the center, however, extends to about one inch above the edge of the pot, so that with a little care no trouble need be experienced in filling the pot. The test which was to have been carried out originally was to have been competitive between the two companies, but owing to a misunderstanding of conditions and the rules as laid down by one of them it was found impossible to carry it on as originally planned. Such work as was done was carried on under almost exactly the same plan as for the competitive tests. The same results were obtained as would have been obtained under the other conditions.

In localities where there is a local branch of the weather bureau the forecast may be given out from that office. This forecast is usually made up from a local report sent in to the central office, or the branch office of that division, about 5 o'clock in the evening. As soon as returns can be had from the central office the forecast is then given out. At Medford Mr. P. J. O'Gara sends in his local report to Portland about 5 o'clock in the evening. As soon as Mr. Beals can make up his general forecast he sends it to Medford, where it is then posted. If frost is imminent a copy of the forecast is written out and given to the local central of the telephone system, so that any time after 6 o'clock anyone in the valley wishing to know the forecast for the night can obtain it by calling up central. During the

past season this method proved very satisfactory and the telephone companies and the operators at central deserve a great deal of credit for the manner in which they handled the reports. This system of forecasting frost is probably the best in use at the present time, and while it has been quite effective in the past there are some ways in which it can be bettered. In as large a valley as the Rogue River, where there are orchards under as varying conditions, more stations for reporting temperature should be established. In connection with the forecast and work of the local weather bureau, the fruit grower should establish a system of electric alarms and make a practice of keeping the minimum temperatures, as well as the dew-points, for each day throughout the season. He would find that he would be enabled to tell the temperature more accurately and to insure his crop more efficiently. Since there is a great variation of temperature in the Rogue River Valley, some orchards experiencing a much lower temperature than others, it will be necessary for each grower to rely more or less upon his own forecast and alarms. In the work carried out in the Marshall orchard a record of the dewpoints was kept on the nights when a frost was predicted, and in all cases the minimum temperature for the night compared very closely with that obtained through the

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Plate 19—Using Oil to Light Manure Smudges in Bear Creek Orchard in 1909

DIFFERENCE IN READING OF WET AND DRY BULB THERMOMETERS

Air Temp.	0.5	1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6	6.5	7	7.5	8	8.5	9	9.5	10	10.5	11	11.5	12	12.5	13	13.5	14	14.5	15										
40	39	38	37	35	34	33	32	30	29	28	26	25	23	21	20	18	15	13	10	7	+3	-1	-6	-14	-26	..	..	..	..	..					
41	40	39	38	36	35	34	33	31	30	29	27	26	24	23	21	19	17	15	12	10	6	+2	-2	-8	-16	-30	..	..	..	..	..				
42	41	40	39	38	36	35	34	33	31	30	29	27	26	24	23	21	19	17	14	12	9	+6	+2	-3	-9	-18	-36	..	..	..	..	..			
43	42	41	40	39	37	36	35	34	32	31	30	28	27	25	24	22	20	19	16	14	11	9	5	+1	-4	-11	-21	-45	..	..	..	..	..		
44	43	42	41	40	38	37	36	35	34	32	31	30	28	27	25	24	22	20	18	16	13	11	8	4	0	-5	-12	-24	-60	..	..	..	..	..	
45	44	43	42	41	40	38	37	36	35	34	32	31	30	28	27	25	23	22	20	18	15	13	10	7	+4	-1	-6	-14	-27	..	..	..	..	..	
46	45	44	43	42	41	40	38	37	36	35	33	32	31	29	28	27	25	23	21	20	17	15	13	10	7	+3	-2	-7	-16	-30	..	..	..	..	..
47	46	45	44	43	42	41	40	38	37	36	35	33	32	31	29	28	26	25	23	21	19	17	15	12	9	6	+2	-3	-9	-17	-30	..	..	..	..	..
48	47	46	45	44	43	42	41	40	38	37	36	35	33	32	31	29	28	26	25	23	21	19	17	14	12	9	5	+1	-4	-10	..	..	..	..	..
49	48	47	46	45	44	43	42	41	40	38	37	36	34	33	32	30	29	28	26	24	23	21	19	16	14	11	8	5	0	-5	..	..	..	..	..
50	49	48	47	46	45	44	43	42	41	40	38	37	36	34	33	32	30	29	27	26	24	22	21	18	16	13	11	8	+4	0	..	..	..	..	..
51	50	49	48	47	46	45	44	43	42	41	40	38	37	36	34	33	32	30	29	27	26	24	22	20	18	16	13	10	7	3	..	..	..	..	..
52	51	50	49	48	47	46	45	44	43	42	41	40	38	37	36	34	33	32	30	29	27	26	24	22	20	18	16	13	10	7	0	..	..	..	..	..
53	52	51	50	49	48	47	46	45	44	43	42	41	40	38	37	36	34	33	32	30	29	27	26	24	22	20	18	15	13	10	7	..	..	..	..	..
54	53	52	51	50	49	48	47	46	45	44	43	42	41	40	38	37	36	34	33	32	30	29	27	25	24	22	20	18	15	12	10	7	..	..	..	..	..
55	54	53	52	51	50	49	48	47	46	45	44	43	42	41	40	38	37	36	34	33	32	30	29	27	25	24	22	20	18	15	12	10	7	..	..	..	..	..
56	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41	40	39	37	36	34	33	32	30	29	27	25	24	22	20	18	15	12	10	7	..	..	..	..	..
57	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41	40	39	37	36	34	33	32	30	29	27	25	24	22	20	18	15	12	10	7
58	57	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41	40	39	37	36	35	33	32	30	29	27	25	23	21	20	19	18	17	16	15	14	13	12	
59	58	57	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41	40	39	37	36	35	33	32	30	29	27	25	23	21	20	19	18	17	16	15	14	13	
60	59	58	57	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41	40	39	38	36	35	33	32	30	29	27	25	23	21	20	19	18	17	16	15	14	
61	60	59	58	57	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41	40	39	38	36	35	33	32	30	29	27	25	23	21	20	19	18	17	16	15	
62	61	60	59	58	57	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41	40	39	38	36	35	33	32	30	29	27	25	23	21	20	19	18	17	16	
63	62	61	60	59	58	57	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41	40	39	38	36	35	33	32	30	29	27	25	23	21	20	19	18	17	
64	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41	40	39	38	36	35	33	32	30	29	27	25	23	21	20	19	18	
65	64	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41	40	39	38	36	35	33	32	30	29	27	25	23	21	20	19	
66	65	64	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41	40	38	37	35	34	32	30	29	27	25	23	21	20	19	
67	66	65	64	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41	40	38	37	35	34	32	30	29	27	25	23	21	20	
68	67	66	65	64	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41	40	38	37	35	34	32	30	29	27	25	23	21	
69	68	67	66	65	64	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41	40	38	37	35	34	32	30	29	27	25	23	

dewpoint chart. Each fruit grower will find it of value to keep a psychrometer, and by spending a few moments each day in making a reading of this will be enabled to keep closer in touch with the changes of temperature. The means of obtaining the dewpoint is by a simple instrument consisting of two thermometers fastened to a rigid back and arranged so that they may be whirled rapidly. One of the thermometers is placed with the bulb extending below the rigid back. This lower bulb, which will hereafter be known as the wet bulb, should be covered with a good grade of muslin which has been previously washed to get out all particles of sizing. The importance of this muslin covering is to keep the bulb of one thermometer moist, so that motion through the air will cause evaporation to take place, and lower the temperature in that thermometer to the point at which, by comparison with a chart, the dewpoint may be found. To make an observation with the psychrometer we first saturate the cloth about the wet bulb, then whirl it rapidly for a few moments and pause long enough to make a reading. We again whirl for fifteen or twenty seconds, pause and make a second reading. If the temperature of the wet bulb thermometer is still falling continue whirling until two or more successive readings show a constant temperature. Then noting the temperature of the other thermometer take the difference between the two and by the aid of the chart find your dewpoint. The whirling and stopping of the psychrometer should be done carefully and easily. It should be whirled at the rate of about fifteen feet per second. The observation should be made in the shade of a building or trees, and in all cases must be made where there is a free circulation of air. The psychrometer reading should be taken each day at about the same time to insure uniform results, and the best time to take this will probably be about 6 o'clock in the evening. A complete table for determining the dewpoint at the different pressures or different heights of the barometer,

and also an explanation of the method of obtaining the dewpoint may be had by sending to the United States Department of Agriculture for their Weather Bureau Bulletin No. 235. This may be had for the price of ten cents per copy. However, for those who do not wish the entire table there is appended a table of pressures from .5 of a degree difference up to 15 degrees difference in the reading of the dry and wet bulb thermometers at temperatures ranging from 40 to 70 degrees Fahrenheit. The table printed herewith is given to determine the dewpoint when the barometer stands at 30 ins.

Where any form of crude oil is used for orchard heating some form of storage tank will be necessary. There are several types of these tanks in use in the valley at the present time—cement, galvanized iron and wood. Of these, for the lighter oils, such as the 28-degree distillate or "slop" distillate, wooden tanks are of no value, as it is very difficult to make them so that they will hold the oil. Perhaps one of the most popular tanks, and one which is most satisfactory for all purposes and for all grades of oil, is the cement tank. One of the best types of the cement tank in the valley is to be found in the Foothills Orchard of Mr. George Carpenter. This is placed on a side hill, so that it is possible to fill it by gravity, and it has a pipe from the lower side from which the oil is taken by gravity into the wagon to distribute in the orchard. This system is by far the easiest and simplest method of handling the crude oils, for as a rule the fuel oil which is used is too heavy to work well through a pump; in fact some of it will not work at all. With such an arrangement, too, the water can be drained off very easily, in that way lessening the amount of boiling over in the orchard. Mr. Carpenter's tank has walls eight inches thick, is roofed over with shingles to protect it from the rain and has a capacity of 8,000 gallons. Another tank which is similar to this is at the Fiero orchard, near Central Point. The tank is cemented over, leaving only a small

manhole through which the oil is run. The outlet to this tank is about one hundred feet away, and at that distance the outlet pipe is about seven feet above ground. Both of these tanks are located in the orchards. Another type of cement tank was found in the Burrell orchard, where the tank was placed below the level of the ground, but this arrangement increases the cost of handling the oil, as it necessitates either pumping or dipping from the tank into the wagons before distributing in the orchard. This type of tank also has the disadvantage of having no outlet at the bottom, so that whatever water may get into the tank must stay there unless the tank is cleaned each year. As there is more or less water in all of the heavier crude oils this will mean that in time a large quantity of water will collect in the bottom of the tank, and where dipping is practiced a great deal of trouble will be experienced with pots boiling over, as it will be impossible to dip the oil off without getting some of the water. Where it is impossible to have a gravity system or where the tank is to be placed above the surface of the ground high enough so that there will be a slight drop from the tank into the wagon it will probably be necessary to use galvanized tanks. Mr. G. E. Marshall has such a tank placed about five feet above the ground, just high enough so that a barrel may be filled from the outlet pipe, thus giving a gravity system one way. This also affords an opportunity for draining off the water after it has settled, though probably it could not be used with oils that could not be pumped, as it will be necessary to pump the oil into the tank in the first place. The tanks which are used for distributing the oil in the orchard and the methods of filling the pots are various. In some of the orchards a galvanized iron tank with a capacity of about 400 gallons is used. Some of these tanks are furnished with two leads of hose, so that two rows of pots may be filled at the same time. Others simply have an escape pipe, and oil is drained first into buckets and then poured into the

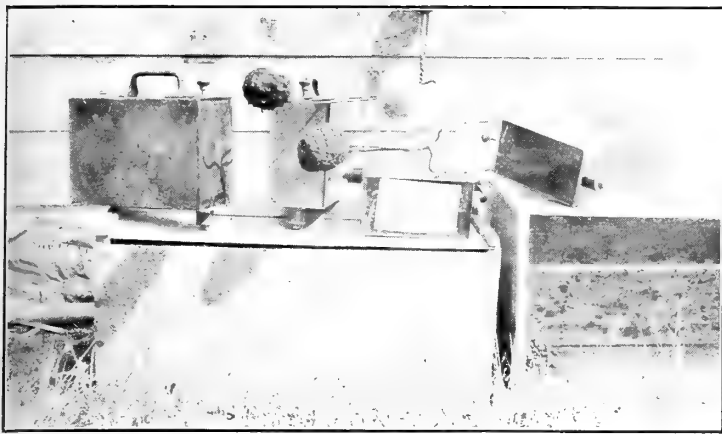


Plate 10—Rapid Lighters, Patented by John Steel, Omaha, Nebraska



Plate 15—Using Wood and Twigs in the G. E. Marshall Orchard

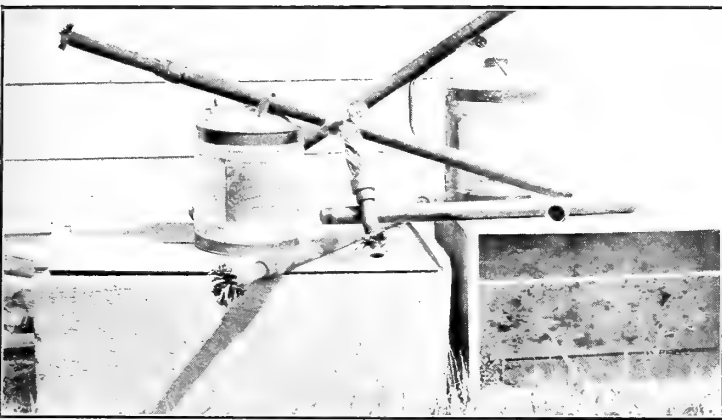


Plate 11—Gas Pipe Torch and Half-Gallon Gasoline Cans. One Torch in Three, Showing Cap for Upper End, Oil Chamber and Wick

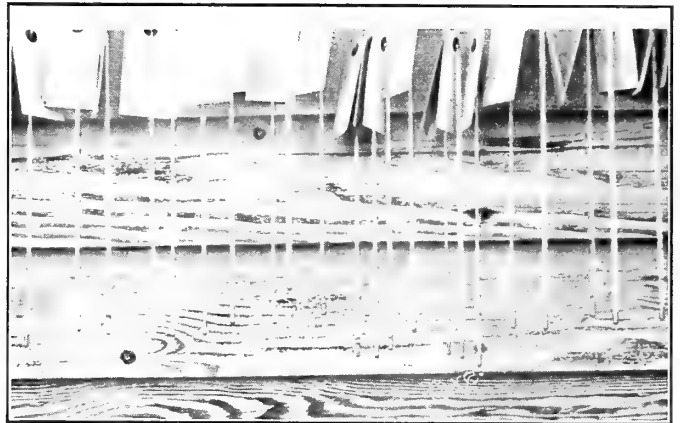


Plate 3—The Type of Thermometer Used in the Test Tags used to note corrections



Plate 7—Rear View of Tank Shown in Plate 6, Showing Outlet Pipe

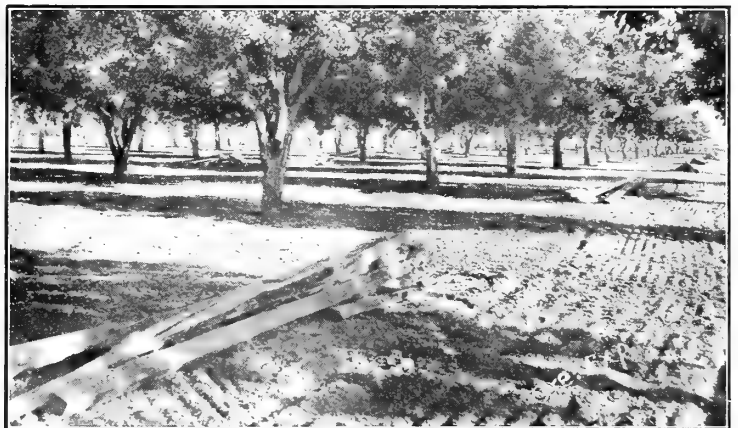


Plate 17—Old Rails Used for Fuel in Midvale Orchard

heaters. Other orchardists use fifty-gallon barrels, hauling them about on stone-boats or light sleds. Where this is done two men can fill four rows of pots at a time very easily. For Bolton orchard heaters no special type of bucket for filling is required, but some of the other heaters which are more difficult to pour into need a special bucket. However, in filling any of the pots a bucket with a good spout will perhaps mean the saving of oil. Some orchardists claim that two men with a team can easily fill from 2,000 to 3,000 heaters per day. Others claim that it requires two men and a team one day to fill 1,000 pots. This differ-

ence is probably due to the different distances apart of the heaters. Where fifty to seventy-five heaters per acre are used a safe estimate would probably be 1,500 heaters per day for two men and a team, provided the supply of oil is near at hand.

A number of different methods of lighting orchard heaters have been tried during this test. The first method was that of placing a small handful of straw on the surface of the oil and lighting it. This was not very satisfactory because after burning a short time the straw settled to the bottom, and in time became a collector of refuse in the pot. Also in cases where

the oil had to be emptied or returned to the storage tank this straw always had to be strained out. Another type of lighter used was the Patent Rapid Lighter, which works with a spring, allowing a small quantity of gasoline to be placed in the heater. This will light about 2,500 heaters without refilling. The method of using these lighters is very simple, all that is necessary being for the man to walk along, pressing the lever as he reaches the pot and touching the torch to the surface of the oil. The spring on the lever immediately throws it into position for the next heater. On the heavier grades of oil, which are harder to ignite, two

charges are often necessary to properly light them. This was especially found to be true where the 20-degree "slop" distillate was used. These lighters proved to be of no value, as they lasted but a short time. In fact after using them to light 600 pots during two different firings three of the five failed to work. Before the end of the season only one of the lighters could be used, and as they are sold at four dollars each they would hardly pay for themselves. In fact when compared to other types in use they are practically valueless. A third type of lighter which was used, and which proved satisfactory in all of the tests, was one which was made locally and which we found in use in a number of orchards in the valley. This consists of a straight piece of three-quarter-inch gas pipe two feet long, closed at the upper end and fitted with a reducer at the lower end. Into this reducer is fitted a six-inch or eight-inch piece of one-half-inch gas pipe. The three-quarter-inch gas pipe is used as a storage chamber for kerosene. Through the one-half-inch pipe, and extending for a distance up into the storage chamber, a wick made of candle wicking should be drawn. This should be fitted in very tightly, so that it will not allow the oil to leak out faster than it will burn. With this as a torch and an ordinary one-half-gallon oil can in the other hand one man can easily light fifteen heaters per minute when they are located twenty to twenty-five feet apart. There is, however, some danger from fire with this lighter. If the wind should be blowing the gasoline as it is poured into the pot might possibly spatter onto the clothing of the operator and become ignited by the torch. However, with a little care they will be no more dangerous than the patent types, and

there is practically nothing about them to wear out. By studying the accompanying cut one will be able to see the construction of these lighters. There are many types of lighters in use, but as these three were the only ones used in our test work we have only described them, and of the three the latter proved the most satisfactory.

Test for the number of heaters per acre April 7.—Temperature at 4:30 a. m. was 31 degrees. Twenty heaters per acre were lighted. No change in temperature was noticed, as will be seen by the following chart:

	4:30	5:00	5:30	6:00
Inside				
Temperature	31	30	30	30.5
Temperature	30.5	30	29.5	29
Temperature	31.5	30.5	29.5	30
Temperature	31	30	30	30.5
Temperature	31	30	30	30.5
Temperature	31.5	31	30.5	31
Average	31.1	30.2	29.9	30.2
Outside				
Temperature	30.5	30	30	29.5
Temperature	31	30.5	30	30.5
Temperature	31.5	30.5	29.5	30
Temperature	31.5	30.5	29.5	30
Temperature	31	30	30.5	30
Average	31	30.3	29.8	30

The night was very still and a dense smudge hung over the orchard, so that the sun was not visible until about 7 a. m. Only a very light drift occurred at sunup, so that the smudge did not leave the orchard very rapidly. The fires were put out at 6 o'clock.

Test with Troutman Heaters (39 to the acre) April 14.—The heaters were arranged in a block 17x25 feet and covered approximately three acres. They were filled to capacity, which was five quarts, and lighted at 2:30 a. m. Every third row was lighted one way, in this way lighting about one-third of the heaters in the block. However, enough more around the edge of the block were lighted to bring the total to 118 heaters which were burned in this test. During the entire test the wind kept shifting back and forth from north to south, not remaining constant in one direction more than twenty minutes at a time. It was noticed that when coming from the north the outside temperature rose from one-half to one degree, and would drop again when the wind came from the south. The shifting of the wind, which was blowing at a rate of about two miles per hour, made it almost impossible to hold a smudge in the orchard, being so light within the heated area that the thermometers could be read by moonlight. The smudge rose above the orchard and spread.

	3:00	3:30	4:00	4:30	5:00	5:30	6:00
Inside							
Temperature	30	32	30	30	30	28	30
Temperature	31	31	30	30	30	29	31
Temperature	30	30	29	30	30	28	29
Temperature	32	32	31	30	30	29	30
Temperature	31	32	30	31	30	31	31
Temperature	32	32	32	31	30	31	32
Temperature	32	32	32	31	30	33	33
Temperature	30	32	30	30	30	31	32
Temperature	31	32	31	30	30	32	32
Temperature	31	32	30	30	30	32	32
Temperature	30	32	29	30	29	30	31
Temperature	31	32	30	30	29	32	33
Average	30.9	31.8	30.3	30.2	29.8	30.5	31.4
Outside							
Temperature	29	30	29	29	29.5	29.5	28.5
Temperature	28	30	29.5	29.5	29	29	30
Temperature	28.5	30	30	28	28.5	29.1	30.5
Temperature	29	30	29.5	30	28.1	29	32
Temperature	29	30.5	30	30	27	28.5	32
Temperature	31	30	30	31	28.5	30	31.5
Temperature	31	29.5	30	30.5	29	30.5	32
Temperature	30	29.5	29	29	28	28	30
Temperature	30	29	30	30	28	30	32
Temperature	30	30	32	30	28	30	31

Temperature.	30	30	31	30	28	30	32
Temperature.	30	30	31	30	28	30	32
Average	29.6	29.8	30	29.7	28.3	29.4	31
Increase	1.3	2	.3	.5	1.5	1.1	.4

Average outside temperature for the whole period, 29.6. Highest increase, 2 degrees; lowest increase, 0.3 degree; average, 1 degree.

The following day, before refilling the heaters, the oil which was left in the pots was measured back. In this way we were able to find the amount of oil consumed during the burning period, and extended from 2:30 to 6 o'clock. The sun rose at 5:52, and no temperatures were taken later than 6 o'clock. At 6 o'clock 38 heaters had gone out. For this burning period 127 gallons and two quarts of oil were used, or just slightly more than one gallon per heater.

Maximum Burning Time of the Bolton Heater with a Carbon Arrester Attached, April 14.—This arrester is a small piece of light sheet iron used to cut down burning surface, being about four inches square, with a projection from each corner which rests upon the edge of the pot. The test was carried out the morning of April 14. The heaters were filled to their capacity, which was one gallon, and placed 17 feet by 25 feet apart, and were lighted at 12 o'clock. The lighting was done by one man, and the 299 heaters were fired in twenty minutes. The outside temperature at the time of lighting was 34 degrees and a light wind was blowing. Temperatures were taken in this plot every half hour with a total of twelve inside thermometers and twelve outside thermometers. The wind died down shortly after the pots were lighted, and began shifting back and forth from north to south. The temperature by 2 o'clock had dropped to 31½ degrees, and from this time until 6 was very changeable, due to the fact that when the wind blew from the north the temperature rose slightly and when coming from the south the temperature dropped. At 5:30 fifteen pots had gone out, but in each of these pots there was at least a quart of oil left. On account of some moisture which had collected in the pots and the soot on the arrester the pots had gone out. Some of these, when the arresters were removed and the oil relighted, burned until after 8 o'clock. The sun rose at 5:52, and on account of the heavy drift there was a very poor smudge in the orchard at that time. At 6 o'clock seven heaters were not burning, the attachments had been taken off and all were again relighted. At 6:30 a heavy wind began blowing, so that no further record of temperatures was kept. At 8 a. m. 145 out of the 299 heaters were still burning. As the pots were fired at 12 o'clock the burning time was eight hours. However, the last four hours would have given no protection, or at least very little protection, as the flame was scarcely visible above the top of the heater. A few of the pots boiled over, but such a small percentage as to be of little account, and all of the following tests showed no such trouble. The maximum inside temperature was 34 degrees, and the minimum 28.5 degrees:



Richardson Orchard Oil Heater
Manufactured by George C. Richardson
Kansas City, Missouri

MAXIMUM BURNING TIME FOR BOLTON HEATER WITH CARBON ARRESTER

	12:30	1:00	1:30	2:00	2:30	3:00	3:30	4:00	4:30	5:00	5:30	6:00
Inside												
Temperature.....	34	32	33	32	30	31	31.5	31	30	30.5	30.5	29.5
Temperature.....	34	33.5	32	32	31	31	31.5	30	30	29	29	30
Temperature.....	34	34	33	32	32	32	31	30.5	30.5	30	29.5	30
Temperature.....	34	34	32.5	31.5	31	30	30	29.5	30	29.5	29	29
Temperature.....	33	32.5	33	32	30	30	32	30	31.5	29	29	31
Temperature.....	33.5	33	34	32	32	31	31	30	30	30.5	30	33
Temperature.....	34	33	34	32	32	31	33	30	31	30.5	30	33
Temperature.....	34	34	34	32	32	32	33	30.5	32	31	30	32.5
Temperature.....	34	32.5	33.5	31.5	32	30.5	33	31	31.5	30	30.5	32
Temperature.....	34	32.5	34	31.5	33	30.5	32.5	31	31	30	30.5	32.5
Temperature.....	34	33	34	32	32	31	32	31	31.5	30	31	32.5
Temperature.....	33.6	33.6	33.6	31.6	31.6	30.6	31.6	31.6	30.6	30.1	30.6	33.1
Temperature.....	34	33	34	30.5	30	30	30	30.5	29.5	28.5	30	33
Average.....	33.9	33.2	33.4	31.8	31.4	30.8	31.7	30.5	30.7	29.9	30	31.6
Outside												
Temperature.....	33	31	31	31	29	29	30	29	29	29.5	30.5	29.5
Temperature.....	34	31	31	31	30	28	30	29.5	29.5	29	29	30
Temperature.....	33.5	30.5	31.5	31	29.5	28.5	30	30	28	28.5	29	30.5
Temperature.....	31	30.5	31	28.5	30	29	30	29.5	30	28	29	32
Temperature.....	31	31	32	28	30	29	30.5	30	30	27	28.5	32
Temperature.....	32	31	31.5	28	30.5	31	30	30	31	28.5	30	31.5
Temperature.....	33	31	31	29	30	31	29.5	30	30.5	29	30.5	32
Temperature.....	33.5	32	31	28.5	30	30	30	30	30	28	30	32
Temperature.....	33	31.5	30.5	28	30.5	30	30	32	30	28	30	31
Temperature.....	32	31	31	28	29	30	30	31	30	28	30	32
Temperature.....	33	32	31	29	29.5	30	30	31	30	28	30	32
Temperature.....	32.5	32	31.5	29.5	30	30	29.5	29	29	29	28	30
Average.....	32.6	31.2	31.1	28.9	29.9	29.7	29.9	30.1	29.8	28.4	29.5	31.1
Average increase.....	1.2	1.9	2.3	2.9	1.5	1.1	1.8	0.4	0.9	1.5	0.5	0.5

Highest increase, 2.9 degrees; lowest increase, 0.4 degree; average increase, 1.3 degrees.

Tests for Maximum Amounts of Heat Produced with 50 Pots Per Acre and 100 Pots Per Acre, April 15.—Bolton Orchard Heaters were used, being placed 17x25 feet apart. At 3:15 a. m. April 15, 50 heaters per acre were lighted in alternate rows each way. It was intended to carry out this test with only 50 heaters per acre, but after taking the 4 o'clock reading it was noticed that the inside temperature began to drop rapidly, so that 50 more heaters per acre were lighted. At the time the 4:30 reading was taken 100 heaters per acre had been burning for about ten minutes. The night was very still, very little drift being noticed, so that a dense smudge was formed in the orchard. About 5 a. m. a gentle drift from the southeast began. This increased until about 6 o'clock, when the breeze was blowing at the rate of about two miles per hour. The sun rose at 5:40, so no temperatures were taken after 6 o'clock, and at 6:30 the fires were put out. The accompanying chart will show the temperatures maintained on the inside and the temperature during the same period on the outside of the heated area:

	3:30	4:00	4:30	5:00	5:30	6:00
Inside						
Temperature.....	30	31	32	34	33	33
Temperature.....	30	32	31	33	32	32
Temperature.....	30	31	30	30	32	32
Temperature.....	30	32	32	32	34	32
Temperature.....	30	32	34	32	32	32
Temperature.....	31	31	34	30	33	32
Temperature.....	31	33	35	31	32	32
Temperature.....	31	33	33.5	31	33	32
Temperature.....	31	32	34	30	31	31
Temperature.....	30.6	33	34	31	31	32
Temperature.....	31	32.6	33.6	30.6	30.6	32.6
Temperature.....	29	31	31	29	30	30
Average.....	30.4	31.9	32.8	31.1	32	31.9
Outside						
Temperature.....	26	28	28	27	27	29
Temperature.....	28	29	28	26	27	30
Temperature.....	28	30	28	26	27	30
Temperature.....	26	28	28	26	27	30
Temperature.....	26	28	29	27	27	30
Temperature.....	26	28	29	25.5	27	30
Temperature.....	28	29	28	26	28	28
Temperature.....	28	29	28	26	27	28
Temperature.....	29	29	29	27.5	29	30
Temperature.....	27	28	29	27	28	28
Temperature.....	28	29	29	27	28	30
Average.....	27.3	28.6	28.5	26.5	27.5	29.4
Increase.....	3.1	3.3	4.3	4.6	4.5	2.5

Highest increase, 4.6; lowest increase, 2.5; average increase with 50 heaters per acre, 3.7; average increase with 100 heaters, 4 degrees.

The small difference between the two averages is largely due to the heaters burning low at the end of the test. At the same time and under the same conditions a maximum test was

carried on with the Troutman heaters. These were placed 100 to the acre, 17x25 feet apart, but only 50 were lighted per acre at 3:15 a. m. At this time the outside temperature was 29 degrees. The Troutman heaters were lighted in alternate rows one way only. At 4:15 the remainder of the Troutman heaters were lighted, so that when the 4:30 reading was taken 100 heaters per acre had been burning for about fifteen minutes. The accompanying chart will show the temperatures maintained within the heated area for that period:

	3:30	4:00	4:30	5:00	5:30	6:00
Inside						
Temperature.....	29	30	33	33	30	31
Temperature.....	29	31	33	33	31	31
Temperature.....	29	30	32	32	30	30
Temperature.....	30	31	34	33	32	31
Temperature.....	30	30	33	30	31	30
Temperature.....	30	30	33	30	32	31
Temperature.....	32	32	33	30	32	30
Temperature.....	30	30	33	30	32	30
Temperature.....	29	30	32	29	30	30
Temperature.....	29	30	32	30	32	32
Temperature.....	29	30	31	29	30	30
Temperature.....	30	31	32	29	30	30
Average.....	29.6	30.4	32.6	30.6	31	30.5
Outside						
Temperature.....	26	28	28	27	27	29
Temperature.....	28	29	28	26	27	30
Temperature.....	28	30	28	26	27	30
Temperature.....	26	28	28	26	27	30
Temperature.....	26	28	29	27	27	30
Temperature.....	26	28	29	25.5	27	30
Temperature.....	28	29	28	26	28	28
Temperature.....	28	29	28	26	27	28
Temperature.....	29	29	29	27.5	29	30
Temperature.....	27	28	29	27	28	30
Temperature.....	28	29	29	27	28	30
Average.....	27.3	28.6	28.5	26.5	27.5	29.4
Increase.....	2.3	1.8	4.1	4.1	3.5	2.1

Average increase with 50 heaters per acre, 3 degrees; with 100 heaters per acre, 3.5 degrees. The low average with 100 heaters is due largely to the fact that at the time the last temperature was taken the heaters were burning very low.

To be continued in next edition.

MAKANGHIA

Societe Anonyme Au Capital de 1,500,000 Francs.

UNION AGRICOLE DE FRANCE

Direction & Caisse: 30 Rue des Halles, Paris, September 26, 1911.

To the Manager of the Publishing Company of "Better Fruit," Hood River, Oregon.

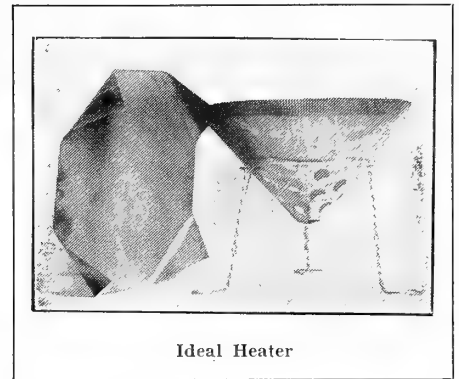
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1. The director of "Union Agricole de France," 30 Rue des Halles, Paris.

2. Mr. Voegelin Charles, a Algiers (Algeria).

In acknowledging reception of our subscriptions will you kindly let us know at which price it would be possible for us to secure the collection of same review for the last twelve months anterior to the current.

Yours sincerely,
AXLES IMIGTIZ,
Managing Director.



Ideal Heater

WARNING AGAINST FROST

Frost is often the bane of the orchardist and fruit grower's existence. Just at the time when the harvest is about ready to yield up its annual returns frost comes with its devastating sword and cuts down the fruit of several months' labor in cold waste. Practical fruit growers have long since learned to stay off the injuries from frost by the use of the "smudge." However, it remains a problem at just what times the "smudge" is needed and when not needed. It is easy to tell when too late, and, so as to be on the safe side, there is much waste of labor and expense in keeping "smudges" going when, as it later proves, they are not necessary. Something to overcome this extravagance has long been a necessity, and "necessity being the mother of invention," the electrical "Tycos" Automatic Alarm Thermometer was invented. It is a unique instrument, thoroughly practical, reliable and simple. Every fruit grower should avail himself of such progress as makes for stability, certainty and profit in his business. In our advertising pages is a description of this "Tycos" instrument. A careful study of it will repay you. Peruse it well.

THE "NEW WAY" MOTOR COMPANY'S NEW CATALOGUE

The new C-12 engine catalogue just issued by the "New Way" Motor Company of Lansing, Michigan, is now being distributed. This book is printed in two colors and shows a couple of two-color scenes illustrating the "New Way" twin cylinder engine, one of which shows the engine operating a corn sheller in Iowa, while in the other a twin cylinder engine is running a threshing machine in Australia. Considerable information is given on the "New Way" twin cylinder engines, also on the Bosch high tension, gear driven, magneto equipment. Any reader of "Better Fruit" may have a copy of this catalogue by writing to the "New Way" Motor Company, of Lansing, Michigan, mentioning this article.

Gletwyn Farm, Salisbury Rhodesia, South Africa, September 12, 1911.

Editor Better Fruit:
Hood River, Oregon, U. S. A.

Dear Sir: I beg to acknowledge receipt of the sample copy of "Better Fruit" which you kindly sent to me. Please send me your paper for one year, starting with the August, 1911, number, and also send me the special back numbers dealing with spraying, floral culture, pear and grape, peach and cherry. If I have not sent enough money just let me know and I will send more, as your paper is just what I want. Yours respectfully,

FRANK J. M. McFADZEAN.

P. S.—I have sent you a money order for through the postoffice, and I trust you will receive same at postoffice at Hood River all right.

Chas. H. Lilly & Co. of Seattle, Washington, and Portland, Oregon, have just issued a new catalogue which will be found interesting to the fruit grower in general. In addition to the general information contained in this catalogue there are special features about seeds and how they are re-cleaned, as well as the hardy varieties of roses and a chapter on fertilizer which are very instructive.

Editor Better Fruit:

Have yours of the sixth stating that you would send an extra copy of your publication, and which, we assure you, is appreciated. Wish to congratulate you on the fine numbers you are getting out and think you have them "all skinned" when it comes to up-to-date work. Yours truly, The Woodburn Nurseries,

[Woodburn Nurseries have advertised in every edition of "Better Fruit" from Volume 1, No. 1, to date, sixty-five consecutive issues, which is pretty good evidence of the value of "Better Fruit" as an advertising medium.]

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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FOREIGN SUBSCRIPTIONS, *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.

Orchard Heating.—This, the November number of "Better Fruit," is devoted almost exclusively to this subject, and following issues will contain more or less valuable information along this line, but the subject was so important that we thought best to cover it pretty thoroughly in one edition. It is hoped and believed that every reader will be benefited by this issue. The articles are certainly very valuable and instructive. Among the leading articles in this edition are the bulletin, "Preliminary Frost," published by the Experiment Station at Corvallis; "Modern Methods of Frost Prevention," by Professor P. J. O'Gara, of Medford; "Protection of Orchards," by J. R. Howard; "Forecasting Frost," by Edward A. Beals; "Fruit Grower's Thermometer," by Edward L. Wells. It also contains some splendid articles written by those connected with the manufacturing of orchard heaters, as follows: "Orchard Heating an Established Fact," by J. L. Hamilton, of the Hamilton Orchard Heater Company; "Advance of Orchard Heating," by P. H. Troutman; "Instructions for Using the Ideal Orchard Heater," by F. E. Barney, of the Ideal Orchard Heating Company; "Successful Orchard Heating Methods," by J. R. Wentworth; "Modern Methods of Frost Prevention," by E. B. McPherson.

The general plan for the articles in this edition is two-fold: First, to furnish articles by those who have had

experience in this line of work, who have carried on experiments which are fully explained in their articles; secondly, to have articles by those men connected with the manufacturing of orchard heaters, giving each one an opportunity to explain their successes and describe their methods and the important features connected with their style of pots, a few things about the fruit grown with absolutely no protection against frost under any conditions whatever, and the results obtained by orchardists using the different heaters in protecting their crops against frost; in other words, saving it.

During the last two years we have realized the importance of giving all the information we could about orchard heating. "Better Fruit" conceived the idea of publishing the first orchard heating number, which was issued in October, 1910. Since that time improvements and developments have been made and orchard heating tried out on a great deal larger scale by a large number of fruit growers, and it therefore seems important that the fruit growing industry should be given all the possible information pertaining to this subject. It is impossible to cover the whole field in any one edition, so the following number will give further information along this subject. A large number of fruit growers have used the different orchard heating devices during the past year, reporting success. Nearly every orchard heating company has usually a number of testimonials from fruit growers who have saved their crops, but the space in "Better Fruit" is not sufficient to include all of these, nor is it sufficient to fully describe the good points of the different orchard heaters. Elsewhere in this

edition appear the advertisements of some of the largest orchard heating manufacturers, with their addresses, and every fruit grower who wants further information on this subject can secure it by writing these different orchard heating companies.

Estimating Crops.—To obtain a reasonably approximate estimate of the apple crop in the different states seems to be a very difficult matter. Last year the growers in the Northwest in all sincerity under-estimated their crops. The growing season seemed to be absolutely perfect from start to finish and the apples kept on growing until they got to be so large that it took very few apples to fill a box, and consequently the growers had about fifty per cent more than they expected. Last year's crop seemed to have a tendency to cause Eastern dealers to conclude that the crop would be a large one this year. The grower this year has made the reverse error by over-estimating his crop, and the crop of the Northwest will turn out much lighter than all previous reports, with the possible exception of one or two states. Now a correct estimate of the crop is very essential for the dealer in determining what he can afford to pay, and equally important for the grower in determining what price he should ask for his fruit. It seems the desire is growing very strong on the part of the International Apple Shippers' Association and the National League of Commission Merchants to obtain correct estimates, and it may also be said that the growers as a rule are beginning to appreciate the importance of furnishing reliable statistics. Correct information is the only information that is valuable. In previous years crops have been estimated on the percentage basis. It has been stated before in the columns of "Better Fruit" that a percentage estimate is not very significant unless one knows that the percentage is based on the preceding year's crop or on what would be considered a normal crop, and even then this percentage business is still misleading, for the reason that one state which produces a very small quantity of apples might have 200 per cent and another state which produces a large quantity might have 50 per cent, and therefore, without knowing the normal yield of a state or actual yield the year before, and to which the percentage referred, both the dealer and grower are at a loss to arrive at any definite conclusion as to the quantity of the crop in general. In a previous issue of "Better Fruit" we gave our hearty endorsement to the establishment of some bureau of statistics in the Northwest, which would ascertain the official number of carloads shipped in each one of the different districts, and inasmuch as the crop has been largely over-estimated in the Northwest it seems timely again to call the attention of fruit growers to the necessity of a census bureau for the Northwest. Such a bureau probably could be maintained

Spokane Chamber of Commerce

Spokane, October 26, 1911.

Mr. E. H. Shepard,
Editor "Better Fruit,"
Hood River, Oregon.

The statistical edition of "Better Fruit" is the most comprehensive and informative I have ever seen. I have had long experience in these matters and so fully appreciate the value of this particular number, which should have a place with the calendar and telephone book in every farm home of the country. I know, too, that your compilations are nearer the actual figures than any that have yet been put on paper, which makes the journal all the more valuable.

I am sending herewith 30 cents in stamps for three extra copies, which I desire to place in our library. My own copy I have taken home, where I can have it convenient for reference.

Congratulating you upon the excellence of the October number, and wishing you continued success, believe me, sincerely,

August Wolf,
Secretary Publicity Committee.

Our Unparalleled Clubbing Offer

“Better Fruit” offers to its readers what it considers the finest list of clubbing offers ever placed before the public in the Northwest. Its variety is one that must appeal to readers of all classes. Look it over carefully, select the one you want and send us the proper amount and we will do the rest.

The Ladies' World.....\$.50
 Modern Priscilla75
 “Better Fruit” 1.00
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 All for 1.85

Garden Magazine\$1.50
 American Magazine 1.50
 “Better Fruit” 1.00
 Total\$4.00
 All for 2.90

Delineator\$1.50
 Good Housekeeping 1.50
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 Total\$4.00
 All for 2.75

Scientific American\$3.00
 “Better Fruit” 1.00
 Total\$4.00
 Both for 3.50

Fruit Grower (St. Joseph)..\$1.00
 “Better Fruit” 1.00
 Total\$2.00
 Both for 1.50

The Ladies' World.....\$.50
 Pictorial Review 1.00
 Modern Priscilla75
 “Better Fruit” 1.00
 Total\$3.25
 All for 2.15

Good Housekeeping\$1.50
 Cosmopolitan 1.50
 World Today 3.00
 “Better Fruit” 1.00
 Total\$7.00
 All for 3.70

Review of Reviews.....\$3.00
 McClure's 1.50
 Scribner's 3.00
 “Better Fruit” 1.00
 Total\$8.50
 All for 6.15

The Etude\$1.50
 “Better Fruit” 1.00
 Total\$2.50
 Both for 2.00

American Bee Journal.....\$1.00
 “Better Fruit” 1.00
 Total\$2.00
 Both for 1.65

Review of Reviews.....\$3.00
 Scribner's 3.00
 Good Housekeeping 1.50
 “Better Fruit” 1.00
 Total\$8.50
 All for 6.00

Everybody's\$1.50
 American Magazine 1.50
 Delineator 1.50
 “Better Fruit” 1.00
 Total\$5.50
 All for 3.90

Housekeeper\$1.50
 Review of Reviews..... 3.00
 McClure's 1.50
 “Better Fruit” 1.00
 Total\$7.00
 All for 4.50

Country Life in America...\$4.00
 Review of Reviews..... 3.00
 McClure's 1.50
 “Better Fruit” 1.00
 Total\$9.50
 All for 6.75

Country Life in America...\$4.00
 Outing 3.00
 “Better Fruit” 1.00
 Total\$8.00
 All for 6.25

Review of Reviews.....\$3.00
 Woman's Home Companion. 1.50
 McClure's 1.50
 “Better Fruit” 1.00
 Total\$7.00
 All for 4.50

Pacific Monthly\$1.50
 “Better Fruit” 1.00
 Total\$2.50
 Both for 1.75

Success and National Post..\$1.00
 American Magazine 1.50
 “Better Fruit” 1.00
 Total\$3.50
 All for 2.70

Delineator\$1.50
 Success and National Post.. 1.00
 Everybody's 1.50
 “Better Fruit” 1.00
 Total\$5.00
 All for 3.60

Good Housekeeping\$1.50
 Success and National Post.. 1.00
 American 1.50
 Cosmopolitan 1.50
 “Better Fruit” 1.00
 Total\$6.50
 All for 4.40

Century\$4.00
 Everybody's 1.50
 World's Work 3.00
 “Better Fruit” 1.00
 Total\$9.50
 All for 6.60

Country Life in America...\$4.00
 World's Work 3.00
 Everybody's 1.50
 Delineator 1.50
 “Better Fruit” 1.00
 Total\$11.00
 All for 7.75

Kansas City Weekly Star...\$.25
 “Better Fruit” 1.00
 Total\$1.25
 Both for 1.00

Woman's Home Companion.\$1.50
 “Better Fruit” 1.00
 Total\$2.50
 Both for \$1.80

Woman's Home Companion.\$1.50
 McClure's 1.50
 “Better Fruit” 1.00
 Total\$4.00
 All for 3.00

Weekly Oregonian\$1.50
 “Better Fruit” 1.00
 Total\$2.50
 Both for 1.75

Sunset\$1.50
 “Better Fruit” 1.00
 Total\$2.50
 Both for 1.90

Everybody's\$1.50
 St. Nicholas 3.00
 “Better Fruit” 1.00
 Total\$5.50
 All for 4.50

Breeders' Gazette\$1.75
 “Better Fruit” 1.00
 Total\$2.75
 Both for 2.00

Northwest Poultry Journal..\$.50
 “Better Fruit” 1.00
 Total\$1.50
 Both for 1.25

World's Work\$3.00
 Everybody's 1.50
 Delineator 1.50
 “Better Fruit” 1.00
 Total\$7.00
 All for 4.50

Garden Magazine\$1.50
 “Better Fruit” 1.00
 Total\$2.50
 Both for 1.90

Good Housekeeping\$1.50
 Pictorial Review 1.00
 “Better Fruit” 1.00
 Total\$3.50
 All for 2.50

These rates do not apply in Canada owing to extra postage

Hood River and Hood River Valley at the Close of 1911

In Hood River numerous and important improvements are under way. The system of city water supply heretofore owned and operated by a private corporation has been purchased by the municipality. Additional mains are being laid preparatory to connecting with a new source of supply of ample volume and unquestioned purity in a spring six miles out towards Mount Hood. This will furnish abundant water of a quality equal to that of the famous Bull Run water of Portland, the head of the stream in each case being among the glaciers and snows of Mount Hood. New lines of sewers are being put down and old lines extended. Upwards of twenty blocks of cement walk have been laid during the year, and the streets of the business district, also about twenty blocks in extent, having been graded, will next spring be paved in cement over a base of crushed rock.

A new passenger station of brick and cement, heated by steam, lighted throughout by electricity, and costing \$30,000, was built during the summer by the Oregon-Washington Railroad & Navigation Company and occupied in September. Two brick business blocks, 50x100 and 100x100, are now in course of erection, for use as store-rooms and apartments. There is also building a church edifice for the Congregational Society of Hood River. The walls are constructed of the blue stone of the Valley. A park has been set aside as a site for a public library, and arrangements are now in progress for a building equipment to cost \$20,000.

In the Valley eight miles of macadam roadway has been built, with as much more projected for next year, which will make possible a fine automobile spin "around the loop," and connecting later on with the wagon road now building over the sixty-six miles of mountain distance between Portland and Hood River, will make a scenic drive of unsurpassed grandeur and beauty. New homes—the bungalow, where cozy comfort dwells, and the spacious house, wherein all modern improvements contribute to luxurious ease—brighten the landscape in divers places.

Bearing orchards indicate by their fruit spurs a crop of upwards of a million boxes for 1912; "the planting of the apple tree" goes on with unabated vigor, and important sales of both uncleared and developed land attest the faith of investors.

HOOD RIVER COMMERCIAL CLUB

Arace G. Kauffman

Secretary.

HAVE YOU CONQUERED SAN JOSE SCALE ?

We guarantee it can be done with "Scalecide" for less money, with less effort, and more effectively than with Lime-Sulfur or anything else. "Scalecide" may be mixed anywhere, in any kind of a tank or barrel that is clean. "Scalecide" does not corrode the pumps or clog the nozzle; consequently the pumps work very much easier, with less labor, wear and tear. "Scalecide" will not injure the most delicate skin, and may even be placed in the eyes without the slightest inconvenience or injury. "Scalecide" is used successfully by fruit growers in the United States, South Africa, Porto Rico, Cuba, and Australia, because experience has taught them that the greatest perfection in fruit and foliage is produced by the continued use of "Scalecide," and with less labor and less expense. Let us prove these statements. A postal request to Dept. "D" will bring you by return mail, free, our book, "Modern Methods of Harvesting, Grading and Packing Apples," and new booklet, "Scalecide—the Tree-Saver." If your dealer cannot supply "Scalecide" we will deliver it to any railroad station in the United States east of the Mississippi and north of the Ohio rivers on receipt, of price: 50-gal. bbls., \$25.00; 30-gal. bbls., \$16.00; 10-gal. cans, \$6.75; 5-gal. cans, \$3.75. Address: B. G. Pratt Co., 50 Church Street, New York City.

Continued from page 53

at a very small expense. An officer in charge of the work with a stenographer ought to do all of this work. Various means could be found to finance such a bureau, in our opinion, without question. All associations, all individual shippers, in fact, all firms engaged in handling fruit would be willing to pay their pro rata.

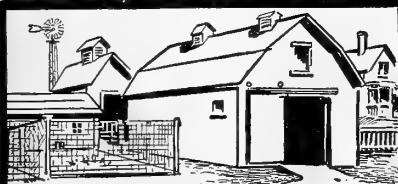
The December edition of "Better Fruit" will probably be largely devoted to pruning, planting, etc., containing valuable information that will be more or less interesting to everyone connected with the fruit industry. It is our intention to produce in January, if we are able to get the data together in time, and we hope that we can, our annual apple show number, which will contain good descriptive articles about each one of the prominent shows that are being held, and these articles will all be illustrated in the same splendid way which is characteristic of "Better Fruit."

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50,000 one-year old pears to offer,
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NATIONAL LEAD CO.
New York Cleveland Chicago St. Louis
Boston Buffalo Cincinnati San Francisco
(John T. Lewis & Bros. Co., Philadelphia)
(National Lead and Oil Co., Pittsburgh)



Instructions for Using Ideal Orchard Heaters

WE recommend fifty to eighty per acre, according to severity of frosts in different locations and area heated. Growers usually supply themselves with two tons of coal per acre for a season's protection, although one ton is usually sufficient for the purpose. It is essential that all work connected with orchard heating be systematized so far as possible. Buy a bale of waste, fifty pounds for every five hundred heaters, and always have plenty on hand. Buy a barrel of crude oil; knock out the head and, after tearing waste apart, put in a barrel of oil. When thoroughly saturated run waste through an old wringer and it is ready for use. Don't leave oil in barrel during summer; it will leak out. Have the kindling first sawed in six-inch lengths; it is then an easy task to split it rapidly with a hatchet. Split it to one inch in diameter. One man can prepare enough in one day for one thousand fires. Use egg or small lump coal; handle with coal fork having close set tines. This will separate slack, which is expensive to burn. Place waste, kindling, coal and heaters on a low truck wagon or sled. Some growers load heaters at coal house and then haul to orchard. They use platform on sled or wagon having holes cut to receive heaters. In loading place small piece of waste on side of heater near bottom. Throw in loosely a handful of kindling. After coal is put in pick out center chunks, until kindling is exposed, which will cause a good draft and quick fire when starting. Some use round stick in loading to keep center open. Fill every other heater with full charge of coal, which will bring coal above edge of

heater. The large cover protects kindling, and by placing a lump of coal on cover the wind will not blow it off. Leave every other heater lightly loaded for short firings, which is usually all required.

Place heaters between the trees in the rows; this permits driving through to refill and do other work. Have edges of orchard reinforced with heaters, leaving fewer in proportion in center of orchard, as the pressure of the cold air on the outside forces the warm air toward the center of orchard. It is a good plan to have a row of our fifty-pound size of heaters around edge. If work is systematized and material properly prepared two men can handle a ten-acre orchard. Place heaters in orchard when buds begin to open, and leave until several days after date of last killing frost. Have tested thermometers at different places in the orchard and one or two outside to aid you in regulating fires. All thermometers should be closely watched, as a few degrees below the frost line makes a mighty lot of difference.

Don't get excited or curious to light up before the danger point is reached. If you have Ideals in your orchard and have followed directions for loading every fire will burn, and you will have heat just as soon as it is possible to get it with any heater. Thirty degrees above zero is usual signal for starting fires. For peaches and other tender fruits in full bloom start fires at thirty-two degrees. If it is midnight or before that it gets cold enough to fire, light the heaters with full charge first. If it is after midnight light heaters partially filled. Use asbestos torch; a boy can light an acre in five minutes. Don't stop fires during night, as a cold wave is apt to follow a warm one. Draw coal toward center of heater just before sunup, as this is coldest time and you will need lots of heat.—Contributed.

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To the Jobbing Trade:

We cordially invite correspondence from all high class fruit jobbers relative to supplying their trade the coming season with the finest apples grown on earth. Our brilliant red *Spitzenbergs* for early *winter* trade and our beautiful *Yellow Newtown Pippins* for the *spring* trade are the two ideals of the Apple World, and for flavor, beauty and keeping qualities they are not equalled. Buy goods of *quality* and your trade will appreciate the same. Write

Hood River Apple Growers' Union
HOOD RIVER, OREGON

The Advancement of Orchard Heating

By P. H. Troutman, President Round Crest Canning Company

THE year that is drawing to a close has placed orchard heating on a firmer and more practical basis than it has ever been before. The friends of this method of frost fighting have always ranked it first in importance of all orchard work connected with modern and scientific orcharding, but not until the present year has orchard heating taken its proper place in the minds of the fruit growers in general and the official agricultural world. Heretofore it has always been looked upon by those who were not in actual touch with this method of crop insurance as an experiment and not of real practical worth in commercial fruit growing. This condition, however, has changed entirely, and orchard heating is now officially recognized as of just as great importance and value as spraying, irrigating or other orchard work. This being the case it is not necessary for any writer to go into the details and reasons why orchard heaters should be used, as this is more or less of an old story. It is very important, however, that we look at some of the points in regard to orchard heating from an unprejudiced standpoint.

The growers who are not equipped with some sort of orchard heaters are considered behind the times just as the growers are who refuse to spray

or who refuse to see the advantage in pruning and thinning their orchards. One thing that has held back the general adoption of heating up to the present time has been the fierce, and in many instances the unbusinesslike, competition between some of the orchard heater concerns. One manufacturer would make certain claims for his heater, or against another, and then someone else would come along and deny the accusations, and in turn tell the grower something so different that the poor victim of this unscrupulous warfare would decide that all heater manufacturers were liars, and the best thing for him to do was to stay out of the deal and trust to luck

Duncan Campbell & Co.

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Write or wire us regarding anything you have to offer in carload lots.

Want pears for Eastern shipments; also canning pears.

Satisfactory references guaranteed.

WHEN WRITING ADVERTISERS MENTION BETTER FRUIT

that his crop would pull through without frost protection. This condition arose from there being so many makes of heaters placed on the market by men who knew little or nothing about the principles that lie back of successful heating, whether for indoor or outdoor use, and whose one and only idea was to make some money out of their device, even if it was at the expense of the growers. Many manufacturers recommended fewer heaters to the acre than was practical so as to make their device seem more efficient, while at the same time they used three times the number recommended in their own orchards. The result of this was that quite a few growers lost their crops, and instead of placing the blame where it belonged they naturally blamed it on the heating principles in general and became knockers.

Another unfortunate drawback to orchard heating in the past has been the results obtained by some of the agricultural colleges and experiment stations. I do not want it thought for a minute that the agricultural colleges have not been of great assistance in orchard heating, for their experiments have been of great assistance in the introduction of this latest departure in fruit culture. For some unaccountable reason, however, the results obtained by these colleges have not been at all as good as the results of experiments conducted by hundreds of fruit growers under actual frost

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Rome Beauty	114,275
Winesap	141,833
Stayman Winesap	17,064
Newtown Pippin	106,278
Jonathan	140,212
Wagener	57,690
Delicious	25,499
Grimes Golden	38,093
Spitzenberg	54,301
Arkansas Black	2,450
McIntosh	56,646
Variety List	13,645
PEACH	
Elberta	107,797
Salway	20,488
Slappy	19,391
Early Crawford	37,848
Late Crawford	10,388
Carmen	7,432
PEAR	
Bartlett	40,000
Winter Nelis	5,000
Beurre d'Anjou	5,000
APRICOT	
Moorpark	14,308
CHERRY	
Bing	4,527
Lambert	7,898
Royal Ann	1,856
Varieties	2,291
PLUM	
Varieties	1,723

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conditions in regard to the increase in temperature maintained. Naturally the growers at large preferred to take the results of the colleges rather than the reports sent out by the orchard heater manufacturers. Fortunately for the growers of the country there have been willing pioneers in every section who have been ready to risk a little cash and prove for themselves just what there was in orchard heating, and their reports have been so overwhelmingly in favor of the system that practically all opposition has disappeared and all now join in urging the general adoption of this method of frost fighting. In many cases the heated orchard bears the only fruit raised in an entire county, while in no instances in practical use has orchard heating ever proved a failure or of no advantage where the growers have taken proper steps beforehand to see that they had plenty of heaters and fuel enough for the maximum requirements.

Next in importance to the main fact that orchard heating is practical demonstrations made in over thirty states have brought out the valuable fact that any orchard heating device properly used will save the fruit crops from frost, and that the only material difference between the dozens of devices is in the amount of fuel consumed for heat produced. Some heaters require just double the amount of fuel to accomplish the same results. This, of course, is very important and consid-

ered so important by the orchard heater manufacturers that it is almost an impossibility to take up an orchard heater advertisement without noticing the claim to the effect that this particular heater "gives more heat for amount of fuel consumed than any other heater on the market," regardless of whether the particular heater is the ordinary lard bucket or something similar without the first claim to the oxygen consuming principle. No grower who takes account of his expenditures will overlook this or fail to thoroughly investigate the claims of various manufacturers regarding the saving of fuel before they invest in their equipment. The grower, how-

The Campbell System

INSURES your crop against DROUTH. Our experience in 1910 and 1911 has proven that good crops can be grown with less than eighteen inches of rainfall. Those who followed the Campbell System in 1910 have a crop in 1911.

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Lincoln, Nebraska

When you write ask about the Campbell Correspondence School.

ever, is perfectly safe in using any heater, and if he uses sufficient heaters and fuel there will be no question about his saving his crop. The common lard pail, patented by no one, will save a crop from frost just as well as the most expensive heater on the market. It will require fifty per cent more fuel for the same amount of heat than some devices, while on the other hand it will give as much heat for each gallon of fuel consumed as some of the patented heaters, and it has one great advantage; being cheap, the grower is justified in using two or three times as many per acre as some of the more expensive patented heaters, and one of the first principles of orchard heating is that "there is no need of great heat locally, but for numerous small fires well distributed."

Now that heating has passed the experimental stage and the growers have learned to guard themselves against the deadbeats in the business, it is well to look at some of the minor but none the less important advantages of orchard heating. Years ago it was the general opinion that frost was confined to certain sections and that many of the most famous orchard districts were frost proof. This absurd theory has been abolished, and it is now acknowledged that no section of the United States is immune from frost, and that each and every fruit district will be in need of frost protection sooner or later. No one will deny that orchard heating is an advantage when

the frost comes, but in some sections the growers contend that they get a frost so seldom that the necessary equipment is too expensive in making the outlay when they may only require the protection once every ten years. It is true that there may not be a total failure of a crop for a number of years, but it is just as true that there is never a year when frost does not injure the crop to a sufficient degree to justify heating, and when heating would not mean the saving of dollars and cents to the grower. This past spring the growers who heated in Canon City, Colorado, district lighted their fires five or six times, the lowest temperature being twenty-six degrees. Although this temperature of cold was sufficient to kill a greater number of buds in the unheated area, there was a sufficient number of buds left to make a full fruit crop, and the casual observer walking through both the heated and unheated orchards at harvest time can scarcely see any difference in the orchards. Upon close inspection, however, the quality of the fruit in the protected orchards is far superior to that of the unheated orchards, and this is where the great advantage lies. In the sections where the frost was not great enough to destroy the entire crop it was found that the quality of the fruit in the unheated orchards was very inferior, the size being poor and the fruit misshapen, due to the fact that it was the tail end of the buds that made the crop, and it is a well known fact that the best and largest buds always make the first bloom, and it is this first bloom that is invariably killed by the late frosts. The fruit is found to be much more wormy, as the bloom does not come out at a uniform time, and it therefore makes spraying much more difficult. The difference is just as marked between an unheated and a heated orchard as it is between a thinned and an unthinned orchard or

between a sprayed and an unsprayed orchard. It has also been found that where the bloom has not been subjected to a temperature below thirty-two degrees the fruit stems are very much stronger and the percentage of windfalls is fifty per cent less than the normal.

It is acknowledged by those who have heated for the last four or five years that, not taking into consideration the danger of a crop failure, orchard heating will add to the profit of any orchard in the improved quality of the fruit alone to such an extent as to pay for the entire heating equipment in a single year. Summing up the whole question in a few words, no grower who claims to be operating his orchard on a scientific and modern basis can afford to neglect its equipment with frost fighting devices. The government statistics show that hundreds of millions of dollars have been lost in the past from frost, and the grower in the future who will have a profitable business from his orchard will be the one who equips to protect his fruit from the ravages of killing frosts. It is the safest and most practical crop insurance that ever existed.

Events of more than passing interest to fruit growers and fruit dealers throughout the country:

American Apple Exposition, Denver, Colorado, November 12-18, Auditorium Building.

Oregon Apple Show, Portland, Oregon, November 15-17.

United States Land and Irrigation Exposition, Coliseum, Chicago, Illinois, November 18 to December 9.

National Apple Show, Spokane, Washington, November 23-30.

Nineteenth National Irrigation Congress, Chicago, December 5-9.

Northwest Land Products Show, St. Paul Auditorium, St. Paul, Minnesota, December 12-23.

WANTED—Good Housekeeping Magazine requires the services of a representative in the Northwest to look after subscription renewals and to extend circulation by special methods which have proved unusually successful. Salary and commission. Previous experience desirable, but not essential. Whole time or spare time. Address, with references, J. F. Fairbanks, Good Housekeeping Magazine, 381 Fourth Avenue, New York City.

Non-Irrigated, Whole-Root Trees

We have them. Write us your wants. We pay freight and guarantee arrival in good condition. A Few Reliable Salesmen Wanted.

PACIFIC NURSERY COMPANY, 1205 Yeon Bldg., Portland, Oregon

Hood River Valley Nursery Company

Route No. 3, Box 227

HOOD RIVER, OREGON

Phone 325X

Will have for spring delivery a choice lot of one-year-old budded apple trees on three-year-old roots, the very best yearlings possible to grow. Standard varieties from best selected Hood River bearing trees—Spitzenbergs, Yellow Newtowns, Ortleys, Arkansas Blacks, Gravensteins, Baldwins and Jonathans. All trees guaranteed first-class and true to name. Start your orchards right with budded trees from our nursery, four miles southwest from Hood River Station.

WILLIAM ENSCHEDE, *Nurseryman*

H. S. BUTTERFIELD, *President*

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ROTTERDAM, HOLLAND

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Eldest and First-Class House in
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Electrical Supplies and Fixtures
Scientific Electrical Construction

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Nursery Stock Bargains

In order to get away for the winter I will sell at a bargain the following lot of first grade nursery stock:

600 Yellow Newtowns
4000 Spitzenbergs
685 Northern Spy
1300 Red Cheek Pippins
300 Gravensteins
1500 Delicious
650 Winter Bananas

Also a broken lot Arkansas Black, Wilson Red June and Yellow Transparent Apples, and a few hundred Comice, Winter Nelis, Bartlett and Beure Clairgeau Pears.

Will make great reduction at wholesale. Bargains in large number of any one variety. Guaranteed true to name and free from pests. Splendid trees. Must sell before December first.

M. E. POGUE

U. S. National Bank Bldg., Salem, Oregon



“That’s All— That is Enough”

A RECORD

that should be the most convincing proof to you of the quality of the trees produced by our nursery. THINK OF IT—shipped 3,000 miles, by freight, late in the season—planted late, in a different climate, a different soil—and ALL lived—outgrew everything else in the orchard. IS THAT NOT SUFFICIENT PROOF OF QUALITY?

REMEMBER

also, that all of our trees are grown on whole roots, non-irrigated—are bred from the greatest producers and most vigorous trees in Hood River Valley. They are the most carefully grown and carefully packed trees that you can purchase. They are in every sense a strictly thoroughbred, pedigreed fruit tree. They cost no more, BUT THEY ARE THE KIND YOU NEED.

Write for our illustrated catalogue and price list

Hood River Standard Nursery Co.

'Phone, Odell 8 X 2

HOOD RIVER, OREGON

Branch Office, 401 Continental Trust Building, Baltimore, Maryland

P. S.—We want a few good live salesmen to represent us.

Hood River Standard Nursery Company,
Hood River, Oregon.

Gentlemen:— Last Fall through the Baltimore Orchard Company, I purchased a quantity of assorted apple trees from you, the same being shipped to me by freight.

My idea in going to Hood River for trees was that the delicious and attractive fruit that is shipped into this market from Hood River impressed me that surely a community that could grow such fine fruit, certainly ought to be in good position to supply equally as good trees, and it gives me great pleasure to state, that out of the quantity that I purchased from you, not one of the trees have died nor are they blemished in any way whatsoever, and the growth far exceeds other apple trees purchased in this vicinity and planted at the same time.

Very truly yours,

Orchard Heating An Established Fact

By James L. Hamilton, President Hamilton Orchard Heater Company

NO longer is it a question. It is not a coming thing. It is already here, and a mighty healthy adjunct to the orchard industry. Thousands of fruit growers have thoroughly tried it out and are today reaping the results in the way of fine crops of fruit selling at good prices. Many other growers in the same section show no crops as a result of frost damage. Many growers of Texas and other extremely windy sections were successful against most terrible odds, and saved not only the buds but the foliage and young wood on orange trees against temperatures as low as fourteen above zero and a wind of forty miles an hour by the use of the larger and more powerful equipment, raising the temperature ten and twelve degrees, which was necessary to save the orange trees from damage. In northern sections, where but a few degrees of frost and a light or no wind was realized, many were successful with less efficient equipment. The success of orchard heating against any weather condition yet realized is no longer disputed and is a fact when the proper methods are employed. It is now a matter of selecting the equipment of sufficient ability which, when handled with a fair degree of intelligence, will result in success. The most encouraging feature of the proposition is that the growers are intelligently

inquiring into the various features that make up the work. The storm formation and its action as it traverses the country and its results on the local weather conditions are better understood by the grower. The formation and action of frost, the dispelling of it and the prevention of its damage and influence are better understood. The study of air drainage and its influence on the orchard, the development of the fruit bud, the length of time of blooming and how much protection will be required at its different degrees of advancement are features of the science that are interesting the grower, resulting in the development of this important work along practical lines. It is now a question of protective methods and what is the best. Experience has taught many a grower that something better than the old obsolete method must be adopted. “Orchard heating ability” is a live subject, and the grower has already learned that his equipment must have the ability to give him a heat intensity and regularity equal to the frost intensity and regularity, and if it is otherwise he will suffer loss. He well knows that spraying, cultivating and irrigating will pay him returns largely in proportion to how thorough he is with the operation, but with orchard heating each operation must be effective

against the frost of that particular night; in other words, a finished job. If he has not secured sufficient heat to protect the tender bud in bloom it will be killed. He may have been successful in maintaining a temperature rise of five degrees, the limit of his equipment, and if ten degrees of frost existed he will have lost his crop the same as though he had not lighted a pot. A few degrees of frost during the first week of bloom of a certain variety might kill all the bloom then open, and if no frost were realized during the second week of the bloom a full crop would result, as the bloom that came later was not far enough along to be damaged by the light frost that occurred the first week of the blooming period. As a result of this condition one grower may have heated during the first week of the bloom successfully and his neighbor who did not heat lost the bloom then out, but in both cases the bloom of the second week would make a crop. Such fundamental questions are now better understood, and when a grower says that he did not heat and has as much fruit as his neighbor who did heat the statement is subject to investigation, and a very good reason will be found for the condition. The facts are that in the case above mentioned had a frost occurred during the second week of the blooming period when all the buds were out and the petals dropping from the bloom that opened the first week, in all probability all the buds on the

trees would be killed in the orchard of the grower who did not heat, while the other grower would again protect the bloom and have a crop so large that he would have to thin the fruit. Now about orchard heating ability. We suggest that the ability of any device or system is best established by what it has done in the hands of the grower. We maintain that the court of final judgment on the ability of any device should be the grower, a man who has used the device, whether he is in windy Texas or California, or any of the vast territory lying between, and in which every known weather condition has been successfully met where the proper equipment was used. It makes but little difference what the manufacturer may claim for his device, the grower should look carefully into what has been accomplished by any equipment before he invests. The grower must learn that the success of any orchard heating equipment lies in its ability to burn fuel. This does not mean burning a large amount of fuel continuously unless that be required, nor does it mean a restriction to burning only a small amount of fuel continuously. Orchard heater ability means its adaptability to burn just the amount of fuel required to provide the different degrees of heat for the different degrees of frost. This is common sense. It is the same scientific principle on which his furnace or heating stove is operated and by which his home is made comfortable against the different weather conditions of the

winter days. He will also learn that while a considerable amount of human effort is necessary to successfully accomplish this work that this human effort element is very much affected by the construction of the device or system that he employs and the one that most nearly eliminates the nerve-wrecking midnight work will be adopted. Wind is surely the enemy of the orchard heater and every grower should reckon this element in selecting his device and make the equipment so strong that no damage can result. He should and will profit by what growers have done in windy sections, and their experiences should be his text book in all his operations. We believe that it is only a question of a short time when orchard heating will be practiced more than any other operation in the fruit growing industry, and a grower is overlooking something if he delays in providing himself with this protection, which can be considered only in the same light as insurance, for it means nothing else. It is profitable to note what leading horticulturists are writing on this subject

as the result of their own experiences and investigations, and the bulletins of the day contain much of profit, and we therefore suggest that they be carefully read and compared.

J. F. LITTOOY

CONSULTING HORTICULTURIST

Land, irrigation and orchard schemes examined for owners, buyers, bonding companies or advertising agencies—Orchard and land values estimated—Orchard soils examined—Directs orchard development—Land damage claims estimated—All business confidential.
MOUNTAIN HOME, IDAHO

SALEM HEIGHTS NURSERY

Royal Ann, Bing and Lambert Cherries, on true Mazzard roots, and *guaranteed true to name*, a specialty. Scions cut from selected bearing trees. Also a fine stock of Spitzenberg, Yellow Newtown, Jonathan and Delicious Apples, Berry Vines and Bushes, and Choice Roses. Write what you want and I will quote you living prices.

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We are always pleased to extend courteous assistance to new residents of Hood River and the Hood River Valley by advising them regarding any local conditions within our knowledge, and we afford every convenience for the transaction of their financial matters. New accounts are respectfully and cordially invited, and we guarantee satisfaction. Savings department in connection.

Hood River Banking and Trust Company
HOOD RIVER, OREGON

CAPITAL STOCK \$100,000 SURPLUS \$22,000

First National Bank

Hood River, Oregon

F. S. STANLEY, *President*
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ESPECIAL ATTENTION AND CARE GIVEN TO BUSINESS DEALS FOR NON-RESIDENT CUSTOMERS

Thorough and Conservative
Assets over \$500,000

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LADD & TILTON BANK

Established 1859

Oldest bank on the Pacific Coast

PORTLAND, OREGON

Capital fully paid - - - - \$1,000,000
Surplus and undivided profits - - - 800,000

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Accounts of banks, firms, corporations and individuals solicited. Travelers' checks for sale, and drafts issued available in all countries of Europe.

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Established 1900
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Capital fully paid \$50,000 Surplus and profits over \$50,000

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We give special attention to Good Farm Loans

If you have money to loan we will find you good real estate security, or if you want to borrow we can place your application in good hands, and we make no charge for this service.

THE OLDEST BANK IN HOOD RIVER VALLEY

THE TROUTMAN ORCHARD HEATERS

KNOWN WHEREVER FRUIT IS GROWN
AND FROST DESTROYS

Announcement—Season 1911-12

We are pleased to announce to our patrons and those interested in orchard heating that our campaign for the coming season is open. Our prices, which are lower for value received than any other orchard heater, are the same as last year.

We are pleased to offer sizes as follows:

No. 1 (Standard). "The size that made the Troutman famous." Holds five quarts, burns seven hours. The most practical size for general use.

No. 1½ (Standard). Same size as above but GALVANIZED AFTER MANUFACTURED.

WARNING. Heaters made of galvanized iron and heaters galvanized after manufacturing are two different articles. The additional cost over plain black iron heaters tells the story as to which method is used. Heaters galvanized AFTER MANUFACTURED are the only non-rustible and non-leakable heaters on the market today.



Size No. 1

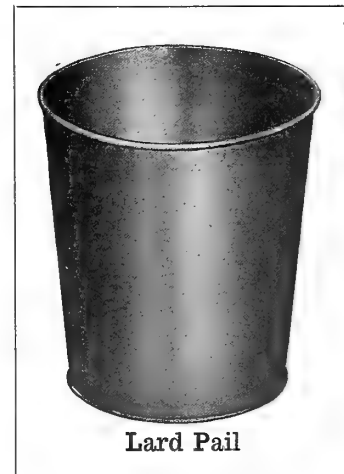
No. 2 (Intermediate). Holds seven quarts, burns ten hours. Removable and adjustable collar makes this size adjustable for any amount of heat or length of burning desired.

No. 2½ (Intermediate). Same size as No. 2, but GALVANIZED AFTER MANUFACTURED.

The galvanized heaters are strongly recommended for damp or salt air climates.

Lard Pails. For those desiring a low original cost there is nothing better. This heater will require 50% more fuel than the TROUTMAN, for the same amount of heat, but it is just as efficient as any other heater without the CENTER DRAFT combustion.

Small Fruit Attachments. Send for information regarding our improvement on this attachment.



Lard Pail

COMPETITION

We wish to announce to our patrons that we will have nothing to do with illegitimate competition. Our Company is on a firm business basis. It is not necessary for us to stoop to knocking our competitors to obtain business. This notice is reason sufficient for our failure in the future to reply to the many unscrupulous and unbusinesslike attacks of our competitors that will no doubt be made as they have been in the past.

THE TROUTMAN ORCHARD HEATERS ARE BUILT ON HONOR AND SOLD ON HONOR.

CENTER DRAFT

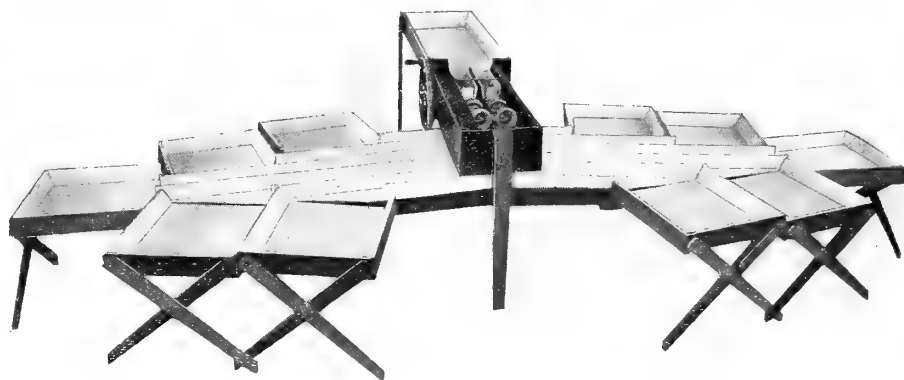
The center draft feeds oxygen to the fuel, thus creating a greater heat for fuel consumed.

Act quick, write us immediately for full information and price lists. Place your orders early and be assured of prompt deliveries.

The Round Crest Orchard Heater Company

CANON CITY, COLORADO

An Unqualified Success



IT HAS GIVEN EVERY
PURCHASER ENTIRE
SATISFACTION

Our first machine was sold to the owner of the finest orchard in the New England states. He writes:

Fitchburg, Mass.
October 3, 1911

Schellenger Fruit Grading
Machine Co.

Dear Sirs— We have run your apple grader this year and it certainly has done fine work, relieving us entirely of the hard tedious work of the apple business—grading the fruit by hand.

Success to you.

(Signed) A. A. MARSHALL

Results this machine obtained for the growers
in handling their 1911 crops

First—Reduced cost of packing

Second—Improved the quality and uniformity of the pack

Third—Solved the labor problem

Schellenger Fruit Grading Machine Co.

INCORPORATED

Our references { First, Our Customers
Secondly, Our Bank

633-635 South Fourth West Street, Salt Lake City, Utah

Modern Methods of Frost Prevention

By E. B. McPherson of California

WHO a few years ago would have thought that the elements would some day be controlled or subjected to the will of man. The world has surely progressed, and as time goes on man will prove his mastery of things that today he now deems and holds unapproachable. This great world of ours is slowly giving up its wealth, and the master minds of the human race are quickly learning the uses and values thereof and applying this knowledge to every branch of industry. Oil is produced in many sections of the United States, and the burning of the cheaper grades has made the vocation of the fruit grower a more pleasant and profitable one, for it has removed its greatest hazard—the loss of bud and young fruit by frost.

The orchard heater is the development of many years of study and experiment, and has only in the past few years fully and completely justified and proven its necessity as a frost repellent. It means insurance of fruit against frost. Insurance, straight insurance—that's all. Many types of oil pots are on the market today, these devices being of every design and principle, but the originator of this great idea still stands head and shoulders above all others. "The Pioneer Without a Peer!" Stop a moment and think of it. Can you imagine the full import of the meaning of this phrase? Do you

realize the expense and long experience so necessary to acquire this title of peer? Many years ago orchardists knew of no methods to combat or prevent frost losses and they accepted these visitations of spring as a matter of course, but the more progressive of them learned that the finer grades of fruit were produced in sections where the winter temperatures were low and where there were occasional losses by spring frosts. This led to many experiments to raise or hold the temperature against such injury, and it has grown to be one of the most scientific branches of horticulture. The burning of brush, straw and manure was used to create a smudge or heavy pall of smoke. This was for the purpose of preventing a rapid thaw at sunrise,

FOR SALE—In consequence of the death of the proprietor, a gentleman's residence, with about 10 $\frac{5}{8}$ acres of land, within 1 $\frac{1}{2}$ miles of the Hood River railroad depot. The house, which is fully furnished, has large living room, dining room with built-in sideboard, kitchen, pantry, basement storeroom, hot and cold water, 6 bedrooms, 2 sleeping porches, bathroom and toilet. Of the land, 8 to 9 acres is planted with apple and other fruit trees, mostly 3 years old or upwards; beautiful lawn, outhouses, stable with bedroom, etc. The caretaker, Mr. Robert Bassett, will show the premises. Apply to G. Y. Edwards & Co., Hood River, Oregon, or The George Lawrence Company, Portland, Oregon.

but was found inadequate when the frost was a very heavy one or of long duration. The idea of using a number of fuel containing receptacles found favor with only the more bold, and they suffered many failures before they secured results that led them to believe that they were laboring in the proper course. To the persistent finally came success, and today the method is used universally throughout the land. No orchard today is considered to be properly equipped unless it has the full complement of orchard heaters.

The Frost Prevention Company of San Francisco pioneered this system of frost insurance, and today stands at the fore of orchard heating manufacturers. The Bolton Orchard Heater, the product of this company, has met the most severe tests and has emerged triumphant in every case, and throughout the whole West the Bolton is now looked upon as being the most essential part of the growers' equipment. The chances of frost damage are too great to allow him to jeopardize his crop income. He cannot afford to take a chance, for the annual expense in other lines of operating his orchard is much too great to overlook the loss that a few hours of frost will bring. Last spring, throughout the West, every fruit growing section suffered from frost, for the season was the most severe in a decade and the monetary loss was enormous. It would have been far greater—in fact almost

See Our Special Clubbing Offers on another page of this issue

COMBINATIONS ARE OFFERED TO INTEREST
EVERY CLASS OF READERS

"Better Fruit" is always in the front

unparalleled in history—if orchard heaters had not been so generally used; and, in many of the more productive valleys, to these invaluable devices may be given the full credit for what fruit has been shipped this fall. The Rogue River Valley experienced the lowest temperatures in its history, and if orchard heating had not been practiced there on a broad and organized scale there would be no fruit shipped from that most famous section this year. The season was without precedent and the growers there are loud in their praise of orchard heating. This valley is similar to many others and bears the same relative position as far as the susceptibility to frost damage is concerned.

Why should the commercial grower of today take a chance? True, the expenditure to meet the cost of installation is considerable, but, this having been met and the cost of maintenance being brought to the minimum, it cannot be considered an expense in view of the service rendered.

The Bolton Orchard Heater is the most perfect in construction, is the lowest in price of any heater on the

market today; it has the greatest fuel economy, and on a given quantity of oil will burn a longer time and generate a heat so subtle that little is lost. These are the points first considered by the prospective purchaser, and usually he gives first cost the greatest consideration, then follows reflection on cost of operation and maintenance. "The Pioneer Without a Peer." Well said, for the Bolton was in the field many years ago, and was first known as the "California Oil Pot," and afterwards was the "Fresno." It antedates its competitors many years, and being first on the market is the most simple and most easily operated of any. Many improvements have been made of late years and these are strongly covered by patent. Many authorities disagree as to the number of heaters required per acre to give the best results, but the experience of the writer has covered many years, and the installation of one hundred per acre has proven most satisfactory. When this number is recommended, it is when the trees are of age and size, for the branches and foliage assist in holding the heat, but where they are

to be used in a young orchard the number necessary will naturally be greater on account of the lack of tree growth. Experience has shown that a greater number of small heaters will give better results than a fewer number of large ones, producing a larger flame and heat. Philosophy teaches us that heat rises, and the greater this heat the faster it will rise. The primary idea is to concentrate and hold the heat produced, and the necessity of having a small, slow burning, even generating, heat producing fire is

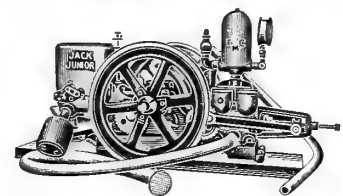
POST CARDS

Mail us 50 cents in stamps and we will forward to your address 25 souvenir post cards of Hood River Valley and Columbia River scenery, conceded to be the most picturesque scenery in the world.

HOOD RIVER POST CARD CO.
Box 153, Hood River, Oregon

Fairbanks-Morse Spraying Outfit

KILLS INSECTS SAVES FRUIT



You must spray to secure perfect fruit. Use a Fairbanks-Morse high pressure sprayer and do the work quickly and thoroughly.

The above 1-H. P. Gasoline Engine Outfit will supply three ¼-inch Vermoral Spray Nozzles at 200-lbs. pressure which is the pressure required for effective spraying for scale diseases. The "Deluge" pump gives steady pressure. Entire outfit compact, strong and easily moved about the orchard. Will give splendid service for years.

Our Catalog No. SF1233 describes this and larger outfits and tells just when spraying should be done. Write for copy to day

Fairbanks-Morse & Co.
PORTLAND, SEATTLE, SPOKANE

CARLOT DISTRIBUTORS
OF

BOX APPLES

Box Pears Box Peaches

Largest handlers of box fruit in this territory. Best modern storage facilities. Reliable market reports.

Top Prices
Prompt Returns

E. H. SHAFER & CO.
212 Coleman Building
Louisville, Kentucky

SOUTHERN OREGON NURSERIES

YONCALLA, OREGON

No Agents
Prices Wholesale

GENERAL NURSERY STOCK PROPAGATORS

Stock clean and true. Budded or grafted from bearing trees

E. P. DREW
Consulting Horticulturist

30 years in business

DONALD GROWN NURSERY STOCK

That is what you want, because our stock of fruit and ornamental trees is exceptionally fine. Our fruit trees were propagated from buds taken from bearing orchards; they are vigorous, healthy, and above all true to name; that stocky body, grown on whole roots, makes them an ideal tree to plant.

A POSTAL WILL BRING OUR PRICES **DONALD NURSERY CO.,** Donald, Oregon

TERMINAL ICE AND COLD STORAGE CO.

A COLD STORAGE PLANT, MODERN THROUGHOUT, AT
THIRD AND HOYT STREETS, PORTLAND, OREGON

Fruit growers or apple growers and dealers of the Western markets in and around Portland, who have watched the markets closely for the past few years, have learned that in the spring there is always a good demand for apples, and that they usually bring good prices if they are in good condition. There is only one way to keep them in good condition for spring consumption, and that is to put them in cold storage.

We offer the best of cold storage facilities in the city of Portland and solicit correspondence from all the associations and fruit growers in general who want to store fruit in the fall or early winter to be used in the spring.

Write us and we will give you further particulars.

TERMINAL ICE AND COLD STORAGE CO.

THIRD AND HOYT STREETS, PORTLAND, OREGON

Members of the International Apple Shippers
Association

We use Revised Economy Code

The F. J. Pomeroy Co.

84 DETROIT ST. Milwaukee, Wis.
Branch at Medina, N. Y.

RECEIVERS AND DISTRIBUTORS

Apples, Fruits, Potatoes
Melons and Cabbage
Provisions and Grain

CAR LOTS A SPECIALTY

We handle 200 carloads of Apples and
better per Season

ESTABLISHED 1877

Potter & Williams

144, 146, 148 Michigan Street
BUFFALO, N. Y.

Can handle a few cars Fancy Apples
to advantage

Correspondence Solicited

Hood River Grown Nursery Stock for Season 1911-12

Standard Varieties.
Prices Right and Stock First Class

C. D. THOMPSON, Hood River, Oregon

Drain Tile

Most Important Investment
for the tiller of the soil

Write for prices and free booklet

Lang & Bullock, Inc.

601 Beck Building
PORTLAND, OREGON

APPLES!

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apparent, for where the heat produced is great (as would be by a large fire) the efficiency of the method is low and much of the heat is wasted, and more so when the temperature is lowest.

The average grower is inclined to take a chance, and he feels that his investment has a fixed value, but to have that value it must be a consistent producer. The next season's frosts cannot be forecasted as to their severity or number, and who knows but that the coming spring may be without parallel and that the worst is yet to come. To be fore-armed and then to await its coming with every confidence as to the outcome will be a source of great relief and satisfaction to the fully equipped grower. Will it pay? Beyond any question of a doubt, for the cost of complete installation will not be as great as may be supposed when compared with the annual cost of caring for the trees as they should be and are in the commercial orchard of today. And in the event of repetition of last spring the crop will be short and the market good and strong, so the protected grower will be the gainer in every way. But he may say that the frosts of last spring so crippled him that he is now unable to meet the expenditure and that he will purchase next year. But if he sees a beautiful set of bloom go in the same old way—then what? Now is the time to do it, for there is no time like the present. Give the matter every consideration. Don't procrastinate. The possibilities of the orchard heater are without limit, for with their liberal use many acres of land now considered valueless for fruit culture will be made famous producers. Air drainage will not be given the thought and concern now so necessary, and the many valley bottoms so rich in soil values will be made to produce an abundance of their sweetest and best. But a short time will have passed and many orchards that for years have given no yield whatever because of their unfavorable location will be made dividend earners. So spare these trees, sell the axes and put the money into orchard heaters and oil, for the methods of modern science will prevail and correct many of the mistakes of primitive horticulture.

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Western Montana as A Fruit Growing Region

By A. J. Breitensten

MONTANA'S development and the rush of people to secure some of her fertile lands have never been equalled in the history of any new section of the United States. Her prime steers, fat lambs and fine horses, the finished product of her pioneer industry, has attracted the attention of the world and demonstrated the fact that her soil had the power of producing feed par excellence. Grain growing followed in the natural trend of development until today Montana is pointed to as being the future wheat field of this great galaxy of states. J. J. Hill, after visiting many expositions, said at Helena, when addressing the multitude in attendance at Montana's state fair, "that Montana's exhibit of agricultural products was of a character that could not be obtained in any state or province on this continent." Every grain, vegetable and fruit that grows west of the Ohio River grows luxuriantly in Montana.

When we speak of fruit our first thoughts are directed toward the apple, the king of fruit. Well, it should be recognized king of fruits because it is the oldest and is the only fruit alluded to in the Garden of Eden (land of delight), and the one fruit that traces back to the prehistoric ruins about the lakes of Switzerland. The

area of the world devoted to successful apple growing is limited. In the Eastern hemisphere it extends from Scandinavia on the north through the temperate zone to the south. In the Southern hemisphere apples are grown in Tasmania and New Zealand, but in South America and Australia little success has been achieved. North America is the apple producing region of the world, and while it is true that the eastern part of the United States has produced more apples in the past than any other section, it is a fact that the industry has gradually moved westward, as did emigration, until today the East is obliged to come to the Northwest for its supply of apples.

Never in the history of any industry was there such a manifest change in this respect as was found at the opening of the present century. The small home orchard of the East has passed into history. The farmers of the East no longer devote time and attention to the orchard, hence the insect pests and fungous diseases have driven out and destroyed the home orchard. There are probably more acres of orchard today than at the close of the last decade, but apple growers will have to plant extensively for the next five years in order to meet the demands of our own people, while the foreign

trade is increasing with astonishing rapidity. In 1896 the apple crop of the United States was about 69,000,000 barrels, in 1900 nearly 48,000,000, in 1906 38,000,000 barrels, in 1908 23,000,000 barrels, and in 1909 estimated at about 36,000,000 barrels; yet the population

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Our trees are guaranteed, and they have no equal.

Let us figure with you on your this season's needs. We have this year, due to exceptionally favorable growing conditions, the finest lot of stock you ever saw, the kind of stock that grows from the day it's planted.

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has increased greatly in that time. The increase of population alone in the last fifteen years could eat the entire apple crop of 1909 and not have one barrel each, while the other 60,000,000 people of the United States would not get a single apple. That the over-production of good apples is near at hand nobody need have any fear. There will always be a market for the best apples, and that is what Montana can grow. As the population increases so does the demand increase, and the available orchard land proportionately decreases.

Factors necessary for a fruit section are climate, soil, water, transportation facilities and freedom from pests. Fruit has been grown in Montana for fifty years, hence the experimental stage was passed long ago. The orchard sections of Montana well deserve the title, "The home of opportunity." The beautiful mountain scenery, the life-giving atmosphere, the purest of water and soil unexcelled in fertility, which develops an orchard in five years' time that is a

source of profit, is an opportunity long sought for by the lover of a beautiful home with a comfortable income. If the present orchard development in Montana continues for five years, or until the available orchard lands are utilized, the value of the output of the mines would sink into insignificance when compared with the value of one fruit crop. The climate of Western Montana affords every advantage to fruit growing. The clear atmosphere and absence of humidity rob the summer heat of that oppressiveness and destroys the ideal condition for the development of fungous diseases. Location of mountain ranges and canyons creates a mountain breeze that regulates the temperature and tends to prevent frost injury. Lower altitudes are always more frosty. Any portion of Montana not above 5,000 feet can grow some kind of fruit, and, other conditions being favorable, apples will thrive at 4,500 feet above sea level. Better, clearer color is formed than in lower altitudes, and with color goes quality. On the western slope the fruit belt extends north to the Canadian boundary, but on the eastern side of the mountains it lies further south, extending to the Wyoming line. The soil varies from a decomposed granite to a rich sand or gravelly loam and volcanic ash. The surface is naturally undulating, which makes drainage ideal. In some places it is more favorable for certain varieties than in others, but every foot of ground in the

fruit sections, when properly planted and judiciously watered by cultivation or irrigation, will grow fruit of high quality. Montana's soil and sunshine is producing most astonishing results. When a person becomes acquainted with soil conditions in the fertile valleys the next question invariably is about the water supply. No section of the entire Northwest is better watered than is Western Montana. In many places sub-irrigation, with good cultivation, is sufficient to develop any crop, while the mountain streams in the numerous canyons afford ample water for many times the acreage of the valleys.

It is essential in seeking a location for profitable fruit growing to consider the railroad facilities and opportunities for reaching the great outside markets. Montana is crossed by the three great railroad systems, the Great Northern, the Northern Pacific and the

The apple is the king of fruits.
Our apples are kings of apples.

We are apple specialists. We sell the very best apples at very attractive prices.

Fine Eating Apples Cooking Apples Special Purpose Apples

Carefully packed in boxes or barrels.
Remember, apples are staple goods,
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We wish to handle the output of
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It will pay you to get in touch
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**FRANZ
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Chicago, Milwaukee & Puget Sound, while the Oregon Short Line gives a direct outlet to the south. The wagon roads are good in the developed sections, affording beautiful automobile drives in different directions, making transportation facilities for the fruit grower ideal. In many places there is a gradual slope from the orchards to the railroad, and the load hauled is measured by the strength of the wagon.

As an enterprise develops competition becomes stronger and its enemies increase, hence the fruit pests won the battle in the East and drove the industry westward, finally centering in the Northwest. True certain climatic conditions favor the development of pests, as do others retard it, but they have the same power of acclimating themselves as have plants and other animal life. Wherever fruit is grown to any extent, or for any length of time, fruit pests will follow, and today no developed section of the Northwest is absolutely free from fruit pests, but they are so controlled that the damage done is at a minimum. This is the condition in Montana; the pests are controlled, which almost guarantee success to the apple grower.

Strawberries, blackberries, raspberries, gooseberries and currants all thrive in the soils and climate of Montana, and yield bountiful crops. The berries are large, of delicate flavor and very attractive in color; any of them are money makers, and men can be cited who have netted from \$500 to \$1,000 per acre. The time has come when fruit growing is not a rich man's diversion, and a small orchard, well cultivated and cared for, is better than a thousand-acre ranch indifferently tilled. President Roosevelt once said, "A five-acre tract of irrigated land would support a family and keep it busy;" and this is true of the fruit ranches of Montana. How often, when we follow the careers of our great men—statesmen or financiers—do we find that their boyhood days were spent on the farm; and in after years, when they have reached their zenith of success, their retrospective moments take them back to the acres of mother earth and their longings are for the country home. He dreams of it until at last he holds the title to a piece of land, where he plants the apple trees,

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We will be glad to furnish you with full details of our valley and give you a list of what we have for sale in improved and unimproved land. At the present time we have some desirable buys. Will send you literature on request.

Reference: Any bank or business house in Hood River.

Guy Y. Edwards & Co., Agents
HOOD RIVER, OREGON

from which to pluck the luscious fruit that alone satisfies the cravings of that appetite handed down to him through generations, from that first garden in which the apple was the king of fruits. It is said that one day as Henry Ward Beecher was strolling through an apple orchard he fell in love with an apple tree, and from the pulpit the following Sunday said: "An apple tree in full bloom is like a message sent from earth to heaven of purity and beauty. We walk around it reverently and admiringly. Homely, as it ordinarily is, yet now it speaks of the munificence of God better than any other tree. The oak proclaims strength and rugged simplicity. The pine is a solitary, stately fellow. Even in the forest each tree seems alone and has a sad Castilian-like pride. The elm is a prince; grace and pride are on its head. But none of them speak such thoughts of abundance, such prodigal and munificent riches, such lavish, unsparring generosity as this same plain and homely apple tree. The very glory of God seems resting upon it. It is a little inverted hemisphere, like that above it; and it daily mimics with bud and bloom the stars that nightly blossom out in the darkness above it. Though its hours of glory are short, into it is concentrated a magnificence which puts all the more stately trees into the background. If men will not admire it insects and birds will." Undoubtedly this will be scanned by many people in the Far East who yearn for some of Montana's rich land,

yet are not prepared to make the venture. For those certain difficulties have been removed. There are companies who sell five to ten acres, or larger tracts, plant the trees, care for the orchards until they reach the bearing age, then deliver them to the original purchaser. Montana, think of it! It brings to your mind the picture of magnificent mountain ranges with their snowy peaks reaching heavenward. The miles and miles of waving grain, the orchards with trees bending to the earth laden with fruit of exquisite tints and luscious flavor, of pure air, pure water and bright sunshine.

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.

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with Western Fruit Associations, particularly those dealing in Apples, Cantaloupes and Peaches, are invited to correspond with us. We are able to put before you a plan for marketing your output in a manner satisfactory to you and mutually profitable.

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are rapidly acquiring a world-wide reputation. They have sold this year at \$2 to \$3 per bushel box, and it only costs 10 cents per box in freight charges to put them into market.

NO IRRIGATION NECESSARY

Virginia's average rainfall is 45 inches. Our climate is unsurpassed, with no extremes of heat or cold. Streams and springs flow everywhere, and clear, cold, crystal water abounds throughout this section.

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WHY PAY \$250.00 PER ACRE

When you can secure apple land at \$15.00 per acre that is the equal of the higher priced land in every respect? We challenge your investigation of this very broad statement.

Below are cited two instances of property now on the market. There are dozens of others similar to them.

129 ACRES, \$20 PER ACRE

High grade apple land, two miles from Stuart's Draft, Virginia, and overlooking the town. Lies nicely; well water and well drained. Every foot available for orchard. In the celebrated Shenandoah Valley—right at the largest apple shipping station in Virginia. Bargain at this price.

Write for our Special Bulletin of large undeveloped tracts suitable for orchard purposes.

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You will like it here. The delightful atmosphere and the charming social environment that prevails everywhere in this Southern section are particularly noticeable in Virginia. Our good roads, fine schools and churches, congenial neighbors and delightful climate all make life worth living, and we want to have the opportunity of welcoming you here in the Old Dominion.

This opportunity, due to special causes, is rapidly passing by. Prices are rising and it would be well for you to investigate while prices are extremely low.

Write now, while you think of it, for beautifully illustrated Quarterly Magazine, "THE SOUTHERN HOMESEKER," illustrated booklet "Virginia, the Home of the Apple," and a large assortment of other attractive literature, with maps, excursion rates, etc.

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NORFOLK & WESTERN RAILWAY, BOX 3,047, ROANOKE, VIRGINIA

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6,000 acres fruit and grazing land in South-west Virginia. Fertile soil, well adapted to apples and other fruits, also fine grazing or winter wheat land. Altitude about 3,000 feet. Cut-over land, with plenty of good timber still standing.



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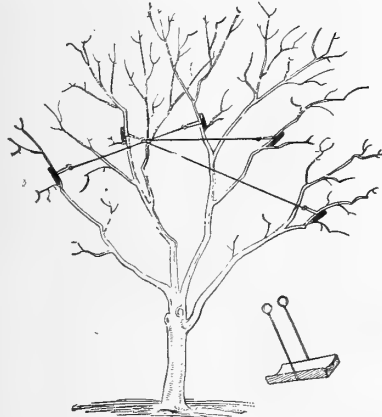
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For All Orchards, Trees and Vines

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Send for 18 of our 2-inch size, postage prepaid, for \$1.00. Try them and you will see how badly you have needed them

Prices F. O. B. Ashland

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G. W. BASSETT, Ashland, Ore.

The Charpitting Method of Destroying Stumps

By W. H. Lawrence, Expert Hood River Apple Growers' Fellowship Association

CHARPITTING method of destroying stumps is one of the oldest. It has not come into general use, since conditions under which charpitting will take place are seldom ideal, and since the variable physical condition of the soils and stumpage is such as could not be desired for the best success. The method works well in most soils having a good percentage of clay, but where the soil will cave in when the wood is consumed, as is the case in nearly all sandy soils, far less satisfactory results are secured. Briefly, charpitting consists in piling a ring of kindling around the base of a stump, covering the same to a depth of about six inches with sod, except an opening, preferably on the windward side, where the fire will be started. Later this opening or vent is closed. This should not be done, however, until the kindling is all burning. After the fire is completely covered it should be and must be confined until the charring has been completed. The methods of burning in clay and in sandy soils vary somewhat. In all cases it is best to remove the bark from the crown as low as the kindling is placed, so that the kindling will be in contact with the wood. In clay soils the usual plan is to place the kindling around the stump at the surface, as explained, but in sandy soils a narrow trench several inches in depth is dug around the base,

the bark removed to the depth of the trench, after which the kindling is put in place and the covering placed over it. It is necessary to use an artificial covering under such conditions, since sod from sandy soil, in burning, allows the sand to run in, putting out the fire. Mixing clay with sandy soil gives the desired result, and such a practice can be recommended where clay soil can be had at a reasonable cost of time and labor. Some experiments have been conducted in using an artificial covering of cool ashes, and with considerable success. Trials have also been made with fuel oil mixed with sawdust and a small amount of kindling covered with various natural and artificial coverings, and with various degrees of success.

Concerning the charpitting method, it must be said that the best success is met with where well drained clay soils of considerable depth occur, that do not become loose and powdery when heated. Under soil conditions where stumps will burn out to a good depth and the larger roots are consumed to a depth of several feet, leaving a tunnel in the soil, thus marking its course, the method can be said to be pre-eminently practical, and especially so where money is not available for land clearing by the more rapid and expensive methods, such as using a stump burner, a stump pulling device,

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Apple Seedlings—Fine stock, all grades; grown on new land and free from disease

Japan Pear Seedlings

Bing, Lambert and Napoleon Cherries, one-year

We have superior storage facilities and carry a large assortment of stock in storage for winter shipments

Make a specialty of Complete Line of General Nursery Stock

Would be pleased to QUOTE YOUR WANTS

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Eighteen Months Pear Tree
Corn Between Rows
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Rogue River Valley Fruit Ranch

This 280 Acre Tract only \$28,000—Terms

About 60 acres commercial pears 1 and 2 years old; about 72 each.
About 10 acres Spitzenberg and Newtown apples, mostly 2 years old.
About 10 acres Crawford and Elberta peaches, mostly 2 years old.
About 2 acres mixed family bearing orchard.
About 10 acres alfalfa and for garden truck and potatoes, under irrigation, and about 10 acres more to be gotten ready for such.

Excellent Irrigation Water Right
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A. N. PARSONS, Real Estate, Grants Pass, Oregon

References by permission: First National Bank; Grants Pass Banking and Trust Company

powder or a donkey engine. It should also be understood that in places where soil conditions are favorable the condition of the stumps themselves are variable, the green and solid usually burning most readily, while the decaying ones, and especially those with water-soaked tops and crown, burn slowly or refuse to burn at all. The water contained in a soil also has a very decided influence on the rate of burning. Some of the very wet areas of clay land cannot be cleared by this method until drained, owing to the seepage or prevalence of springs, which keep the soil completely filled with water.

In a large series of observations it was evident that the roots of stumps are never destroyed in sandy soils, since as soon as the fire burns below the ground line the soil caves in, smothering out the fire. Even under such conditions the method cannot be condemned, since by properly digging the trench around the stump to a good depth and giving it the proper slope so that caving in will not occur, the crown is consumed and the roots separated, allowing them to be quite readily removed with some pulling device, stumping powder or dug out, as is done in many cases. From what has been said one would no doubt conclude that charpitting is to be considered one of the chief methods of destroying large stumps in certain types of soils, and that it can be modified to meet conditions in sandy soils.

It can also be said that where the method is at all serviceable that it should be practical, and especially where money for land clearing is a greater object than time or labor, since a shovel, axe and a box of matches constitute the land clearing outfit. Concerning the various estimates on destroying stumps, the price ranges as low as twenty to twenty-five cents each. The price, of course, can be varied, and is varied by different individuals, depending upon the value placed upon the time consumed while the work is being done. The price, however, does not influence the cost as much as the poor or good soil conditions and the management, whether good, bad or indifferent. To be pre-eminently successful at charpitting the operator must be a close observer, a careful worker and a good manager, even where conditions are favorable for such work, and especially so when conditions are variable and more or less adverse.

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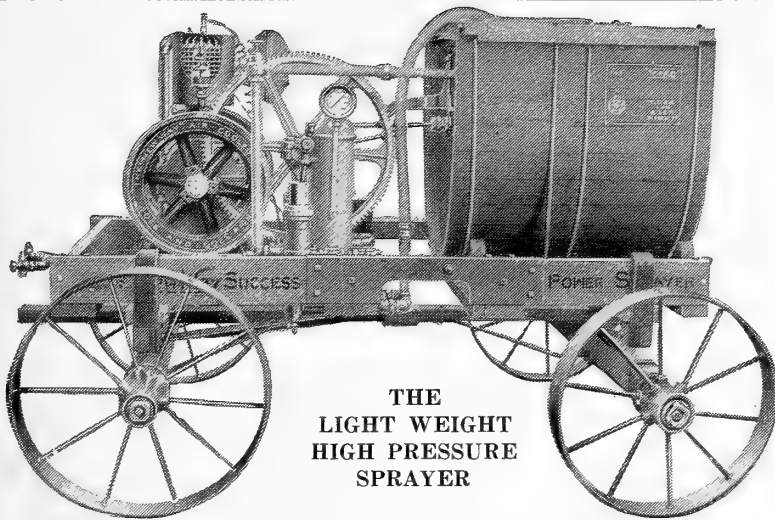
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An Investigation of Pollenization and Its Results

By Arthur Huntington, Horticulturist, Cedar Rapids, Iowa

IT was my fortune last spring to make an extended Eastern tour of the apple growing states in company with Mr. William T. LeFevre, the resident horticulturist of the Bitter Root Valley Irrigation Company for the purpose of compiling a detailed and specific report on the pollenization of apple trees in the East, as compared with methods in use in the Bitter Root Valley. So far as I know, this investigation is the first of its kind ever undertaken on such a large scale, with a determination to leave no stone unturned in seeking after facts. The incentive of our trip rested in the direct benefits which have resulted in the orchards in the Bitter Root Valley from careful planting of apple trees for pollenization since the opening of the big irrigation system which taps Lake Como. Our instructions were specific to personally interview the leading professional horticulturists of the East, both private and state, in an effort to determine how far we might safely depart from our established method of planting in the Bitter Root and yet insure continued good crops.

Curiously enough pollenization is a subject upon which the majority of horticulturists are lame. For the sake of clearness it is essential to preface the results of our travels by a brief outline of pollenization as we have found it in our experience in the Bitter

Root, where our experiments have been brought to a successful conclusion. As orchardists familiar with the valley well know, one of the first reasons why the Bitter Root Valley produces regular crops of apples every year is that we get perfect pollenization, perfect weather at blooming time and have a series of apples which reach their maximum perfection in the valley. The varieties of apples planted have an affinity for each other, each apple being better for having been grown under the influence of the other varieties. An apple may bloom very prolifically and produce no fruit, due to the fact that the blooms are imperfectly pollenized. It may be possible in the same orchard to have apples so planted that one variety will pollenize another and cause it to produce prolifically, while the first apple will not receive benefits in turn from the apple which it has pollenized. An apple must not only come under the influence of the pollen of another variety, or of another bloom, but it must be affected by it. A very good example of this is furnished by the Jonathan and the McIntosh as grown in this valley. The Jonathan, being the smaller apple, is affected by the McIntosh, while the McIntosh is very slightly affected by the Jonathan. This is the reason why the Jonathan bears so prolifically year after year and produces such a fine quality of fruit.

No other district produces as many perfect apples on as heavily loaded trees as the Jonathan in the Bitter Root Valley. The Transcendent Crab of the Bitter Root Valley is famous on account of its perfection and large number of perfect specimens, and brings a very high price on the market. Investigation has shown that no district is able to pollenize the Transcendent as pollenized here, the method being one which makes nearly every specimen perfect. These perfect specimens, free from worms, are the specimens that have attracted buyers from all over the country. There seems to be a peculiar affinity between the Jonathan and the McIntosh toward the Transcendent Crab.

When it was discovered that the McIntosh reached its highest state of perfection in the Bitter Root Valley pollenization was very little known, consequently all of the early plantings were largely random plantings. The McIntosh, when planted alone, is not a particularly good bearer, but it was noticed that some specimens were quite prolific, while others would not produce a large number of perfect specimens. Nearly all heavy bearing trees were planted in the orchards where there was a predominance of Alexanders, which are very large striped apples, and seem to have a peculiar influence over the McIntosh. A great many horticulturists claim that cross-pollenization has no tendency to



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change the qualities of the apple, but then equally good men claim that this theory is wrong, and have very good specimens of apples to bear out their contention. Be this theory true or false, the fact still remains that all of the McIntosh, when raised next to the big Alexanders, were striped. These same horticulturists further contend that there are two kinds of McIntosh apples, the striped McIntosh and the red McIntosh, and that the striped McIntosh is a much better bearer than the red. In all probability this is a case of pollenization, although there may be a slight difference in strain of the same variety. This question remains to be proven. It was further noticed in the valley that in orchards where there were a large number of Ganos, all McIntoshes were red, or nearly so, and that they produced even more prolifically than the McIntosh planted next to the Alexander. The Ben Davis family, of which the Gano is the best member, is not a particularly good pollenizer in other localities and with other varieties, as has been demonstrated by experiments made by Professor F. A. Waugh of Amherst, Massachusetts. These experiments further demonstrated that cross-pollenization between two varieties always differs in its results in different parts of the country. That is to say, two apples may pollenize perfectly in New England and pollenize very imperfectly in the Middle States or the Northwest. This tendency to affect the physical

appearance of the apple also differs in different localities. It has been demonstrated beyond a doubt in this valley that there is a very close affinity, so far as pollenization is concerned, between the McIntosh and the Gano, and that there is equally strong affinity between the Wagener and the McIntosh. The object of our trip was, first, to find out how far we could depart from these standard plantings, which we know to be good, and also to make a special study of what had been done to better the condition of handling

apples in the orchard by the farmer. Successively, we visited the apple orchards of Montana, Michigan, New York, the New England states, Pennsylvania, Virginia, Maryland and Ohio. In each state visited we interviewed the best men that we could find. One prominent New York horticulturist told us that they did not have to pollenize in his state. He said that an apple was an apple, whether small or big, good or bad, and that everything out of the orchard went into the same barrel. He further said that in the Northwest,

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where perfect fruit is raised, orchardists will in all probability have to pay considerable attention to cross-pollenization. Another prominent New York horticulturist said: "Gentlemen, you have come to the wrong place. The people in the Northwest know more about horticulture than we ever heard of. If the people in the East would show as much enterprise as the people in the Northwest they would stand a better show of regaining their lost prestige in the orchard business." A very prominent Pennsylvania orchardist said: "I have no doubt but that when the matter is finally sifted out it

will be shown that a great many things are attributable to poor pollenization that are wholly or partly misunderstood. I want to congratulate you and your valley on its perfect fruit and its perfect series of apples, all of which are good market apples, all of which are red apples, which have shown a marked tendency to fertilize each other. Undoubtedly the reason for your raising large crops every year is due to this combination of perfect pollenizers."

Mr. M. B. Waite of Washington, D. C., who is the father of the pollenization theory, responded to our inquiries as

follows: "Gentlemen, you are on exactly the right track. There are some horticulturists who may try to divert you from this combination of apples, but the pollenization theory is right. You are ten years ahead of any other district in the Northwest regarding the cross-fertilization, and you are to be congratulated." He said further: "People with poor pollenization will get good crops in good years, but in bad years they will get nothing." He went into the history of his early work on this matter and provided us with a copy of the government bulletin giving the results of his early work. He also gave us much history to bear out the pollenization theory.

One thing that impressed us on this whole trip was the small amount of work that has been done on this important question. Nearly all horticulturists seemed to be particularly lame in plant physiology and bacteriology. This does not seem to be the fault of the horticulturists themselves, but of the school in which they were trained. We did not interview a single man who did not congratulate us on our good fortune in being able to produce this string of apples, every apple of which is commercially good, every apple of which is red, every apple of which is a prolific bearer and commercially profitable; all apples blooming at the same time, and apples which do not compete against each other in the market, the keenest competition being between the McIntosh and the Jonathan, the two highest grade apples we raise, which are sought for in every market. We also found that blooming conditions and pollenization were greatly affected by weather conditions at blooming time. At the New York State Experiment Station they have prepared a bulletin which shows the close relationship between weather conditions in the spring and the apple crop. One authority who has gained considerable recognition in his profession saw no reason why we should investigate pollenization, as we always had perfect weather at blooming time in the valley, while the Eastern orchards get the spring rains, and while the extreme Western orchards are not through with the winter rains, thus greatly interfering with the spread of the pollen. This orchardist said that it was hardly fair that

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☐ A feature that has won many friends for The Pacific Monthly has been our descriptive and industrial articles. During the coming year one or more such articles will be published each month. Articles now scheduled for early publication are: "Money in Live Stock on the Pacific Coast", "Success with Apples", "Nut Culture in the Northwest", "Success with Small Fruits", "Fodder Crops in the Western States".

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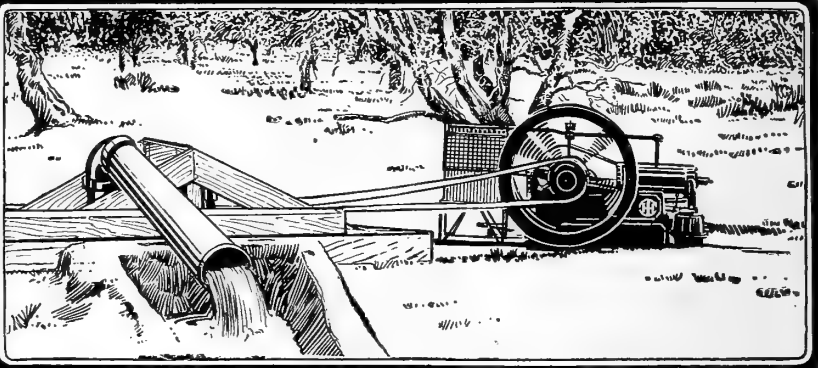
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The other question which we were asked to investigate, namely, the handling of fruit with reference to the farmer, was almost unproductive of results. A great deal of good work has been done by the cold storage men, but most of the damage is done before the cold storage men get hold of the fruit. We did find, however, that enough work has been done to indicate that the keeping qualities of apples can be improved by proper storing of the fruit. Lately I saw apples which are supposed to be off the market at Christmas time in almost perfect condition. We found that the keeping qualities of apples were affected by the condition of the apple when packed, the kind of handling, the time it was let stand in the orchard after picking, the condition of the storehouse both at the time the apple was put in and during the time that it is in storage. The three controlling factors in the storehouse are temperature, humidity and sterilization. Some little work in developing improved methods of storing apples has been carried on under the direction of Mr. H. M. Sloan, resident general manager of the Bitter Root Valley Irrigation Company, in the Bitter Root Valley. Mr. Sloan has made arrangements to have this work pushed along scientific lines by the experimental station at Bozeman. The first work done along this line was accomplished by the company. It was found that McIntosh apples stored in the basement of the Hamilton office were in almost perfect condition on the first of June, although there was no particular atten-

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tion paid to them either at the packing time or at the time they were placed in storage. They were given no care during the winter months. In fact they were forgotten. With this as a cue, Mr. Sloan started out to find why these apples kept better than apples kept in

the farmers' cellars. At the present time it is intended to carry these experiments in scientific storage over a period of three or four years, and they will undoubtedly be productive of as much good as has been the work performed in scientific pollenization.



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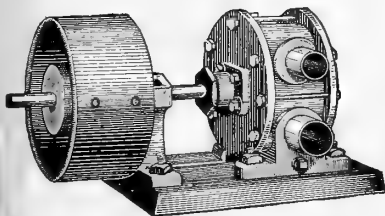
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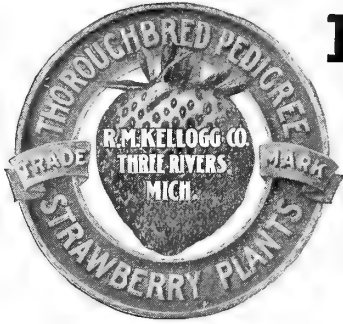
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THREE RIVERS, MICHIGAN

Apple Growing and Orchard Management

By C. D. Jarvis, Experiment Station, Storrs, Connecticut

Continued from October issue

From the foregoing remarks the reader will realize that it is a difficult matter to formulate any rule for the fertilization of apple orchards. Briefly stated, the manurial recommendations for an apple orchard are dependent upon the age of the trees; the vigor, as indicated by the annual growth, the nature of the varieties, the character of the soil, the previous treatment of the soil, the cultural system employed, the kind of cover crop, the kind of filler used, the nature and amount of other crops grown in the orchard, the availability of fertilizing materials, the severity of pruning, the size of the expected crop, and, to some extent, the character of the season. The formula mentioned below should be taken as a suggestion only, and should be modified to suit special conditions. For mature apple trees on soil that is apparently in need of a complete fertilizer the following formula is suggested: Nitrate of soda (15 per cent nitrogen or its equivalent) 200 pounds, muriate or sulphate of potash (50 per cent potash or its equivalent) 250 pounds, and raw ground bone (20 per cent phosphoric acid and 3 per cent nitrogen or its equivalent) 400 pounds. These amounts are intended for the annual treatment of one acre of orchard land. The amounts required for a single tree may be determined by dividing by thirty. This formula may be regarded as a moderate annual application. The amounts may be decreased for moderately small trees

and increased for larger ones. When leguminous cover crops are annually grown and turned under, and when the trees are making sufficient growth the amount of nitrate of soda may be greatly reduced or omitted entirely. The same change should also be made when trees have been severely pruned, as is usually done in the renovation of neglected orchards. For the immediate benefit of the trees it may be advisable the first year to supplement the above formula with about 150 pounds of acid phosphate. This is for the reason that the phosphoric acid in the raw bone is mostly in an insoluble form and the trees would be unable to use much of it until the second season. Once in three or four years it may be advisable to apply, in addition to the above, about one ton of lime to the acre. Good results have followed the use of basic slag in apple orchards, and if five or six hundred pounds of this material is used every second season in place of the raw ground bone the application of lime may be omitted. In seasons when the trees are bearing a heavy crop of fruit it may be advisable to supplement the above formula with a light dressing of soluble fertilizer about the latter part of June. This will tend to relieve the strain upon the trees and give them an opportunity to form fruit buds for the following season. About 50 pounds of nitrate of soda and 100 pounds each of muriate of potash and acid phosphate should be the maximum amount to be applied at this time. There is great danger in applying fer-

tilizer at this time, for if there should be a prolonged dry season it would not be dissolved until too late for the present season's crop, and would be likely to cause a second growth late in the season. For this reason the summer application should be made just before or during a rain. A knowledge of the functions of the various fertilizers will assist greatly in understanding the needs of the apple tree. Nitrogen favors the vegetable growth of leaf, wood and fruit. Phosphoric acid is necessary in the formation of leaf and fruit buds and of seeds. Potash affects the color, quality and flavor of the fruit and at the same time assists in the vital processes of growth. With these points in mind the fruit grower should keep a close watch of his trees with a view of supplying their individual needs. The usual time to apply fertilizers is early in spring, just as growth commences. The fertilizer is sown broadcast just after plowing and immediately harrowed into the soil. When trees reach the age of ten or twelve years their roots occupy most of the ground, and the fertilizer should, therefore, be scattered over the whole

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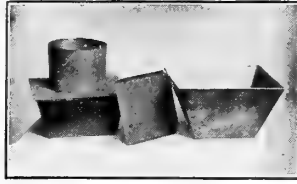
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area. Fertilizer scattered just beyond the spread of the branches is more accessible to the tree than that sown around the base of the tree.

When a regular system of cover cropping is followed good results have followed the sowing of the fertilizer at the time of preparing the soil for the cover crop. Nitrate of soda, for obvious reasons, should not be applied at this time, and as a rule a slowly available phosphoric acid fertilizer is more suitable for applying so late in the season. The plant food that would become available during late summer and late fall would be taken up and held by the cover crop. While the method favors the development of a good cover crop the chief objection to the practice is that the trees derive very little benefit from the fertilizer until the cover crop has become decomposed. Probably the best method would be to apply a light dressing of soluble fertilizer in the spring and

leave the application of such materials as raw ground bone, basic slag and lime until mid-summer. The following divided formula is suggested for each acre: Spring application: Nitrate of soda 100 pounds, muriate of potash 250 pounds, acid phosphate 100 pounds. Summer application: Raw ground bone 300 pounds, or basic slag 600 pounds. If trees are making sufficient growth the nitrate of soda should be omitted. When this method is followed a winter cover crop of the leguminous class should be used, and should be turned under and thoroughly worked over early in the spring.

The question of pruning young trees and of neglected trees has been discussed so often that there remains only the question of regular pruning methods. Regarding this subject there exists a great difference of opinion both among fruit growers and official horticulturists. The conflicting recommendations of the various authorities are partly due to the varying conditions under which apples are grown, but more particularly to our meager stock of experimental evidence relating to the subject. On traveling through New England one becomes impressed with the great variety of tree structures. Some trees have large broad heads with open centers and some are so crowded that their heads have not had a chance to expand. Some are low headed, some high headed and some have been beheaded. Others have been pruned from beneath as high as a man can reach with an axe and others, by far the largest number, seem never to have been pruned at all. With so many conflicting opinions as to how a tree should be pruned it seems necessary that the fruit grower should settle upon some form of tree structure, and, starting with the young tree, develop his ideal. Varieties and individuals differ greatly in form and habit, but even in the most stubborn cases it is possible to approach the ideal. Each tree must be pruned with respect to its own individuality. A tree that is making a strong growth should have a different treatment from one making a weak growth, and a tree with an upward tendency demands different training from one with a spreading habit. Pruning should be regarded as a work of training rather than of cor-

recting. In the treatment of neglected trees it is necessarily a work of correction, and it requires several years of this work to make up for the lack of training. The general tendency at the present time is to grow low-headed trees, and the number of advocates of the high-headed structure is becoming smaller every year. The necessity for thorough spraying since the advent of the San Jose scale has done much to bring about this change of ideals. Low-headed trees are not only more easily sprayed, but they can be pruned more conveniently, and the fruit can be more economically thinned and

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harvested. It is difficult to estimate the difference in the cost of harvesting fruit from high and low-headed trees, but it is probable that there would be a difference of at least twenty-five per cent in favor of the latter. Low-headed trees are less susceptible to injury from winds and their trunks are not so likely to be affected by "sun scald." The best time to settle this question is at the time of selecting the nursery stock. Much may be done, however, in the way of severe heading in. Many trees that were originally low headed have become high headed owing to the close planting and crowding. The only treatment for such a condition is to cut out half of the trees and "dehorn" the remaining ones. Some varieties, like Sutton and Yellow Transparent, are naturally upright growers and are kept down only by very careful and persistent treatment. In the first place the trees of such varieties cannot be headed too low. The branches should be started at or very

near the surface of the ground. Much may be done during the first few years by careful training, cutting back the successive annual growths to about one-third of their length, and always cutting back to a bud or branch pointing outward or downward. The greatest progress will be made after the trees commence to bear, for at this time the weight of a crop tends to bring the branches down. The important point, therefore, is to induce fruit bearing as early as possible. Summer pruning is probably the most effective way of inducing fruitfulness. We hear a great deal these days about the tree with the open center. The object of the open center in apple trees is to admit more sunlight, and in this way produce more highly colored fruit. Inasmuch as the greater part of the fruit is borne on the surface of the tree the important point is to develop as far as possible a tree with the maximum surface exposed to the light. A tree with a broad cone-shaped top probably gives the greatest exposed area, and this is in opposition to the open center idea. While opening up the center will likely give additional color to a few apples in the center of the tree and will admit of a better circulation of air it is a question whether it would not be better to open the tree moderately on all sides. If it is good to open up the top the same should apply to any portion of the tree. In sections where trees are likely to "scald" the open center exposes the branches to the direct rays of the sun, and for this reason is objectionable. While the writer does not approve of open center methods as practiced by the exterminist he favors the removal of the high central leader usually found in neglected trees. In such cases the new growth soon fills up the space and protects the exposed branches from the sun.

The inexperienced pruner will have trouble in deciding which branches should be cut out and which should be left. Anyone may become proficient in the work if he will study the effects of different kinds of treatment. The most common error is in leaving too much brush on the tree. A tree in the winter may seem to be well opened up, but will often appear very different when the tree is in foliage, and the operator should keep this constantly in

mind. Removing brush from a tree may greatly reduce the number of apples without reducing the yield. In this respect pruning is a thinning process. Trees that are bearing regularly and that are not being over-nourished will not require much pruning. This is one reason—and there are many others—why an even growth should be maintained. The branches to be removed are mainly those that interfere with the other branches. It should be the aim to have an even distribution of branches with abundant space between them for the free circulation of air. In selecting between two branches that interfere with one another the most desirable one should be retained, keeping in mind convenience in spraying, harvesting and the other operations. Other things being equal, the lower one usually should be retained. Besides relieving the crowding, all objectionable cross branches in the center of the tree and all dead and diseased branches should be removed. The rapidly growing shoots, especially at the top of the tree, should be cut back with a view of maintaining a symmetrical structure. Watersprouts around the base of the tree should always be removed. Those found on the main branches should either be removed or cut back. By pinching back these shoots in early

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June they often may be converted into fruit spurs. The fruit spurs along the main branches should not be removed, as is so often done. Some growers do not believe a tree is properly pruned unless the main arms are as bare as telephone poles. Many growers also make the serious mistake of cutting off the lower branches because they interfere with the work of cultivation. These are often the most profitable branches on the tree, for the reason that the fruit they bear can be so quickly and conveniently harvested. Much may be done in the way of directing the growth of the branches of a tree by giving some attention to the position of each cut. If it is desired to give a particular branch an outward or a spreading tendency it

should be cut off at a point just beyond a bud or a side branch that points in that direction. In like manner the growth of a spreading branch may be directed upward by cutting back to a bud or side branch that points upward or inward. The wound on a branch that has been cut back close to a side branch is likely to heal over more readily than when a long stub is left at the end of the branch. In removing side branches the cut should be made close and parallel, or nearly so, with the parent branch. When long stubs are left the wounds do not heal over and sooner or later decay starts. It is usually in this way that wood destroying fungi get into the tree, resulting in the familiar hollowed trunks. The cuts should be made as smoothly as pos-

sible to facilitate the healing process. To prevent the accumulation of moisture on the surface large cuts are usually made in a sloping direction. Wounds of two inches or more in diameter should always be sealed up with paint or other substance. Some careful growers use a thin grafting wax for this purpose. If the wounds do not heal over within two years a second coat should be given. Any ordinary lead and oil paint will answer the purpose, but it should not be applied until after the exposed wood has become thoroughly dry, and it should be used moderately thick to fill up the cracks.

The most common pruning tool in New England is the axe, and, judging from the result, it may be assumed that

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it has not always been a sharp one. The requirements of the tree pruner are a few inexpensive tools. A good pruning saw is indispensable, and the farmer has a great variety to choose from. One of the most satisfactory kind is illustrated. The curved blade makes it possible to saw from beneath almost as easily as from above. The convex side is used when sawing from beneath and the concave side when sawing from above. The teeth of the concave side should point backward, so that the cutting may be done with a drawing motion. Another useful saw is constructed so that the blade may be set at different angles. A saw of this kind may be attached to a long handle and may be operated in the narrowest crotches without danger of injuring the adjoining branches. A set of common pruning shears is also a necessary part of a pruner's outfit. These are used for cutting all small branches within reach of the operator. The larger limbs are either sawed off or are removed with a heavier pair of shears with handles about two or three feet in length. These are very useful and may be used on branches an inch or more in diameter. Finally, the pruner requires some shears on a very long handle. Shears of this kind are usually known as "loppers," and are used to "lop" off the ends of the higher branches. With old and neglected trees it is usually desirable to scrape off the loose bark along the trunk and main branches. For this purpose a tree

scraper, such as is illustrated, is useful. An old worn down garden hoe, with part of the handle removed, will do just as well. Whatever tool is used for the purpose should have a blunt edge to avoid injury to the living bark. With moderately sized trees the work of pruning, especially the heading in

of the upper branches, may be greatly expedited by the use of a horse and wagon. A light wagon with a slightly elevated platform will be found very useful. The spray cart will answer the purpose very well. In some large plantations it is the custom to have two men pruning from the ground, followed by one man on the wagon to do the necessary pruning at the top of the trees. In getting to the tops of very large trees the use of ladders is probably more satisfactory. At the end of the season all pruning tools should be cleaned and hung up in a dry place for future use. By swabbing the metal parts with oil they may be prevented from rusting.

Before discussing this subject it may be well to consider briefly the effects of pruning upon the tree. Pruning during the dormant season incites wood growth. The rank growth of watersprouts after severe winter pruning is proof of this contention. Pruning during the growing season has the opposite effect and induces fruitfulness. The removal of branches during the growing season reduces the leaf area and necessarily acts as a check to the tree. Anything that restricts the assimilation or nutrition of a tree tends to the production of fruit buds. The dwarf apple tree shown has been injured by borers and was the only tree in a young dwarf orchard that bore a full crop of fruit. From the foregoing facts we can get a clue to the proper time to prune. A tree that has

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reached the bearing age and yet persists in making wood rather than fruit should be checked by summer pruning. This usually consists in removing watersprouts and heading in the rapidly growing shoots. The time to do this most effectively is in the height of the growing season, which in this section is about the middle of June. If left till later than this it is likely to do more harm than good by inducing a late growth. After trees once commence to bear there is not likely to be any need for summer pruning. The greatest fault with most of our trees is that they are inclined to over-bear. In such cases as a general rule the pruning should be done during the dormant season. There is no particular time when this regular winter pruning should be done. The fruit grower usually has more time in the fall, and at this season the work is more likely to be given the attention

that it deserves. Some growers prune any time during the winter, whenever the weather is favorable. Those who favor early spring pruning claim that cuts made just before the growing season heal up more quickly, and they further claim that the fresh cut surfaces are likely to dry out and injure the tree during the winter. These are minor points and are offset by other considerations. The wounds made during the fall or winter have a chance to dry out without the danger of infection, and when the paint is applied in the spring it is likely to be more effective in sealing up the cracks. Pruning a little every year is much better than heavy prunings once in two or more years. There is always danger of upsetting the equilibrium of a tree by severe pruning. When it becomes necessary to remove an unusual amount of brush, as is the case in treating neglected trees, it is advisable to leave

some to be removed during the growing season.

With trees that have been grown slowly and normally, and that have been shaped properly, there is little need for propping and bracing, even when bearing the maximum crops. Many of our trees have not been developed in this way, and if not supported are likely to be broken down with the first large crop of fruit. Trees that have been thinned are less likely to be injured in this way, for the reason that the remaining apples usually develop into the best grade and the trees do not have to support a lot of worthless fruit. As a rule a tree with a central leader is less likely to be broken down than the open-center tree. A plan for the bracing of open-centered trees has been suggested recently by Mr. A. I. Mason of Hood River, Oregon. (See "Better Fruit," Vol. V, No. 6, 1910.) In short, it consists in driving a screw-eye into each of the main branches, which are then connected by number twelve galvanized wire to a ring suspended in the center. The bracing should be done just before the tree commences to bear. The screw-eyes soon become imbedded into the wood and the wire makes a permanent support. Mr. Mason claims that the wires are very convenient for standing upon when pruning the tree and when picking the fruit. In most parts of New England white birch poles may easily be obtained, and they make good props for trees, although they seldom can be used more than one year. A few such

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poles will often protect the tree from injury and save a great deal of fruit.

While there are a great many pests of the apple our efforts for their control are limited to a very few operations. A few of the pests may always be found, and their control must be regarded as a regular and necessary item in the work of orchard management. Others appear from time to time and the successful apple grower is always on the watch for unexpected pests. The San Jose scale has become very common in most parts of New England, and the apple growers who have so far escaped its ravages will soon have to reckon with it. It is a serious pest, but the fruit growers have demonstrated the possibility of keeping it under control with one thorough

spraying a year. Thoroughness is the important thing, and to be successful every portion of the bark must be covered. Either miscible oil or the lime-sulphur wash may be used, but the former has given uniformly better results when applied to mature apple trees. The application may be made any time during the dormant season, providing the temperature is above the freezing point. Miscible oil should be used at the rate of one gallon of oil to fifteen gallons of water. The lime-sulphur wash may be made up in the usual way at home, but when only small quantities are required it is more satisfactory to buy the material ready made and apply it at the rate of one gallon of wash to eight gallons of water. Aphis or lice are sucking

insects, and during recent years have done much damage. They suck the sap from the young shoots and leaves, causing the latter to curl up. They secrete a form of honey-dew that discolors the fruit and makes it sticky. The pest is carried over winter in the egg stage and the young lice appear in early spring. Oftentimes they appear before the buds open, when they may be killed with the oil spray for San Jose scale. If the buds have opened before the young lice appear kerosene emulsion should be used. The important point about spraying for aphis is promptness. If the leaves have become curled up it is almost impossible to get the spray in contact with the insects. Apple tree borers may be found in most orchards, and their presence is

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usually overlooked until serious damage has been done. They can work away in old trees for a long time without seriously affecting them, but one season's work in a young tree will often prove fatal. They work just under the bark and their presence may usually be detected by sunken areas about an inch or more in diameter and by the familiar sawdust-like castings at the base of the tree. There is very little that can be done in the way of prevention, although some people claim satisfactory results from painting the trees with various substances and from the application of coal ashes at the base of the tree. None of these can be

relied upon, and the best recommendation we have to offer at the present time is to examine each tree twice a year, in May and September, and dig out the borers with a pocket-knife. A strong flexible wire may be found useful where the pest has burrowed far into the wood. Some people recommend a common knitting needle for this purpose, but a more flexible wire would seem better adapted. Apple maggot or railroad worm is the insect that burrows within the apple in every direction, leaving the familiar brown streaks and causing the fruit to become gnarled and unfit for use. Some varieties are especially susceptible to injury from this pest, while other varieties seemed to be quite free from attack; some of the varieties that have seemed to be most seriously affected are Sour Bough, Porter, Primate, Mother and Talman. inasmuch as the insects are born and do their feeding within the apple it is impossible to combat them by spraying. There is really no satisfactory remedy for controlling the pest. It does not seem to be so troublesome in orchards that are regularly tilled as in sod orchards. Where susceptible varieties are being grown the fallen fruit should be gathered up promptly and either fed to live stock or destroyed in some way. This recommendation is based upon the fact that the insects remain in the fruit for a short time after the latter falls to the ground. The codling moth and leaf-eating insects are

grouped together for the reason that they are controlled in the same way. The codling moth is the most serious pest of this group, and the work of summer spraying is directed especially against this insect. Fortunately the various leaf-eating insects are controlled at the same time. The adult moth appears in early spring and lays her eggs on the leaves, stems and fruit. The newly hatched insects crawl to the fruit and enter the apple at the point of least resistance, which is through the calyx opening or blossom end. A knowledge of this habit of the insect enables the fruit grower to spray his trees intelligently. The early formed apple, just after the falling of the petals, stands upright and the remaining flower parts, or calyx, form a basin-shaped cavity at the upper end. As the apple increases in size it droops over and the calyx gradually closes. To poison the insect then it is necessary to get some poison in the calyx cup before it closes. To make sure of this the spraying should be done within two weeks after the blossoms fall, and the earlier the better. A second application, about three weeks after the first, is usually worth while. This will cover the newly formed foliage with poison and will be of service in the control of curculio and other injurious forms. Knowing the position of the newly formed apples and the necessity of getting poison into the calyx cavity the spraying will be more effective if done with considerable

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force and in a downward direction. Arsenate of lead paste at the rate of three pounds to fifty gallons of water is the standard remedy for codling moth and leaf-eating insects. The regular application for codling moth may

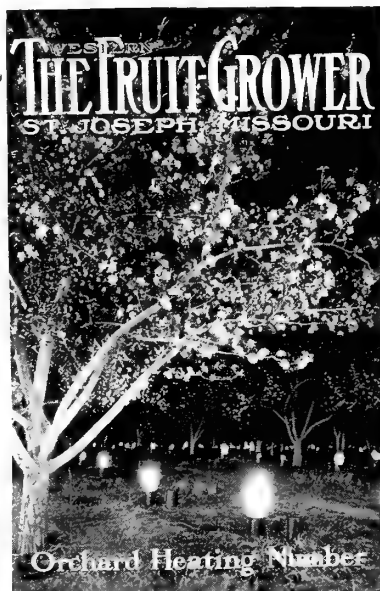
be expected to control at the same time such insects as canker worms, tent caterpillars, case bearers and, to some extent, the curculio.

The most common diseases of the apple are scab, rust, sooty blotch and

black rot. These are caused by fungi, which are minute parasitic plants. Apple scab is troublesome only on certain varieties. Rust, in certain seasons, becomes a serious pest by causing conspicuous orange-colored blotches on the leaves and, with some varieties, on the fruit. Black rot may be usually found in all orchards, but it is not a serious pest in this part of the country. It affects the leaves, twigs and fruit. The dead and blackened twigs frequently found on the trees in the spring are usually the result of this disease. The sooty blotch disease produces the familiar smoky blotches on the fruit and leaves of certain varieties late in the season, but is seldom so serious as to require treatment.

Spraying with bordeaux mixture just as the buds begin to show pink will assist greatly in controlling the scab and black rot, but has very little effect upon rust. Bordeaux mixture, made up at regular strength (4-4-50), should be used at this time. After the blossoms fall a second application at a much reduced strength is recommended. For this second application the bordeaux should be made up by using one pound copper sulphate, two pounds of lime and fifty gallons of water. This reduction in strength is made on account of the probable injury to the foliage and fruit if used at regular strength. The arsenate of lead for the control of insects may be added to and applied with the bordeaux mixture. Some growers use arsenate of lead in the

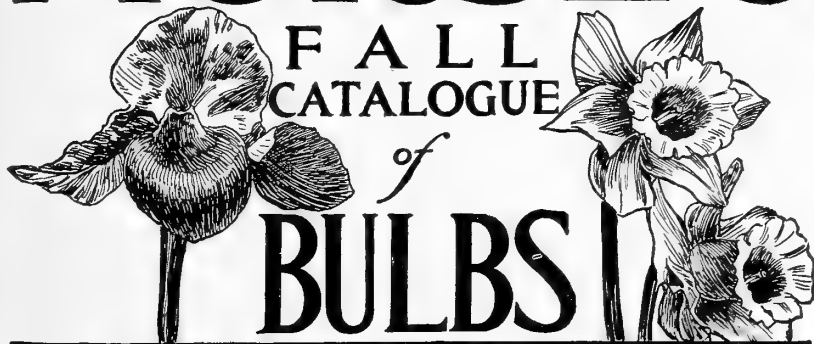
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culture has conducted extensive experiments in the South, and their conclusions from these are very favorable to the use of lime-sulphur wash. Results of experiments conducted during the past season by the Connecticut Experiment Station and by various other experiment stations are also very encouraging. In all the experiments that have come within the writer's observation the work has been performed on varieties that are not especially susceptible to scab. When it has been clearly demonstrated that the use of lime and sulphur at a safe strength will control scab on such varieties as Fall Pippin and Fameuse it may be recommended for summer spraying. The investigations of another season should bring results of a more definite nature. In the meantime it would be well to discontinue the use of bordeaux mixture except in the manner suggested in this article. The apple growers who are growing varieties susceptible to scab may have trouble in controlling the disease with such treatment, but the effects of the disease would not be so severe as the effect of full strength bordeaux when applied after the blossoms fall. This is based upon the observations of last season, which proved to be a disastrous one for orchards sprayed with bordeaux mixture. It is remarkable that many of the varieties commonly grown in New England, such as Baldwin, Roxbury Russet and Rhode Island Greening, are rarely seriously affected with scab, and thorough spraying with arsenate of lead alone will usually insure clean fruit. For those who wish to try the lime-sulphur wash it is recommended experimentally as follows: Commercial lime-sulphur solution, 1 to 1½ gallons; water, 50 gallons. For regular summer spraying three pounds of arsenate of lead may be added to each barrel for the control of the codling moth and other leaf-eating insects. Those who wish to try the self-boiled wash should apply for a bulletin on the subject to the United States Department of Agriculture, Washington, D. C.

For the average farmer who has not more than two or three acres a hand pump is a sufficient spraying equipment. A very satisfactory outfit consists of an Arlington hand pump with two leads of hose, two extension rods

mixture for the first spraying also. These two summer applications will usually be sufficient for the production of good clean fruit, and where diseases are not troublesome the single application of arsenate of lead may be all that is necessary. If it should become necessary to spray for sooty blotch an application of the lime-sulphur wash at the rate of one to forty will probably be most satisfactory. The application, of course, must be made before the disease presents itself, for the spraying for diseases in general is a preventive measure rather than a cure. The spraying directions for apple trees may be summarized as follows: (1) If scale is present spray during the dor-

mant season with miscible oil or lime and sulphur. (2) Just as the buds commence to show pink spray with bordeaux mixture (4-4-50) for scab and black rot. (3) Just after the blossoms fall spray with arsenate of lead and weak bordeaux mixture (1-2-50) for codling moth, curculio, leaf-eating insects and scab. (4) Three weeks later repeat number 3. This may not always be necessary, but will probably pay where fancy varieties are grown. During the past year or two there has been much said and written about the use of the lime-sulphur wash in various forms for summer spraying and as a substitute for bordeaux mixture. The United States Department of Agri-

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(eight and twelve-foot lengths), two nozzles of the disc type, a one-horse wagon and a home-made tower. Exclusive of horse and wagon, the whole outfit should be obtained for not more than thirty dollars. For ordinary sized trees a lower platform on the wagon will be sufficient and will be less liable to upset. Another form of hand pump that in many respects is superior to the barrel outfit is also illustrated. This is a double cylinder pump, which may be attached to a sled for use in young orchards or to the bottom of a wagon box for use in older orchards. The advantage of an outfit of this kind is that a higher pressure can be maintained. If necessary two men may work at the handle. One strong man, however, should have no trouble in keeping up one hundred pounds pressure with two leads of hose in action. The pump is connected with the tank by a suction hose. When the tank is empty it may be removed and a full one rolled into place. The bucket outfits, of which there are many types, are suitable only for spraying bushes and low-growing plants, and are not adapted to spraying full-grown apple trees. With larger orchards the owner must either increase the number of hand outfits or secure a more powerful pump and a larger tank. The gasoline power outfits on the market are giving excellent satisfaction in many places. The chief objection to them is their awkwardness on hilly land. Where orchards are located on comparatively

level land it will probably pay to secure a power outfit. This will make lighter work and require less help. It is an expensive piece of machinery, and if it cannot be used for any other purpose than for spraying it is a question whether it would not be more satisfactory to use hand pumps of the double cylinder type, even in the larger commercial orchards. It seems reasonable to expect some marked improvements in spraying machinery during the next few years. Something after the order of a compressed air outfit on a large scale would be more desirable for New England conditions.

There are many kinds of nozzles on the market, but the most approved forms belong to what has come to be known as the disc type. Most spray pump manufacturers are now making nozzles of this type and are selling them under various names, but they all seem to be very much alike. Probably the first of this type to appear on the market, and by far the best known one, is the "Friend." This is made after two patterns, the "straight" and the "angle." The advantage of the angle nozzle is that the direction of the spray may be changed by simply twisting the extension rod. It is also useful in



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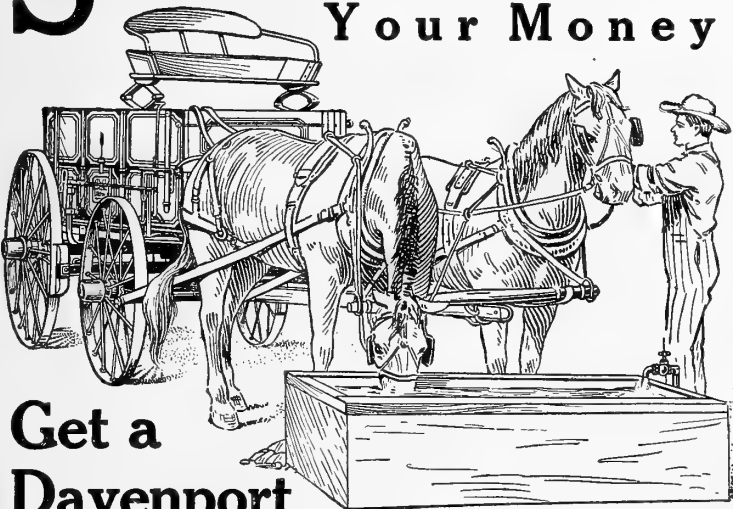
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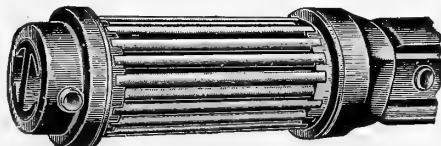
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spraying downward from the elevated platform and for spraying beneath low bushes.

Most mature apple trees have a tendency to over-bear, and during recent years it has been demonstrated that it pays to remove a half or two-thirds of the apples on all heavily loaded trees. Surplus apples may be regarded as weeds. They are not of much value in themselves and restrict the growth of the others. Thinning does not necessarily reduce the yield, but on the contrary greatly increases the yield of first grade fruit. Besides that of improving the size and quality of the fruit there are several reasons why a tree should be thinned. There is a great drain on the vitality of a tree in the maturing of so many individuals. Each apple has its supply of seeds, and these form the most concentrated part of the fruit. By removing one-half of the apples we relieve the tree of the necessity of maturing half the seeds, and in doing so we do not reduce the crop of fruit. By relieving the strain upon a tree during the growing season the fruit buds for the following year are likely to be better developed, and it is also believed that thinning tends to encourage the annual bearing habit. Thinning lessens the loss from the breaking of limbs and gives the grower an opportunity to destroy insect infected fruit, and thus reduce the number of insects for the following season. The common objection to thinning is the time it takes. There is no weight to such an argument, for there is only a certain number of apples to be picked and it costs no more to pick them in June than it does in September or October. In fact it is much easier to do the work at thinning time, for the fruit may simply be thrown upon the ground and raked up. A good man should thin eight to ten good sized trees in a day. The work should commence the latter part of June or the first of July. The defective and wormy specimens are first removed. Sometimes the thinner carries a bag over his shoulder for the wormy apples, but this is not necessary if all the thinned apples are afterward raked up and destroyed. The thinner next relieves the crowding. As a rule no more than one apple should be left on a single fruit spur, and those on the tips of the branches usually should be removed, for they seldom make first grade fruit. The result should be that the remaining apples are about six inches apart. Some of the smaller sized varieties may be left closer and some of the larger growing sorts should be given even more room. Some varieties seldom need thinning and there are others that habitually over-bear.



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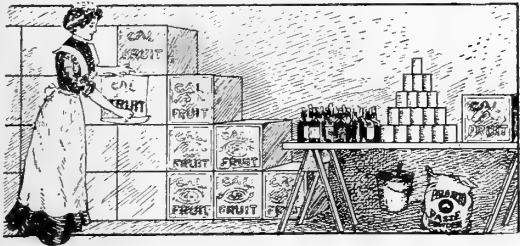
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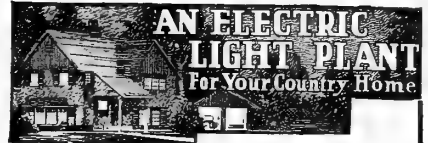
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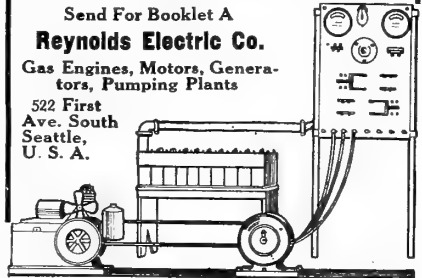
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THE Ballygreen System of selection and certification makes it possible

for planters to secure clean, hardy nursery stock of proven **quality** and **pedigree**, propagated from the finest trees in the famous fruit valleys of the West.

Selected strains from the best **prize-winning orchards**, certified under affidavit, is **fruit insurance** to growers.

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Hanford, Washington

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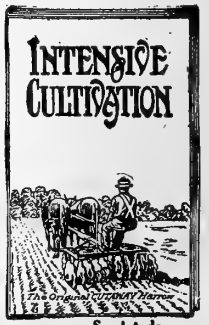
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HOOD RIVER ABSTRACT COMPANY
Hood River, Oregon
ABSTRACTS INSURANCE
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THE TOOL that SAVES a TOOL

What Prof. Bailey Says

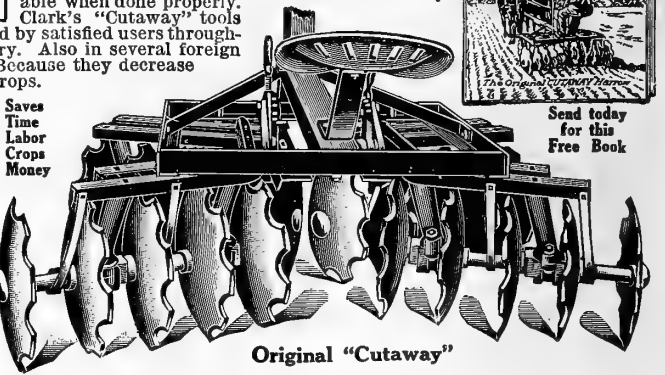
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NORTHWEST GROWERS' UNIONS AND ASSOCIATIONS

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

- Oregon**
Eugene Fruit Growers' Association, Eugene; Ashland Fruit and Produce Association, Ashland; Hood River Fruit Growers' Union, Hood River; Hood River Apple Growers' Union, Hood River; Grand Ronde Valley Fruit Growers' Union, La Grande; Milton Fruit Growers' Union, Milton; Douglas County Fruit Growers' Association, Roseburg; Willamette Valley Prune Association, Salem; Mosier Fruit Growers' Association, Mosier; The Dalles Fruit Growers' Union, The Dalles; Salem Fruit Union, Salem; Albany Fruit Growers' Union, Albany; Coos Bay Fruit Growers' Association, Marshfield; Estacada Fruit Growers' Association, Estacada; Umpqua Valley Fruit Growers' Association, Roseburg; Hyland Fruit Growers of Yamhill County, Sheridan; Newburg Apple Growers' Association, Newburg; Dufur Valley Fruit Growers' Union, Dufur; McMinnville Fruit Growers' Association, McMinnville; Coquille Valley Fruit Growers' Union, Myrtle Point; Stanfield Fruit Growers' Association, Stanfield; Oregon City Fruit and Produce Association, Oregon City; Lincoln County Fruit Growers' Union, Toledo; Rogue River Fruit and Produce Association, Medford; Mount Hood Fruit Growers' Association, Sandy; Northeast Gaston Farmers' Association, Forest Grove; Dallas Fruit Growers' Association, Dallas; Northwest Fruit Exchange, Portland; Springbrook Fruit Growers' Union, Springbrook; Cove Fruit Growers' Association, Cove; Santiam Fruit Growers' Association, Lebanon; Washington County Fruit Growers' Association, Hillsboro; Benton County Fruit Growers' Association, Corvallis; Sutherlin Fruit Growers' Association, Sutherlin.
- Washington**
Kennewick Fruit Growers' Association, Kennewick; Wenatchee Fruit Growers' Union, Wenatchee; Puyallup and Sumner Fruit Growers' Association, Puyallup; Vashon Island Fruit Growers' Association, Vashon; Mt. Vernon Fruit Growers' Association, Mt. Vernon; White Salmon Fruit Growers' Union, White Salmon; Thurston County Fruit Growers' Union, Tumwater; Bay Island Fruit Growers' Association, Tacoma; Yakima Valley Fruit and Produce Growers' Association, Granger; Buckley Fruit Growers' Association, Buckley; Lewis River Fruit Growers' Union, Woodland; Yakima County Horticultural Union, North Yakima; White River Valley Fruit and Berry Growers' Association, Kent; Lake Chelan Fruit Growers' Association, Chelan; Zillah Fruit Growers' Association, Toppenish; Kiona Fruit Growers' Union, Kiona; Mason County Fruit Growers' Association, Shelton; Clarks-

- ton Fruit Growers' Association, Clarkston; Walla Walla Fruit and Vegetable Union, Walla Walla; The Ridgefield Fruit Growers' Association, Ridgefield; Felida Prune Growers' Association, Vancouver; Grandview Fruit Growers' Association, Grandview; Yakima Valley Fruit Growers' Association, North Yakima; Southwest Washington Fruit Growers' Association, Chehalis; The Touchet Valley Fruit and Produce Union, Dayton; Lewis County Fruit Growers' Association, Centralia; The Green Bluffs Fruit Growers' Association, Mead; Garfield Fruit Growers' Union, Garfield; Goldendale Fruit and Produce Association, Goldendale; Spokane Inland Fruit Growers' Association, Keisling; Elma Fruit and Produce Association, Elma; Granger Fruit Growers' Association, Granger; Cashmere Fruit Growers' Union, Cashmere; Stevens County Fruit Growers' Union, Myers Falls; Dryden Fruit Growers' Union, Dryden; White Salmon Valley Apple Growers' Union, Underwood.
- Idaho**
Southern Idaho Fruit Shippers' Association, Boise; New Plymouth Fruit Growers' Association, New Plymouth; Payette Valley Apple Growers' Union, Payette; Parma-Roswell Fruit Growers' Association, Parma; Weiser Fruit and Produce Growers' Association, Weiser; Council Valley Fruit Growers' Association, Council; Nampa Fruit Growers' Association, Nampa; Lewiston Orchard Producers' Association, Lewiston; Boise Valley Fruit Growers' Association, Boise; Caldwell Fruit Growers' Association, Caldwell; Emmett Fruit Growers' Association, Emmett; Twin Falls Fruit Growers' Association, Twin Falls; Weiser River Fruit Growers' Association, Weiser; Fruit Growers' Association, Moscow.
- Colorado**
San Juan Fruit and Produce Growers' Association, Durango; Fremont County Fruit Growers' Association, Canon City; Rocky Ford Melon Growers' Association, Rocky Ford; Plateau and Debeque Fruit, Honey and Produce Association, Debeque; The Producers' Association, Debeque; Surface Creek Fruit Growers' Association, Austin; Longmont Produce Exchange, Longmont; Manzanola Fruit Association, Manzanola; Delta County Fruit Growers' Association, Delta; Boulder County Fruit Growers' Association, Boulder; Fort Collins Beet Growers' Association, Fort Collins; La Junta Melon and Produce Company, La Junta; Rifle Fruit and Produce Association, Rifle; North Fork Fruit Growers' Association, Paonia; Fruita Fruit and Produce Association, Fruita; Grand Junction Fruit Growers' Association, Clifton, Palisade, Grand Junction; Palisade Fruit Growers' Association, Palisade; Peach Growers' Association, Palisade; Colorado Fruit and Commercial Company, Grand Junction; Montrose Fruit and Produce Association, Montrose; Hotchkiss

- Fruit Growers' Association, Hotchkiss; Paonia Fruit Exchange, Paonia; Colorado Fruit Growers' Association, Delta; Crawford Fruit Growers' Association, Crawford; Amity Cantaloupe Growers' Association, Amity; Pent County Melon Growers' Association, Las Animas; Capitol Hill Melon Growers' Association, Rocky Ford; Denver Fruit and Vegetable Association, Denver; Fair Mount Melon Growers' Association, Swink; Fowler Melon Growers' Association, Fowler; Granada Melon Growers' Association, Granada; Grand Valley Fruit and Produce Association, Grand Junction; Independent Fruit Growers' Association, Grand Junction; Kouns Party Cantaloupe Growers' Association, Rocky Ford; Lamar Melon Growers' Association, Lamar; Loveland Fruit Growers' Association, Loveland; Manzanola Orchard Association, Manzanola; Newdale Melon Growers' Association, Swink; Roaring Fork Potato Growers' Association, Carbonade; Woods Melon Growers' Association, Las Animas.

- Montana**
Bitter Root Fruit Growers' Association, Hamilton; Missoula Fruit and Produce Association, Missoula.
- Utah**
Farmers and Fruit Growers' Forwarding Association, Centerville; Ogden Fruit Growers' Association, Ogden; Brigham City Fruit Growers' Association, Brigham City; Utah County Fruit and Produce Association, Provo; Willard Fruit Growers' Association, Willard; Excelsior Fruit and Produce Association, Clearfield (Post-office Layton R. F. D.); Centerville Fruit Growers' Association, Centerville; Bear River Valley Fruit Growers' Association, Bear River City; Springville Fruit Growers' Association, Springville; Cache Valley Fruit Growers' Association, Wellsville; Green River Fruit Growers' Association, Green River.

- New Mexico**
San Juan Fruit and Produce Association, Farmington.
- British Columbia**
British Columbia Fruit Growers' Association, Victoria; Victoria Fruit Growers' Exchange, Victoria; Hammond Fruit Growers' Union, Hammond; Hatzic Fruit Growers' Association, Hatzic; Western Fruit Growers' Association, Mission; Mission Fruit Growers' Association, Mission; Salmon Arm Farmers' Exchange, Salmon Arm; Armstrong Fruit Growers' Association, Armstrong; Okanagan Fruit Union, Limited, Vernon; Kelowna Farmers' Exchange, Limited, Kelowna; Summerland Fruit Growers' Association, Summerland; Kootenay Fruit Growers' Union, Limited, Nelson; Grand Forks Fruit Growers' Association, Grand Forks; Boswell-Kootenay Lake Union, Boswell; Queens Bay Fruit Growers' Association, Queens Bay; Kaslo Horticultural Association, Kaslo; Creston Fruit and Produce Exchange, Creston.

\$20 per day Earning Capacity

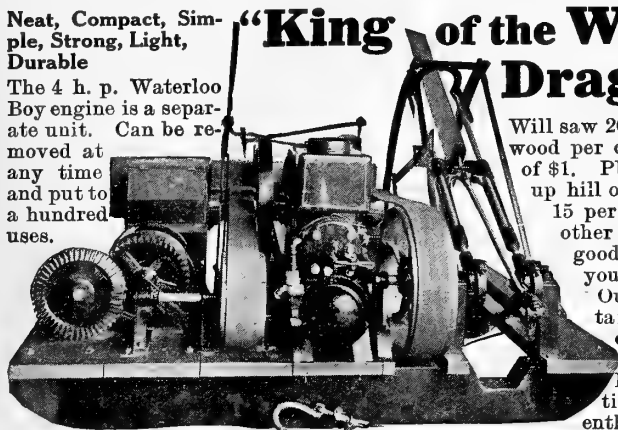
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Lands in the Southeast, costing from \$15 to \$50 an acre, net profits on apples ranging from \$100 to \$500 an acre.

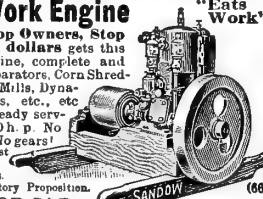
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Testimony from fruit growers everywhere

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The world owes homage to the men who have devoted their burning energies to the consummation of one purpose, to the final and most perfect development of an ideal.

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Is an example of the grand result of years of persistent, purposeful striving after the very highest musical ideal. Sons have taken up the task where fathers left off, so that alternate generations of genius, working through the finest piano factory in the world, have evolved the Steinway—a piano that has long since been acknowledged the musical masterpiece of the ages.

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A. HOLADAY MONTE VISTA NURSERY SCAPPOOSE, OREGON

Two Hard Headed Business Men Select Orchard Homes from Our Tracts

No. 1. Lives in Minnesota. Made a trip through the fruit districts of the West two years ago and made a second trip of investigation this year. He visited the best known fruit districts of the West—was solicited by several agents to buy of them, but came to our office in Minneapolis unsolicited and said **our fruit tracts were the best he had seen** in his investigations; therefore purchased his orchard tract from us.

No. 2. Has been investigating the principal fruit districts of the West for over two years, is a resident of Portland, a prominent business man, and after seeing our ad in "Better Fruit" wrote to us, came and examined the tracts and purchased immediately, saying that **our tracts were the best he had seen**.

The purchases made by the two men referred to above, as well as others to whom we could refer you, prove that the most careful purchasers are buying our tracts.

Buying an orchard home is important, therefore investigate all of the well-known fruit districts of the United States, but do not purchase until you examine ours. We cheerfully leave the choice of the selection to you after that.

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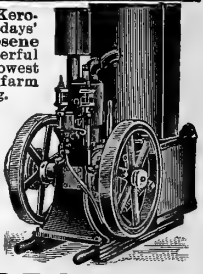
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Automobile owners are burning up so much gasoline that the world's supply is running short. Gasoline is 8c to 15c higher than coal oil. Still going up. Two pints of coal oil do work of three pints gasoline. No waste, no evaporation, no explosion from coal oil.



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The "DETROIT" is the only engine that handles coal oil successfully; uses alcohol, gasoline and benzene, too. Starts without cranking. Basic patent—only three moving parts—no cams—no sprockets—no gears—no valves—the utmost in simplicity, power and strength. Mounted on skids. All sizes, 2 to 29 h. p., in stock ready to ship. Complete engine tested just before cranking. Comes all ready to run. Pumps, saws, threshes, churns, separates milk, grinds feed, shells corn, runs home electric-lighting plant. Prices (stripped), \$29.50 up. Sent any place on 15 days' Free Trial. Don't buy an engine till you investigate amazing, money-saving, power-saving "DETROIT." Thousands in use. Costs only postal to find out. If you are first in your neighborhood to write, we will allow you Special Extra-Low Introductory price. Write! Detroit Engine Works, 507 Bellevue Ave., Detroit, Mich.

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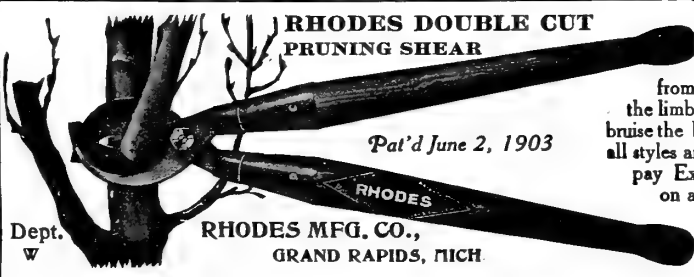
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Will prove a revelation to you. Sow them this fall and compare next year's crops with this year's, acre for acre. You will discover that the money you put into these fertilizers will prove the most profitable investment you ever made. We have printed a 20 page booklet explaining just why the soil needs these animal fertilizers and citing instances of the profits produced. The information this booklet contains is worth hundreds of dollars to any farmer. It is free for the asking. Send for it this minute while you have it in mind.

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We have made it up-to-date, clean, high class editorially, mechanically and pictorially.

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**THE INTERMOUNTAIN
FRUIT JOURNAL**

Grand Junction, Colorado

Kittitas Valley Orchard Scene



Sixteen-months-old Jonathan apple tree in the orchard of Dr. H. M. Thomas, located northeast of town, at the mouth of Cook's Creek. Dr. Thomas, who is shown standing beside the tree, had these trees set out in the spring of 1910, and the picture was taken this fall, just sixteen months after the trees were set out. Dr. Thomas' land is above the High Line, but receives water from Cook's Creek. The picture well illustrates the rapid growth of trees, properly cared for, in this valley. Dr. Thomas has forty acres of young orchard, the trees having been purchased from the Washington Nursery. The roots were two years old, with one-year graft when set out.

Above news item and photo is from Ellensburg Evening Record of October 10, 1911. It speaks volumes for the class of stock we grow and deliver.



Yearling Winesap Grafts Six Months From Transplanting. These Were Shown at National Apple Show, Spokane, November, 1910, as Four-foot Up Grafts.

At the National Apple Show, Spokane, November, 1910, among other varieties, we showed 25 Winesap yearling grafts four-foot up. After showing them for a week we took them home and kept them in our storehouse till April 15, then planted them in a row in a corner of the nursery, headed them back to thirty inches, and there's the result of six months' growth. Photo taken October 20, 1911. Anyone can do equally well with Washington Nursery Co.'s trees. Those trees didn't receive the care you would give them in your orchard, for they were in an odd corner and were not cultivated as regularly as you would cultivate your trees, and they were yearling piece-root grafts. No better showing can be made with any kind of trees, "whole root," "piece root," yearling, two-year, big or little, great or small, on any soil in any clime in the world. "It's the root."

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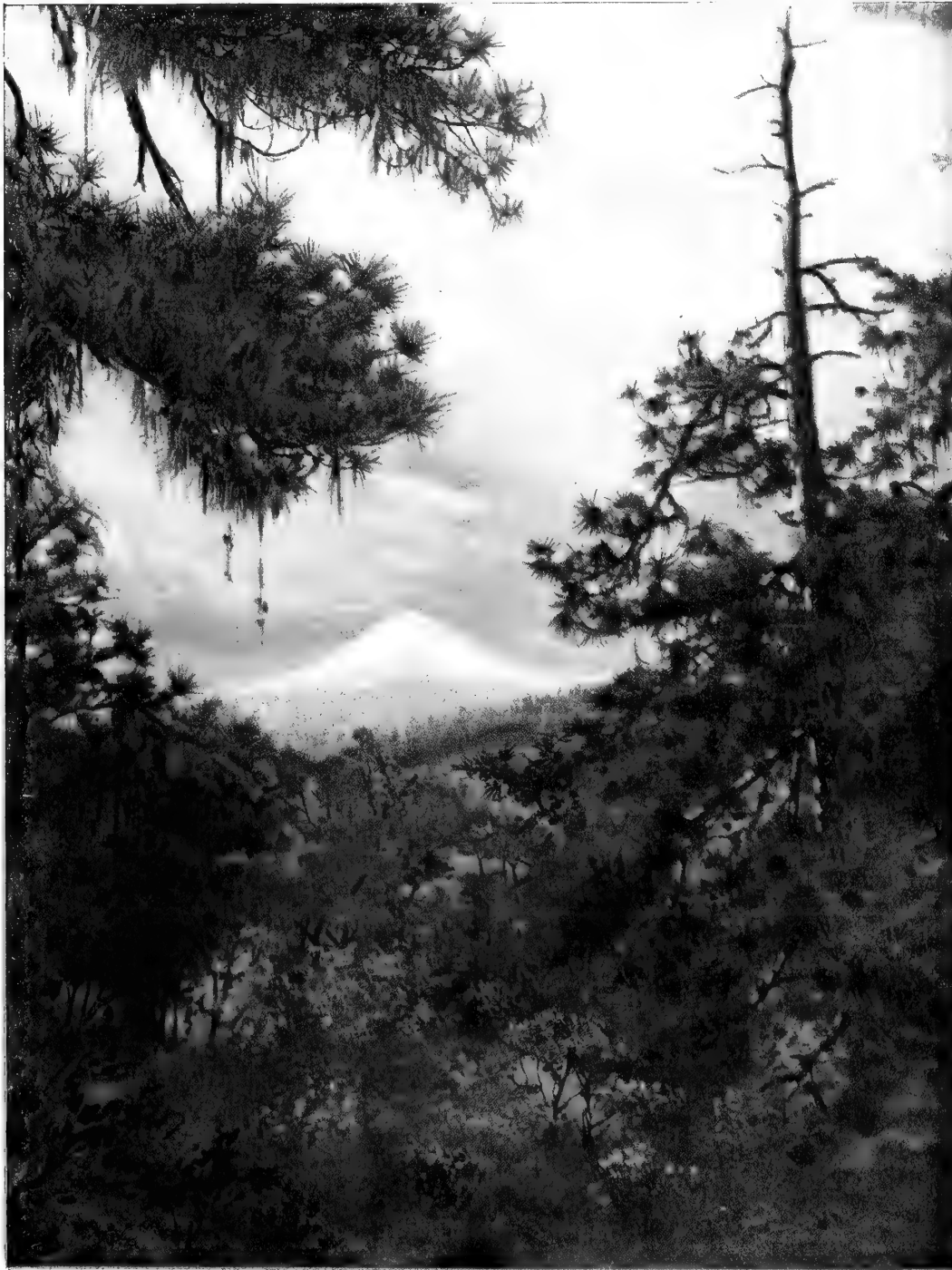
BETTER FRUIT

VOLUME VI

DECEMBER, 1911

NUMBER 6

PRUNING AND PLANTING EDITION



MOUNT McLOUGHLIN (FORMERLY MOUNT PITT) FROM A POINT NEAR MEDFORD
This majestic mountain rises to a height of 9760 feet and
dominates the landscape for many miles

BETTER FRUIT PUBLISHING COMPANY, PUBLISHERS, HOOD RIVER, OREGON

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Where the Wormless Apples Grow

Smudging Is Unnecessary

There has not been a killing frost on the bench lands in the growing season in the history of the Valley. There are no dust storms.

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on a matured apple orchard of only ten acres.

Undeveloped land in this remarkable fruit district can still be bought for less money than is asked in other valleys less perfectly adapted by nature for successful fruit growing. Values now range from \$250 to \$350 per acre.

Developed tracts of ten acres, with contract to cultivate and care for same to five-year maturity, cost only \$5,000 if purchased now. Easy terms of payment for both developed and undeveloped land.

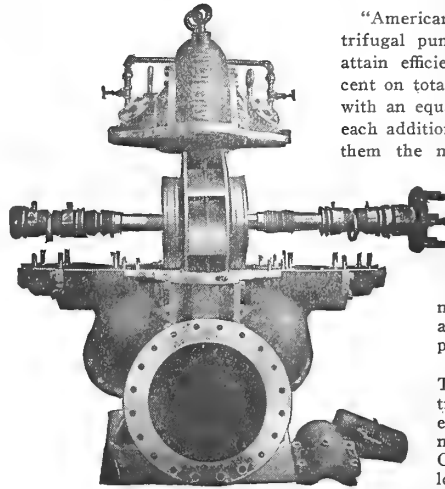
Detailed information upon request.

Bitter Root Valley Irrigation Co.

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"American" single stage centrifugal pumps are guaranteed to attain efficiencies of 60 to 80 per cent on total heads up to 125 feet, with an equal increase in head for each additional stage, which makes them the most economical pump made for irrigation purposes.

"American" centrifugals are made in both horizontal and vertical styles, in any size, in any number of stages, and are equipped with any power.

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The American Well Works

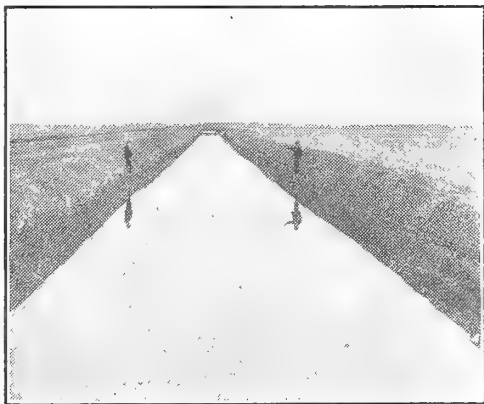
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Chicago Office: First National Bank Building

PACIFIC COAST SALES AGENCIES:

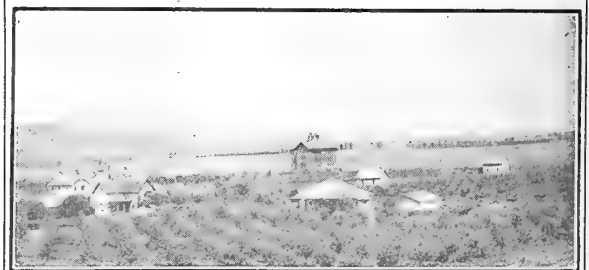
70 FREMONT STREET, SAN FRANCISCO
341 SOUTH LOS ANGELES STREET, LOS ANGELES
SECOND AND ASH STREETS, PORTLAND, OREGON
1246 FIRST AVENUE SOUTH, SEATTLE
305 COLUMBIA BUILDING, SPOKANE

THE GRAVITY IRRIGATION SYSTEM OF THE SPOKANE VALLEY

Has developed the greatest apple and berry district of the West. Nearness to market causes larger net returns than in any other locality. Seventy-two trains daily through the valley. Every modern convenience. "Life's journey is swift; let us live by the way." The Spokane Valley has the unique distinction of being the only established apple district near a big city. Think what that means and investigate. Five thousand contented settlers.



THE BEST
IRRIGATION
SYSTEM
IN THE
WEST



HOMES AND SCHOOL IN THE
SPOKANE VALLEY

SPOKANE VALLEY IRRIGATED LAND CO.

401 SPRAGUE AVENUE, SPOKANE, WASHINGTON

Hood River and Hood River Valley at the Close of 1911

In Hood River numerous and important improvements are under way. The system of city water supply heretofore owned and operated by a private corporation has been purchased by the municipality. Additional mains are being laid preparatory to connecting with a new source of supply of ample volume and unquestioned purity in a spring six miles out towards Mount Hood. This will furnish abundant water of a quality equal to that of the famous Bull Run water of Portland, the head of the stream in each case being among the glaciers and snows of Mount Hood. New lines of sewers are being put down and old lines extended. Upwards of fifty blocks of cement walk have been laid during the year, and the streets of the business district, about twenty blocks in extent, having been graded, will next spring be paved in cement over a base of crushed rock.

A new passenger station of brick and cement, heated by steam, lighted throughout by electricity, and costing \$30,000, was built during the summer by the Oregon-Washington Railroad & Navigation Company and occupied in September. Two brick business blocks, 50x100 and 100x100, are now in course of erection, for use as store-rooms and apartments. There is also building a church edifice for the Congregational Society of Hood River. The walls are constructed of the blue stone of the Valley. A park has been set aside as a site for a public library, and arrangements are now in progress for a building and equipment to cost \$20,000.

The present population of Hood River City is 2,500; the capital of its three banks, \$225,000, with surplus and undivided profits of \$50,000 and deposits of over \$1,000,000. In 1909, when there was but one bank, the deposits were \$36,000.

In the Valley eight miles of macadam roadway have been built, with as much more projected for next year, which will make possible a fine automobile spin "around the loop," and connecting later on with the wagon road now building over the sixty-six miles of mountain distance between Portland and Hood River, will make a scenic drive of unsurpassed grandeur and beauty. New homes—the bungalow, where cozy comfort dwells, and the spacious house, wherein all modern improvements contribute to luxurious ease—brighten the landscape in divers places.

Bearing orchards indicate by their fruit spurs a crop of upwards of a million boxes for 1912; "the planting of the apple tree" goes on with unabated vigor, and important sales of both uncleared and developed land attest the faith of investors.

HOOD RIVER COMMERCIAL CLUB

Arace G. Kauffman

Secretary.

IF YOU WANT TO MARKET
YOUR

FRUIT

RIGHT

ALWAYS SHIP TO

W. B. GLAFKE CO.

WHOLESALE FRUITS
AND PRODUCE

108-110 Front Street
PORTLAND, OREGON

W. H. DRYER W. W. BOLLAM

Dryer, Bollam & Co.

GENERAL
COMMISSION MERCHANTS

128 FRONT STREET

PHONES: MAIN 2348
A 2348 PORTLAND, OREGON

LEVY & SPIEGL

WHOLESALE
FRUITS AND PRODUCE
Commission Merchants

SOLICIT YOUR CONSIGNMENTS

Top Prices and Prompt Returns
PORTLAND, OREGON

Correspondence Solicited

Ryan & Virden Co.

BUTTE, MONTANA
Branch Houses:
Livingston, Bozeman, Billings
Montana
Pocatello, Idaho
Salt Lake City, Utah

Wholesale Fruit and Produce

WE HAVE MODERN COLD STORAGE FACILITIES
ESSENTIAL FOR HANDLING YOUR PRODUCTS
*A strong house that gives reliable market
reports and prompt cash returns*

The Old Reliable

BELL & CO.

Incorporated

WHOLESALE
FRUITS AND PRODUCE

112-114 Front Street
PORTLAND, OREGON

Richey & Gilbert Co.

H. M. GILBERT, *President and Manager*


Growers and Shippers of
YAKIMA VALLEY FRUITS
AND PRODUCE

Specialties: Apples, Peaches,
Pears and Cantaloupes

TOPPENISH, WASHINGTON

W. F. LARAWAY

DOCTOR OF OPHTHALMOLOGY

EYES TESTED  LENSES GROUND

Over 30 Years' Experience

Telescopes, Field Glasses
Magnifiers to examine scale

Hood River Oregon *and* Glenwood Iowa

Mark Levy & Co.

COMMISSION
MERCHANTS

Wholesale Fruits

121-123 FRONT AND
200 WASHINGTON ST.

PORTLAND, OREGON

SGOBEL & DAY

ESTABLISHED 1869

235-238 West Street NEW YORK

Strictly commission house. Specialists in
Apples Pears and Prunes. Exporters of
Newtown Pippins to their own represen-
tatives in England.

QUALITY QUALITY QUALITY

T.O'MALLEY CO.

COMMISSION MERCHANTS
Wholesale Fruits and Produce

We make a specialty
in Fancy Apples, Pears and
Strawberries

130 Front Street, Portland, Oregon

An Unqualified Success



IT HAS GIVEN EVERY PURCHASER ENTIRE SATISFACTION

Our first machine was sold to the owner of the finest orchard in the New England states. He writes:

Fitchburg, Mass.
October 3, 1911

Schellenger Fruit Grading Machine Co.

Dear Sirs — We have run your apple grader this year and it certainly has done fine work, relieving us entirely of the hard tedious work of the apple business—grading the fruit by hand.

Success to you.
(Signed) A. A. MARSHALL

Results this machine obtained for the growers in handling their 1911 crops

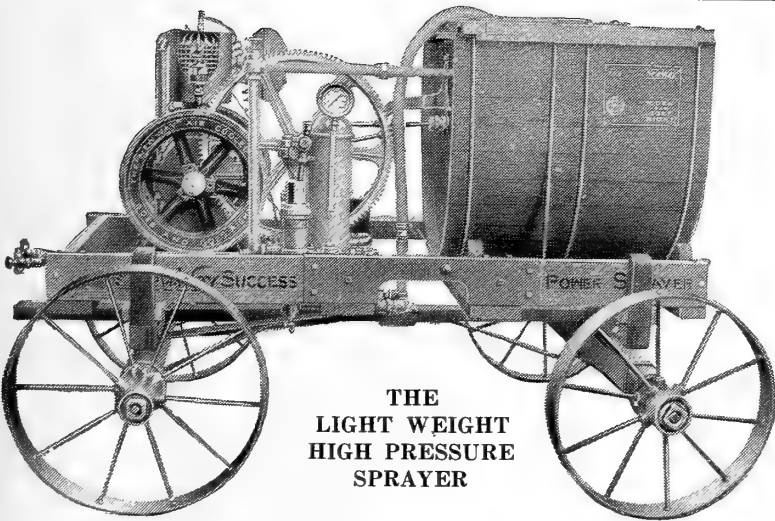
- First—Reduced cost of packing
- Second—Improved the quality and uniformity of the pack
- Third—Solved the labor problem

Schellenger Fruit Grading Machine Co.

INCORPORATED

633-635 South Fourth West Street, Salt Lake City, Utah

Our references { First, Our Customers
 { Secondly, Our Bank



THE LIGHT WEIGHT HIGH PRESSURE SPRAYER

\$1,000 CARLOAD PRIZE

of 630 boxes apples at National Apple Show were sprayed with

THE "New-Way"

HIGH PRESSURE POWER SPRAYER

You can do this with your orchard

with **THE "New-Way"**

TWIN CYLINDER "SUCCESS"

200 LBS. PRESSURE constantly all day long does the work. The "SUCCESS" is built to give this high pressure for many years.

THE ENGINE IS THE MOST IMPORTANT part of the sprayer. The "NEW WAY" AIR COOLED, is a farm engine for every day in the year and can be removed from platform in a few minutes. Ordinary sprayer engines are simply little toys that will only pump water.

SPRAYING IS DONE WITH A RUSH while good weather lasts. The "SUCCESS" is a light-weight outfit that permits rapid all day work anywhere, on hill side, uneven or ploughed land. Rapid work is what counts. Heavy outfits are too clumsy to move around.

TWIN CYLINDER PUMP GIVES steady pressure. Cylinders cast separate and fitted with bronze pistons with outside packing. The "SUCCESS" will give high pressure for years, where ordinary outfits play out after the first or second season.

Write to our nearest office today for our sprayer catalog No. S2.

THE "New-Way" MOTOR COMPANY
LANSING, MICHIGAN, U.S.A.

OR **John Deere Plow Co.** Portland, Spokane
San Francisco

TREES APPLE, CHERRY TREES PEAR, PEACH

MILTON NURSERY COMPANY
A. MILLER & SONS, Inc.

You cannot afford to take a chance in buying trees to plant for future profit. It requires knowledge, experience and equipment to grow reliable nursery stock.

OUR 33 YEARS' EXPERIENCE in growing first-class trees, true to name, for commercial orchards, insures our customers against any risk as to quality and genuineness of stock.

Orders are now being booked for fall delivery 1911. Catalog and price list free for the asking. Address all communications to

MILTON NURSERY COMPANY, Milton, Oregon

SLOCOM'S BOOK STORE

**Office Supplies
Stationery**

Ledgers, Journals, Time Books

Memorandum Books

Rubber Stamps

Souvenir Postals Picture Frames

SEATTLE

Increased 194 per cent in population, according to Uncle Sam's last census. This is more than any other large city in the PACIFIC NORTHWEST.

WASHINGTON

Leads all states of the Union in growth, having increased 120.4 per cent, according to the same authority. If you want accurate information about Seattle and Washington, subscribe for

PACIFIC NORTHWEST COMMERCE

The official publication of the Seattle Chamber of Commerce. Comes monthly, \$1.50 a year.

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Burpee's Seeds that Grow

140 VARIETIES ANY QUANTITY

Plenty of stock in our 40,000 pounds
Growing Plants as season requires

All makes high grade

**Pruning Tools
Garden Tools
Hose and Spray Nozzles
International Stock and
Poultry Food
International Remedies
Incubators and Brooders**

Everything for Building
Everything for Furnishing

Stewart Hardware & Furniture Co.
Hood River, Oregon
22,000 feet floor space

Spitzenbergs and Newtowns

**FROM THE
Hood River Valley
Oregon**

Took the first prize on carload entry at the Third National Apple Show, Spokane, Washington, and Chicago, Illinois, 1910.

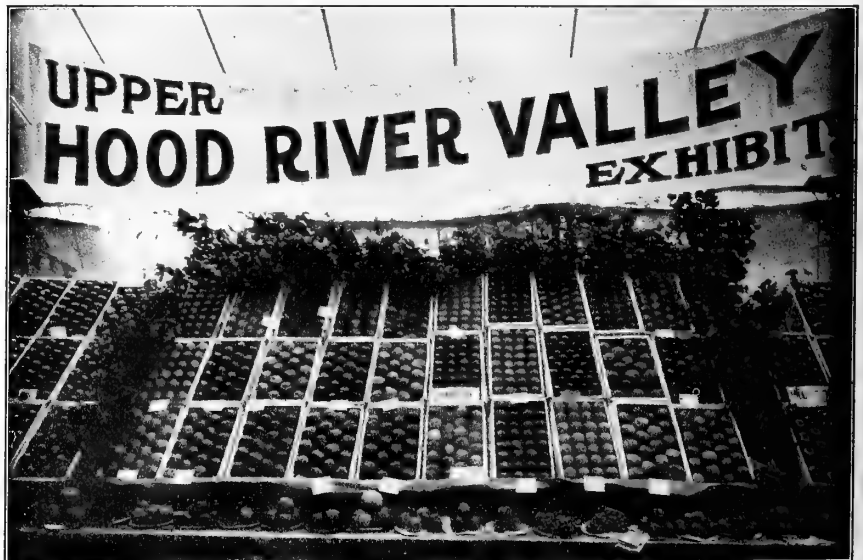
The Spitzenberg car scored, out of a possible 1,000 points, 997. The Newtown car, out of a possible 990 points, scored 988.

The Spitzenberg carload also won the championship carload prize at this show.

Can You Beat It?

We have got land improved and unimproved that is growing such fruit and that can grow it.

We are agents for the Mount Hood Railroad Company's logged off lands in Upper Hood River Valley. Many started in a small way; today they are independent. You can begin today. It pays to see us. Send today for large list of Hood River orchard land, improved and unimproved, and handsome illustrated booklet.



The above picture shows a prize-winning exhibit of Upper Hood River Valley apples at the Hood River Apple Show

W. J. BAKER & COMPANY

HOOD RIVER, OREGON

The oldest real estate firm in Hood River

Best apple land our specialty

WE WANT TO TALK BUSINESS

WITH EVERY SHIPPER OF

APPLES PEACHES PEARS

IN

California, Oregon, Washington, Idaho, Colorado, Utah, Nevada

WRITE US TO-DAY, stating varieties, quantity and probable quality of fruit you expect to ship. Look up our standing; ask "Better Fruit" or your bank

Robt. T. Cochran & Co. 290 Washington Street NEW YORK



No Danger from Frosts to Your Crops and Fruits

if you have a "Tycos" Alarm Thermometer installed. It saves the expense and labor of having your heating or "smudging" device running at unnecessary times, and warns you with certainty of approaching frost. It is indispensable to the orchardist and fruit grower. It pays for itself every year if there is no frost, and may pay for itself a hundred times over by giving the "frost alarm" when danger is least expected.

A "Tycos" ALARM THERMOMETER Rings Warning in Your Ears

at just the right time. The bell can be located anywhere desired. It rings when the temperature reaches the point of danger—the "frost alarm" flashes over the wires from the place where the thermometer is located.

When you buy any kind of a thermometer always look for the name "Tycos"—there's a "Tycos" thermometer for every purpose. The name is your protection and our guarantee. Write for booklets, "Thermometer Facts," "Tycos Tips for Butter Makers," "The Thermometer Book," etc.

The entire system is so simple that anyone can install it. That it is made for lasting, reliable service is guaranteed by the name "Tycos" which means on a thermometer instrument what the eagle means on a dollar.

The "Tycos" Automatic Alarm Thermometer may be installed in Single Alarm Thermometers or Annunciator Connection Systems. If your dealer can't supply you, write us.

We will mail you free our booklet showing diagrams of the systems, which explain with simplicity the installation and operation of the "Tycos" Automatic Alarm Thermometer.

WRITE TODAY FOR IT

Taylor Instrument Companies

105 Ames St., Rochester, N. Y.

"Where the Thermometers come from"



This Light Weight Grader Will Solve Your Irrigation Problems

It is an all-steel one-man machine. It weighs only 600 pounds. It will stir your soil, level your land, cut laterals, pick up dirt and drop it where you want it, and cut ditches 24 to 36 inches deep at a cost of 2 cents a rod. It will do more work than big heavy graders in less time and with less effort. One man with two horses operates it. Ditches cut with the 20th Century Grader are "V" shaped, with firm, solid sides—no fear of their being washed down.

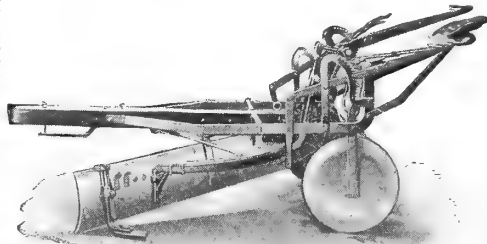
20th Century Grader

is a many purpose, easily operated machine that pays for itself over and over again and puts money into your pocket.

To get big results your work must be right, so you must have the right machine.

Let us tell you what others say about this wonderful machine. We want to prove to your satisfaction that it's a genuine money-maker. There are many uses to which the 20th Century Grader is specially adapted and many ways you can make big money by using it on your own land and on your neighbors'.

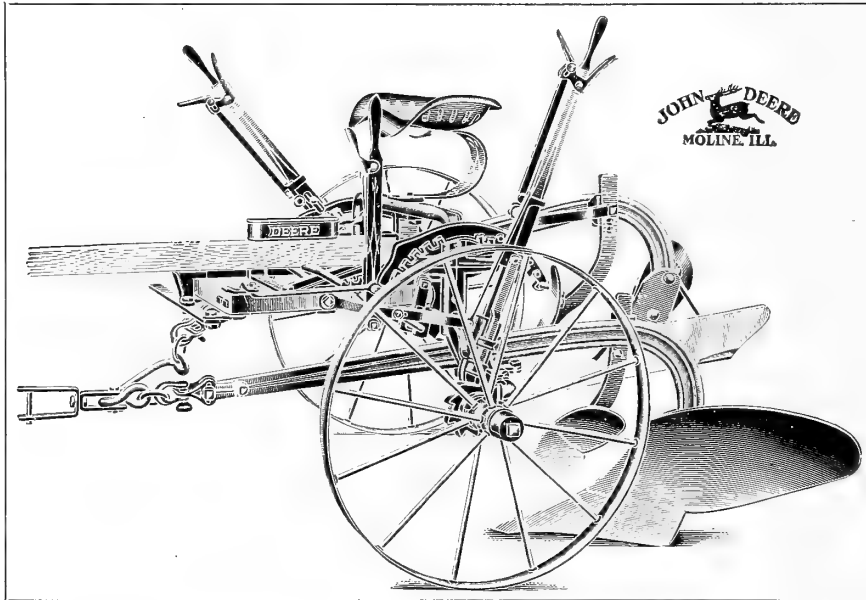
Write for our interesting and valuable free book giving full information about this money-making machine, what it has done for thousands and will do for you.



THE BAKER MANUFACTURING CO.

542 Hunter Building
CHICAGO, ILLINOIS

The John Deere Two Way Sulky Plow



Adapted to
Irrigated or Hilly
Sections

Throws the furrow all one way—no back furrow, no dead furrow—no ridging of the land. Furnished with either Steel or Cast Bottoms

Write for
Illustrated Circular

JOHN DEERE PLOW CO. OF PORTLAND, OREGON

PORTLAND

SPOKANE

BOISE

TERMINAL ICE AND COLD STORAGE CO.

A COLD STORAGE PLANT, MODERN THROUGHOUT, AT
THIRD AND HOYT STREETS, PORTLAND, OREGON

Fruit growers or apple growers and dealers of the Western markets in and around Portland, who have watched the markets closely for the past few years, have learned that in the spring there is always a good demand for apples, and that they usually bring good prices if they are in good condition. There is only one way to keep them in good condition for spring consumption, and that is to put them in cold storage.

We offer the best of cold storage facilities in the city of Portland and solicit correspondence from all the associations and fruit growers in general who want to store fruit in the fall or early winter to be used in the spring.

Write us and we will give you further particulars.

TERMINAL ICE AND COLD STORAGE CO.

THIRD AND HOYT STREETS, PORTLAND, OREGON

WOULDN'T YOU

Like to move to a new country if it was not
for the PIONEERING?

OPPORTUNITY

Is a new fruit district (under irrigation five years) but three miles from the city of Spokane in the famous Spokane valley. All our tracts have electric lights, domestic water, telephones, in fact every modern convenience. Large profits and an ideal home.

Get particulars from OPPORTUNITY-VERA LAND CO.
403 Sprague Avenue, Spokane, Washington

The American Express Company, in connection with the National Express Company, having named exceptional rates on apples, we will deliver to any point in the United States or Canada where the American Express or the National Express Company has an office

ONE OF OUR WELL KNOWN SEVENTEEN POUND BOXES OF

Extra Fancy Hood River Apples

AT FOLLOWING PRICES, ALL CHARGES PREPAID (excepting duty charges)

Spitzenbergs, \$2.25; Newtowns, \$2.25; Ortleys, \$2.25; Winter Bananas, \$2.50

Express Money Order, Check or Cash should accompany all orders. To points beyond the American or National Express lines 30 cents should be added to cover additional express charges

None but Extra Fancy Apples
shipped in these packages

Crocker & de Reding, Hood River, Oregon

Our Unparalleled Clubbing Offer

“Better Fruit” offers to its readers what it considers the finest list of clubbing offers ever placed before the public in the Northwest. Its variety is one that must appeal to readers of all classes. Look it over carefully, select the one you want and send us the proper amount and we will do the rest.

The Ladies' World.....\$.50	The Etude .....\$1.50	Pacific Monthly .....\$1.50	Woman's Home Companion..\$1.50
Modern Priscilla ..... .75	“Better Fruit” 1.00	“Better Fruit” 1.00	McClure's 1.50
“Better Fruit” 1.00			“Better Fruit” 1.00
Total .....\$2.25	Total .....\$2.50	Total .....\$2.50	Total .....\$4.00
All for 1.85	Both for 2.00	Both for 1.75	All for 3.00
<hr/>			
Garden Magazine .....\$1.50	American Bee Journal.....\$1.00	Success and National Post..\$1.00	Weekly Oregonian .....\$1.50
American Magazine 1.50	“Better Fruit” 1.00	American Magazine 1.50	“Better Fruit” 1.00
“Better Fruit” 1.00		“Better Fruit” 1.00	
Total .....\$4.00	Total .....\$2.00	Total .....\$3.50	Total .....\$2.50
All for 2.90	Both for 1.65	All for 2.70	Both for 1.75
<hr/>			
Delineator .....\$1.50	Review of Reviews.....\$3.00	Delineator .....\$1.50	Sunset .....\$1.50
Good Housekeeping 1.50	Scribner's 3.00	Success and National Post.. 1.00	“Better Fruit” 1.00
“Better Fruit” 1.00	Good Housekeeping 1.50	Everybody's 1.50	
	“Better Fruit” 1.00	“Better Fruit” 1.00	Total .....\$2.50
Total .....\$4.00	Total .....\$8.50	Total .....\$5.00	Both for 1.90
All for 2.75	All for 6.00	All for 3.60	
<hr/>			
Scientific American .....\$3.00	Everybody's .....\$1.50	Good Housekeeping .....\$1.50	Everybody's .....\$1.50
“Better Fruit” 1.00	American Magazine 1.50	Success and National Post.. 1.00	St. Nicholas 3.00
	Delineator 1.50	American 1.50	“Better Fruit” 1.00
Total .....\$4.00	“Better Fruit” 1.00	Cosmopolitan 1.50	Total .....\$5.50
Both for 3.50	Total .....\$5.50	“Better Fruit” 1.00	All for 4.50
	All for 3.90	Total .....\$6.50	
<hr/>			
Fruit Grower (St. Joseph)..\$1.00	Housekeeper .....\$1.50	Century .....\$4.00	Breeders' Gazette .....\$1.75
“Better Fruit” 1.00	Review of Reviews..... 3.00	Everybody's 1.50	“Better Fruit” 1.00
	McClure's 1.50	World's Work 3.00	Total .....\$2.75
Total .....\$2.00	“Better Fruit” 1.00	“Better Fruit” 1.00	Both for 2.00
Both for 1.50	Total .....\$7.00	Total .....\$9.50	
	All for 4.50	All for 6.60	
<hr/>			
The Ladies' World.....\$.50	Country Life in America...\$4.00	Country Life in America...\$4.00	World's Work .....\$3.00
Pictorial Review 1.00	Review of Reviews..... 3.00	World's Work 3.00	Everybody's 1.50
Modern Priscilla ..... .75	McClure's 1.50	Everybody's 1.50	Delineator 1.50
“Better Fruit” 1.00	“Better Fruit” 1.00	Delineator 1.50	“Better Fruit” 1.00
Total .....\$3.25	Total .....\$9.50	“Better Fruit” 1.00	Total .....\$7.00
All for 2.15	All for 6.75	Total .....\$11.00	All for 4.50
		All for 7.75	
<hr/>			
Good Housekeeping .....\$1.50	Country Life in America...\$4.00	Kansas City Weekly Star...\$.25	Garden Magazine .....\$1.50
Cosmopolitan 1.50	Outing 3.00	“Better Fruit” 1.00	“Better Fruit” 1.00
World Today 3.00	“Better Fruit” 1.00	Total .....\$1.25	Total .....\$2.50
“Better Fruit” 1.00	Total .....\$8.00	Both for 1.00	Both for 1.90
Total .....\$7.00	All for 6.25		
All for 3.70			
<hr/>			
Review of Reviews.....\$3.00	Review of Reviews.....\$3.00	Woman's Home Companion..\$1.50	Good Housekeeping .....\$1.50
McClure's 1.50	Woman's Home Companion. 1.50	“Better Fruit” 1.00	Pictorial Review 1.00
Scribner's 3.00	McClure's 1.50	“Better Fruit” 1.00	“Better Fruit” 1.00
“Better Fruit” 1.00	“Better Fruit” 1.00	Total .....\$2.50	Total .....\$3.50
Total .....\$8.50	Total .....\$7.00	Both for .....\$1.80	All for 2.50
All for 6.15	All for 4.50		

These rates do not apply in Canada owing to extra postage

Pearson-Page Co.

131-133 Front Street
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Superior facilities for handling

**PEACHES
APPLES AND
PEARS**

Solicit Your Consignments

Reliable Market Reports Prompt Cash Returns

YAKIMA COUNTY HORTICULTURAL UNION

North Yakima, Washington

C. R. Paddock, Manager

Apples, Pears, Peaches, Cherries
Plums, Prunes, Apricots, Grapes
and Cantaloupes

Mixed carloads start about
July 20. Straight carloads in
season. Our fruit is the very
best grade; pack guaranteed

We use Revised Economy Code

Why Bother with Irrigation?

ASK

PHOENIX LUMBER CO.
SPOKANE, WASH.

ABOUT

Cut Over Lands

YOU CAN BUY CHEAP

W. E. BIGALOW, President

Capital and Surplus \$100,000.00
Established 1883

H. J. BIGALOW, Secretary and Treasurer

REFERENCES:

The First National Bank, Cleveland
All Commercial Agencies
The Produce Reporter Company
Any reliable house in our line in the
United States



SOME OF OUR SHIPPERS—REFERENCES

California Growers' Exchange, Los Angeles, Cal.
California Fruit Distributors.
Earl Fruit Company.
Pioneer Fruit Company.
Producers' Fruit Company, Sacramento, Cal.
Stewart Fruit Company, Los Angeles, Cal.
Atwood Grape Fruit Company, Manavista, Fla.
Florida Citrus Exchange, Tampa, Fla.
W. G. Martin, Castleberry, Ala.
Sylvester Fruit Co., Sylvester, Ga.
Gibson Fruit Co., Chicago, Ill.
Mills Bros., Chicago, Ill.

*Commission
Merchants*

*Jobbers and
Wholesalers*

CLEVELAND, OHIO

*Apples, Plums, Prunes, Pears,
Peaches, Grapes*

We have the largest and best trade in the Cleveland territory; our facilities are unsurpassed
We have had years of experience in handling box apples and fancy fruits

We solicit your correspondence and shipments

CARLOT DISTRIBUTORS
OF

BOX APPLES
Box Pears Box Peaches

Largest handlers of box fruit in this
territory. Best modern storage facili-
ties. Reliable market reports.

Top Prices
Prompt Returns

E. H. SHAFER & CO.
212 Coleman Building
Louisville, Kentucky

SOUTHERN OREGON NURSERIES

YONCALLA, OREGON

No Agents
Prices Wholesale

GENERAL NURSERY STOCK PROPAGATORS

Stock clean and true. Budded or
grafted from bearing trees

E. P. DREW
Consulting Horticulturist

30 years in business

The PARIS FAIR

Hood River's largest and best store

Retailers of
EVERYTHING TO WEAR

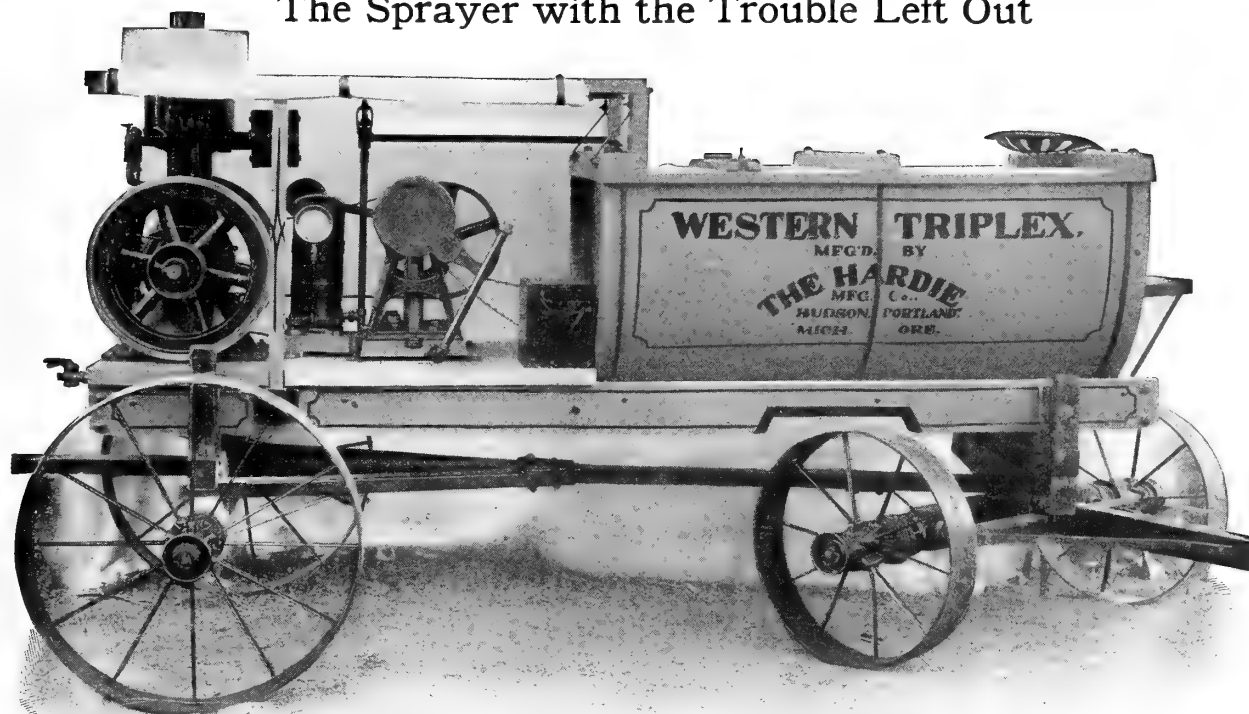
Agents for
**HAMILTON & BROWN AND
THE BROWN SHOES
HART, SCHAFFNER & MARX
CLOTHES**

**MANHATTAN SHIRTS
JOHN B. STETSON HATS
NEMO CORSETS**

Strictly Cash—One Price to All

The HARDIE TRIPLEX

The Sprayer with the Trouble Left Out



Each year demonstrates the fact that the Hardie Triplex is best adapted to Northwestern orchard conditions.

This machine is built to work successfully in any kind of an orchard, whether it is closely set or open, level or hilly.

By using good materials in construction, we give you light weight without sacrifice of strength.

All the liquid you need and at an even continuous high pressure.

A Hardie Triplex means to you Better Spraying in less time and at lowest cost.

A postal card brings you our new 64-page catalog; giving a detailed description of the construction of our Triplex and twenty other hand and power sprayers; new spraying devices, etc.

Write for it today.

The Hardie Manufacturing Company

Hudson, Michigan

49 North Front Street, Portland, Oregon



Eighteen Months Pear Tree
Corn Between Rows
Subirrigated Soil

Rogue River Valley Fruit Ranch

This 280 Acre Tract only \$28,000—Terms

About 60 acres commercial pears 1 and 2 years old; about 72 each.
About 10 acres Spitzenberg and Newtown apples, mostly 2 years old.
About 10 acres Crawford and Elberta peaches, mostly 2 years old.
About 2 acres mixed family bearing orchard.
About 10 acres alfalfa and for garden truck and potatoes, under irrigation, and about 10 acres more to be gotten ready for such.

Excellent Irrigation Water Right
Springs and Creek on the Property

A. N. PARSONS, Real Estate, Grants Pass, Oregon

References by permission: First National Bank; Grants Pass Banking and Trust Company

THE OLD RELIABLE Albany Nurseries

Received highest award for display of apple trees at the big California Apple Show at Watsonville.

The above speaks for us.

For good grade of nursery stock and right prices address

The Albany Nurseries
(INCORPORATED)
ALBANY, OREGON

Salesmen wanted. Easy to sell our trees.

Mount Arbor Nurseries

E. S. WELCH, Proprietor 130 Center Street, SHENANDOAH, IOWA

Apple Seedlings—Fine stock, all grades, grown on new land and free from disease

Apple and Pear Grafts

Japan Pear Seedlings

Napoleon Cherry—1 year

Bartlett Pear—1 and 2 years

Carolina Poplars—1 year and larger in CAR LOTS

Make a specialty of a Complete Line of General Nursery Stock

We have superior storage facilities and carry a large assortment of stock in storage for winter shipments

Let us quote your wants

The Tim Kelly Nurseries **TIM KELLY** PROPRIETOR

WAPATO, WASHINGTON

Two Million Trees for Fall and Spring Planting

I have a splendid stock of APPLES, PEACHES, PEARS, PLUMS, PRUNES, ORNAMENTAL TREES AND ROSES

For Special Prices write to **TIM KELLY, Box 197, WAPATO, WASHINGTON**

Two Large and Reliable Dealers in Western Orchard Lands

(BOTH COMPETITORS OF OURS)

Said that We Were Developing the Best Orchards in the United States

The A. C. Bohrnstedt Co.
316-317 U. S. National Bank Building
Salem, Oregon

Gentlemen: I have \$.....to invest in an Orchard Home. Please send me your Artistic Booklet descriptive of Orchard Homes at Creswell, Oregon.

Name
Address

DO YOU WANT THE BEST?

If so, send to-day for our Artistic Booklet descriptive of Orchard Homes at Creswell in the beautiful Willamette Valley of Oregon

The A. C. Bohrnstedt Company

316-317 U. S. National Bank Building, SALEM, OREGON

Other Offices, 917 Andrus Building, MINNEAPOLIS, MINNESOTA

First Grand Prize

Awarded to Mosier every year. Is receiving the highest prices paid for apples in the United States.

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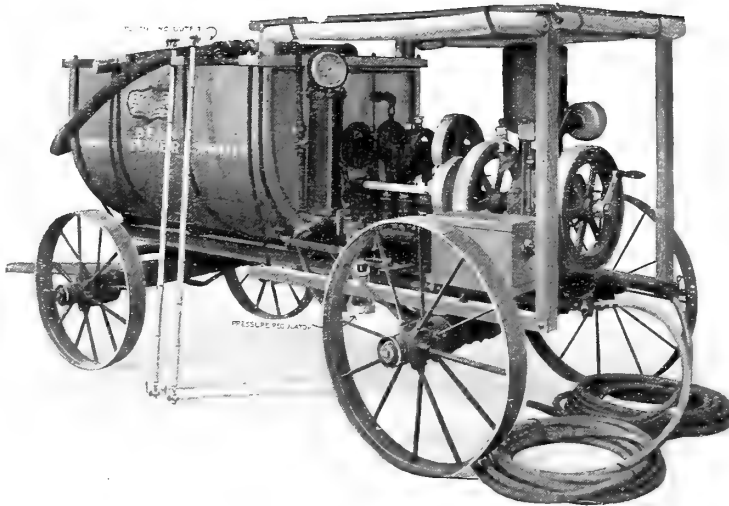
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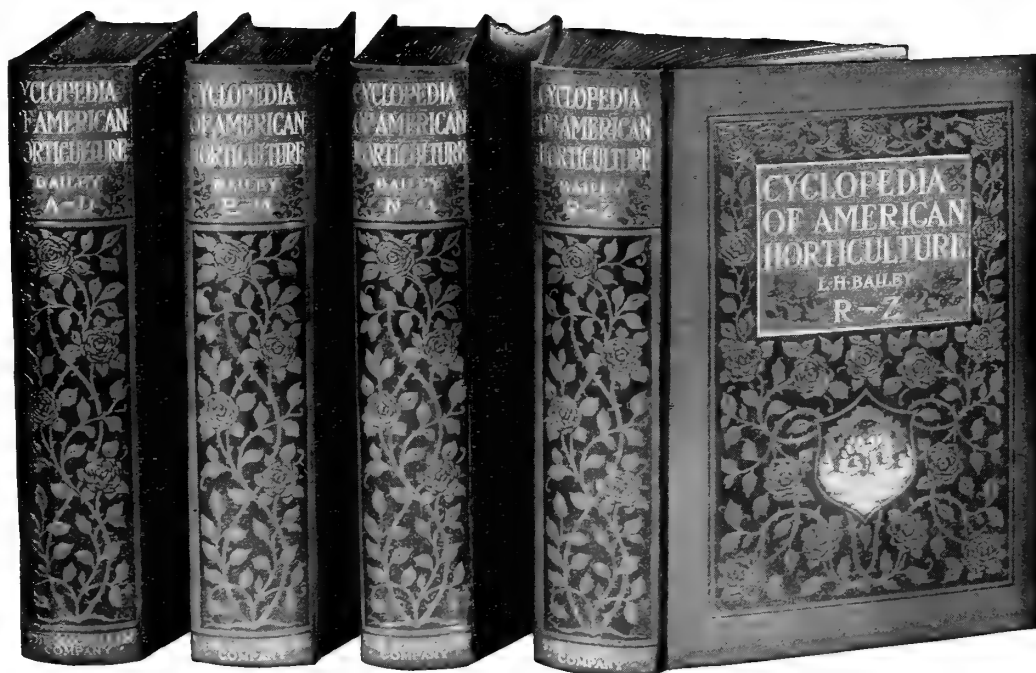
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BETTER FRUIT

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

Pruning, or the Training of Fruit Trees

By E. N. Benson, Hood River, Oregon

PRUNING is the most important work in orchard culture and one the least understood by many of the growers. The first important thing to be considered in the starting of a young orchard should be the system of pruning, of which there are two distinct types. One being the open-headed and the other the center-shoot system. They both have their advantages and disadvantages as well, though personally I prefer the center-shoot system, hence this article will treat on the center-shoot system only. I will say, however, as regards the open-headed or vase system, which is preferred by many growers, that it is all right provided it is properly pruned from the start. There is one disadvantage, however, in the open-head system in that the trees will frequently split down with the first lot of fruit, which is a great loss to the grower, it having taken six or seven years to get the tree into that period.

I will now attempt to explain the benefit of center or leader system. In starting the tree with the leader system you would start with three branches and leader, and each year lead out another branch or two from the leader until you would have the required num-

ber, as about six to eight branches from the leader. Now, the advantage in this is that in place of carrying the load on three or four main branches, all starting at the same point, you have the branches distributed along the main trunk at a distance of five or six feet,

when the tree is pruned and leave your center leader. By so doing the dormant buds below will be forced out the second year and make strong branches, which will grow out in more of a horizontal shape from the main stalk. These make very strong main branches, as you may bend them clear to the ground without breaking them off from the trunk. However, it is necessary to see that the stalk you plant has a sufficient number of buds at least one foot below where you head your tree.

Figure 1 illustrates a one-year-old tree after planting, and you will notice it has a number of sharp forks close to the leader. In Figure 2 you will notice these have all been removed but three of the lower branches, which are intended to form the three main lower branches of the tree. The leader is cut back to about eighteen inches, and this in turn will rebranch, and from this you lead out another branch or two in such a manner as to come out between those that you first started below. You should then proceed in the same manner and cut out the sharp forks and leave those that would make strong main branches, and lateral branches will also be cut back. Figure 3 represents a two-year-old tree before pruning. This, however, had the limbs thinned out during the summer, so that

Features of this Issue

PRUNING, OR THE TRAINING OF FRUIT TREES

BUILDING OF AN APPLE ORCHARD

SCIENCE OF PRUNING AND SHAPING OF FRUIT TREES

THE APPALACHIAN MOUNTAIN ORCHARDS

THE ART OF SUMMER PRUNING

SPECIAL VARIETIES FOR PARTICULAR SECTIONS

THE CHARPIT METHOD OF DESTROYING STUMPS

CO-OPERATION IN THE MARKETING AND HANDLING OF FRUIT

and in place of carrying the load on three or four branches you have it distributed on six or eight branches, and for this reason I believe that the center-shoot system has a great advantage as regards strength to hold a load of fruit with less support than the open-headed system.

The term "avoid forks" is often used in pruning, though the writers fail to explain how to proceed in order to avoid those forks. When you start a tree it should be headed after planting at the desired height, which in most climates and most conditions would not be over twenty-four inches from the ground. Now, this tree, after starting its growth, will sometimes throw out sufficient branches to form a good head the first season, while again at other times it will only throw out two, three or four branches, which all make sharp crotches or forks, and all buds below that would only make leaf buds the first year. Many growers make a mistake right here. In starting new trees they will proceed at once to rub all these buds off, and the result is they have a very poor headed tree with a lot of sharp forks. In order to overcome this you should let all the buds grow the first year after planting, and if nothing but crotches is on your tree cut all of those crotches out the following spring



Figure 1—One-year-old tree after planting
Notice long limbs in center all
growing close together



Figure 2—Showing the same tree as in Figure 1
after it has been pruned. You will see all the
forks cut out and three limbs and a leader left.
Notice all three limbs come out at right angles
from the trunk.



Figure 3—Representing a two-year-old tree before pruning.

about all the pruning necessary is to cut or head the limbs back to the required distance. There is another thing I wish to mention in connection with cutting back; where a strong wind from one direction prevails during the growing season it is always necessary to cut to buds toward the wind in such manner as to force the tree against the wind and keep it from blowing over. This, however, is not necessary where there is no prevailing wind direction, and where this is the case the tree should be cut according to its habit of growth. If it is a close growing variety it is necessary to cut to outside buds, while a spreading variety should be cut to upper and inside buds in order to hold it up and off the ground. You will notice in Figure 3 that the



Figure 4—Representing the same tree as shown in Figure 3, after having been pruned. You will notice that it has five limbs and a leader.

tree has five branches and that the center and the leader are considerably higher than the rest of the branches. Figure 4 represents the same tree as Figure 3 after having been winter pruned. The cutting back should be done with a view of having a leader, so to speak, on each one of the main branches, and in this regard is treated quite similar to the center shoot or leader. The cutting back should be done according to the local conditions. In a windy climate it is necessary to cut a tree much heavier to make it stocky, so it will stand up against the wind, while where less windy you can leave more wood and get a large tree much quicker. Figure 5 represents a three-year-old tree before being pruned. You will notice from this illustration that this tree was pruned during the summer, the unnecessary limbs were removed and some of the limbs headed back. This was done to make the wood strong and stocky, which is frequently necessary in order to obtain the desired results, especially where a strong wind prevails during the growing season. You will notice the strong, stocky appearance in Figure 6, which represents the three-year-old tree after having been properly headed back. This tree now has eight branches leading out from the center leader, which is ample to make a good, strong tree. This was cut back in winter pruning to about eighteen inches of the last year's wood. Figure 7 represents a four-year-old tree before being winter pruned. This tree had the unnecessary limbs thinned out during the summer, but no cutting back was done on the branches left, which made a growth of about four feet. You will notice in this illustration that there are numerous fruit spurs all along the main branches and that the leader is about eight feet high. Toward the top lateral branches have been brought out. Figure 8 represents the four-year-old tree after having been cut back in the winter. This was not cut back as severely as the younger trees, as the shape of the tree at this age is practically made. It is always advisable to leave as much wood as possible, as the more wood you leave the more fruit bearing surface you will have. The ability of a tree to bear fruit depends largely upon the amount of fruit bearing wood you have, consequently as a tree gets older the cutting should always be lighter from year to year. By doing this your tree will start in bearing fruit sooner than it would if you continued to cut it back heavily. Some growers stop cutting back when a tree is four years old, and this is very well, provided your tree doesn't grow too tall and slim, which should always be avoided, particularly in slim growing varieties. Figure 9 represents a five-year-old tree before pruning. This is a well balanced tree in every respect and has strong side limbs, and the center leader is practically gone. This tree was also summer pruned and all unnecessary

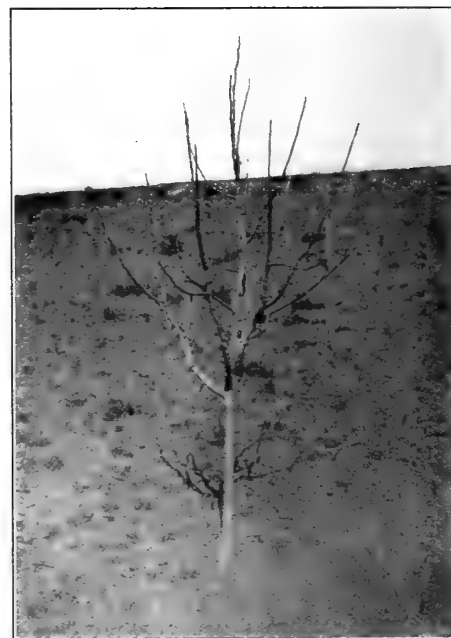


Figure 6—Representing a three-year-old tree after having been pruned. Notice the stocky appearance of all the limbs.

limbs cut out during the summer, while no cutting back was done until the following winter. The winter pruning in this tree, as shown in Figure 10, merely consists of cutting back to buds all the limbs left. When a tree gets to this age the cutting back should be stopped and only such of the limbs as grow stronger than the rest should be cut back; also such trees as might have too thin a top should be cut back sufficient to make them stocky and to rebranch sufficiently to make the necessary amount of bearing wood.

The pruning of a young tree should be done in such a way that when a tree gets to bearing age there are no



Figure 5—Representing a three-year-old tree before being pruned.



Figure 7—A four-year-old tree before being winter pruned. This tree had all the unnecessary limbs cut off in the summer.

large limbs that will need to be removed. The cutting of large limbs is always an unfortunate condition and should be avoided if possible by the proper pruning during the early life of a tree. Frequently an inexperienced pruner will leave too many limbs to start with, and about the time the tree is ready to come into bearing they will find it has too many limbs. As a result the fruit will be limb rubbed. Then, in order to overcome this difficulty, he will have to cut out large branches, and the cutting out of those large branches will throw the tree into wood growing when it should be bearing fruit. This is a very expensive and unfortunate condition which you will find in many orchards. I would also caution you about the over-bearing of young trees. Some varieties will start in bearing much younger than other varieties. Those varieties subject to over bearing



Figure 8—Representing a four-year-old tree after having been cut back in the winter

should be pruned heavier than the shy bearers in order to force the wood growth on the over bearers, while the shy bearers should be pruned lightly, and even summer pruned in order to force them into bearing. However, it is always advisable to leave all the wood on the tree that it will stand in order to produce first class fruit. Diseases of various kind sometimes affect a tree, or a heavy load of fruit, or storms of winter in the shape of sleet or snow, may affect some of the limbs, and if you thin your tree too much to start with you haven't got enough to spare a single branch in case of accident of any kind to your tree. By cutting off the injured or diseased limbs it would leave you without sufficient bearing surface on your tree to be able to get a good lot of fruit. Some growers frequently pride themselves on cutting their trees very heavily, and again others seem to be equally proud of letting their trees grow without any pruning. It should be your aim at all times to strike the happy medium. Prune your trees so that you have room to raise a good quality of fruit and at the same time have ample wood to bear a heavy load with as few props and other artificial supports as possible.

In cutting large limbs on old trees they should always be cut as close as possible to the main limb, and as soon as dry painted with white lead paint or else waxed. In waxing it would be necessary to repeat the operation probably every spring in order to keep it from cracking or peeling off, and the paint has the same drawback. A good many growers frequently make the mistake when their trees get old of not cutting back the long, slender limbs both in the top of the tree and the lower branches. From personal observation I have seen trees that grew from terminal buds for a period of five or six years. The result was that the trees had a number of long, slim branches without any side branches, and their bearing surface was too great. As a result the fruit was very small. Where this condition exists there is only one remedy, and that is to cut all the long limbs back. This pruning should be done in the winter, preferably on trees that over bear, while on shy bearers I would do all the pruning during the growing season. There is a difference of opinion as to when summer pruning should be done; local conditions should govern the time for this work more than anything else. In cutting back these large limbs on old trees, whenever it is possible to do so, they should be cut back to small side limbs. By doing this you will avoid a tree throwing out a number of sharp forks where the cuts are made. It is always preferable, however, to prune bearing trees lightly each year, and by so doing keep them continually in good shape, as the extra heavy pruning is liable to force a bearing tree into strong wood growth at the expense of fruit for a period of years. Outside of the cutting back very little



Figure 9—Five-year-old tree before pruning

pruning should be necessary in bearing trees, except cutting off the broken limbs or cross limbs. Of course, all watersprouts should be cut off during the summer, as the watersprouts hardly ever make fruit bearing wood. It sometimes is an advantage to cut back some of the small, slim branches inside of a bearing tree in order to keep them from crossing through the tree. By so doing you can save them and get fruit for a number of years, while if they were cut clean out it would merely lessen the productiveness of your trees just to the amount of the cutting you do.

What I have already said in regard to pruning of the apple will hold true to some extent about pears as well, though most pears, such as the Bartlett and similar varieties which have a tendency to fruit on terminal buds from last year's growth, should be cut back each season while young in order

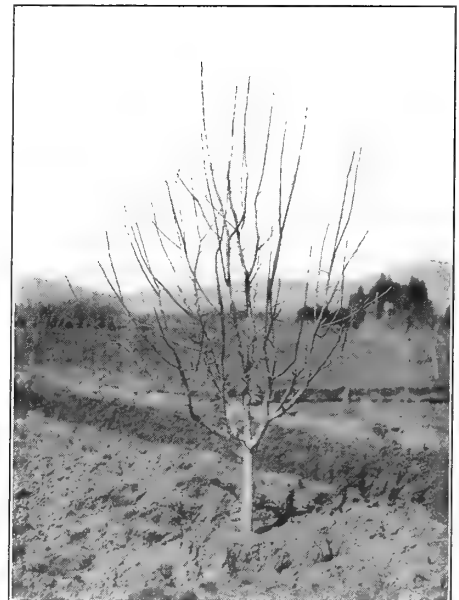


Figure 10—Representing a five-year-old tree after having been winter pruned. Notice all the little spurs on this tree.

to prevent these terminal buds on the main branches from fruiting, and also to keep the tree stocky, which is fully as essential with the pear tree as it is with the apple tree, as many pear trees grow soft wood which is not able to hold a heavy load of fruit without breaking the tree all out of shape. In pruning all the varieties of pears that have a very upright habit of growth, like the Bartlett, I have seldom used the center shoot, as it would have a tendency to make the tree altogether too compact. As regards pruning of cherry trees, there is no need of such a heavy cut back as in the apple. After the tree is once headed and has a good shape all the pruning necessary consists of merely cutting out limbs that would make cross limbs and thinning out the extra branches where they are too thick. After the tree gets to bearing age this pruning can be done to the best advantage just after the fruit is harvested.

There are numerous pruning tools on the market, a good many of which are of no particular use. The only tools I use from the time the trees are planted up to six or seven years old are a pair of small hand pruners, and after that I use the small hand pruners, three long-handled pruners, an eight-foot, a ten-foot and twelve-foot, and

also a fine tooth pruning saw. This is all the tools necessary to do good work. I prune everything I can reach with hand pruners, and on young trees frequently prune from a step ladder, especially on trees where it is desirable to cut to buds, which should always be done as long as it is possible to do so, as the close cuts will heal over quite readily and form no wounds that might start decay in the tree as it grows older. Whenever a grower hasn't had experience himself it would always be better to employ an experienced pruner to assist in the work, but good pruners are always scarce, and it is not advisable to take a man's word for it, as frequently the parties going around through the country and terming themselves expert pruners know but very little about it, and if turned loose in your orchard may do a great deal more harm than good. While on the other hand, a good, competent pruner to instruct you in your own orchard for a few days would be the cheapest help you could employ, as he would give you more ideas about pruning in one day than you could pick up in a month by yourself.

Where there is a strong prevailing wind it sometimes is necessary to stake trees. Many growers make a very serious mistake when they do stake

their trees by staking them too young. They will stake a young tree and tie it back; the result is that the limbs will blow over; then in order to overcome this it would be necessary to stake again with a taller stake and tie the branches to this stake. This is quite expensive and tedious work, and not at all satisfactory. In order to overcome this prune the tree carefully and leave it stand and sway with the wind until it is three or four years old. The top will then be practically straight with the trunk, so drive the stake firmly in the ground, pull the tree back and tie it up straight. As the top of the tree will be straight with the trunk and your tree well balanced, it is only necessary to tie it in one place, that is right about where you head the tree. By that time the lateral branches are so stiff and solid, if the tree has been growing well, that it will never blow over again, and if you keep it tied in this manner for three or four years the trunk will be sufficiently strong and stiff to be self-supporting. It sometimes is necessary to take precaution against the string cutting into the bark of the tree. The best preventive against this is a short piece of rubber hose slipped on the string at the time of tying the trees back.

Pruning, or the Building of an Apple Orchard

By A. I. Mason, Hood River, Oregon (Reprinted by request)

THE successful architect, before he plans to build a house, always selects some certain style of structure and then tries to follow it to completion. It is just so with the successful orchardist; he should first determine the style of structure of a tree that he desires and then follow it to completion. In other words, do not start an orchard by pruning a certain way one year and thereafter change it annually. If you do so, you will never obtain the desired results. If you want a tree with an open-center head or one with a center-stalk head you should begin your pruning with that fixed idea and follow it until completed. To obtain these two styles of trees requires an entirely different construction. I shall not attempt to describe in this article the construction of a center-stalk tree, for almost every horticultural paper or magazine has scores of writers who have been supplying us for years with their superior center-stalk arguments, and, I might add, that they never forgot to ridicule the open-center headed tree. Now, I will not be so severe on those writers, for I know they are honest and believe they are advocating the best method, yet I believe they are wrong, and I shall endeavor to prove it. I cannot forget some of the arguments I have had in years past with many prominent apple growers to whom I tried to explain wherein the open-center headed tree was by far superior. But time has

made some changes, and, being a natural born Missourian, I have tried to show them wherein an open-center headed tree, as I am growing, has many advantages over the center-stalk tree.

The building of an apple tree should begin when the tree is first set in the orchard—in fact the roots should be pruned before setting. Figure 1 shows a tree as it should be set. The bruised ends of all roots should be cut off smoothly, and if gnarled or crossed roots are found they should be pruned back so as to leave all roots pointing in as near a natural outward position as possible. After the tree is set and the dirt firmly pressed around it, being careful not to make it higher than the surrounding surface of land, you should then make your first pruning. If you have just one straight stalk, which I much prefer, you should make

your first cut about eighteen or twenty inches from the ground, as shown at "A," Figure 1, leaving the terminal bud toward the prevailing winds. If when setting your one-year-old trees you find some small side limbs below the twenty-inch cut, which is quite common with strong, vigorous trees, you should cut them back from two inches to four inches of the body of tree, as shown at "A," Figure 2. Always try to leave the stronger and longer stubs toward the prevailing winds; in fact when setting the tree you should always set the heaviest side limbs toward the wind. This rule will hold good with either one or two-year-old trees. I much prefer to set a one-year-old tree, and under no circumstances would I set a tree older than two years; and I might add that in selecting your trees be sure that you do not get large, overgrown, with all lower buds rubbed or cut off in the nursery. Get trees which will have at least a dozen good buds lower than twenty inches from the ground.

In cuts, as shown in this article, you will observe that each cut shows not only a tree of different age, but they are different trees—in fact all were taken by the same photographer at the same time. Figure 2 shows a tree just after pruning in the early spring following first year's growth. This was a one-year-old tree when set, and one which possessed three small side limbs. You will observe that all of these side

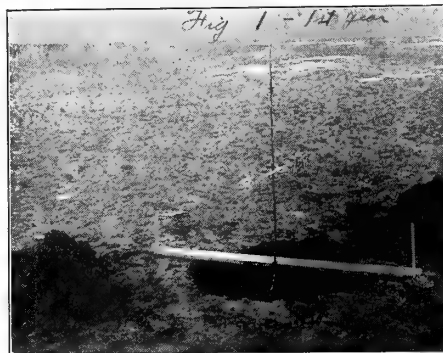


Figure 1—First Year



Figure 2—Second Year

limbs were cut back at setting time, as shown at "A," Figure 2. I also at this time cut out the center stalk just above the crotch formed by this whorl of three limbs. This we will designate as the first pruning. During the first few weeks' growth after a tree is set it will put out small sprouts at nearly every bud on the main stalk. All of these should be kept pinched back or rubbed off except the three or four stronger sprouts, which should be evenly distributed around the stalk. Then about the middle of July I make my second pruning and cut off the main uprights, as shown at "B," Figure 2. I also then remove all inside limb growth and leave only what few limbs have started to grow outward, and in such manner as to form a symmetrically shaped head. If side limbs are of uneven length I also clip back the longer ones, so as to form a well balanced head.

In building an open-center headed apple tree one should always bear in mind that the main upright stalks should be given the advantage in every respect. Always keep them in advance of the rest of the tree. All inside growth should be kept out, and the main uprights should never be headed back as severely as rest of tree. After



Figure 3—Third Year

a few years your whorl of center uprights will each become just as strong and vigorous growers as the original center stalk of a naturally shaped tree. Do I hear someone saying, "Let nature have its own way and grow a naturally shaped tree?" Yes, and I heard a prominent apple grower make this same statement in Columbia, Missouri, two years ago. It was at their state horticultural meeting, and this grower seemed to be proud that he had an eighty-acre orchard which had never been pruned. Said he: "Nature provides to shape a domestic tree as well as one of the forest." To those who believe this theory I would suggest that they go to the mountains and gather crabapples, and not molest nature by trying to produce our luscious Spitzenberg and Yellow Newtown apples.

After your July pruning the first year, you should do no more pruning until the wood of the tree is well matured for the winter. I much prefer to do the next pruning in the spring-time, but we are always governed by local conditions, hence, if in a climate where danger arises from heavy snow and sleet, I would make this next pruning about the first week of December; otherwise I would wait until spring. At this pruning I would cut main uprights, as shown at "C," Figure 2, and also remove all limbs that do not grow outward and assist in forming a well balanced head. I am a firm believer in heavy pruning for the first few years. I want a decently shaped tree as well as a tree strong and stocky enough to support its fruit.

Don't be over anxious about your trees not bearing early. When you have obtained a healthy and well balanced tree, with a strong and heavy framework, you need not worry about getting your fruit, for your troubles then will be how to make your trees carry their burden. In Figure 3 you will observe the pruning has been done and the tree is ready to take on the third year's growth. This is about the last year in which I would cut back strong and stocky varieties, except when necessary to obtain a shapely head to the tree. Our Newtown trees as a rule do not need the tops cut back after the third year, while our Spitzenberg trees should be topped at least two years later, and then about every other year for at least the remainder of the first twelve years' growth. Every successful orchardist must learn the nature of every variety of tree in his orchard, and prune accordingly, before he can become a proficient pruner. He must also take into consideration the climatic and soil conditions under which he is growing his orchard.

To those who may find objections to some of my ideas upon pruning, I desire to say that they are based upon our local conditions in Hood River Valley, and my experience is limited personally to two varieties, the Spitzenberg and Newtown. However, I have



Figure 4—Fourth Year

one tree each of six other varieties, and with a little diversion in pruning I am able to form very desirable open-center heads on all of them.

You will observe in all of my tree illustrations that the pruning has been done just prior to the beginning of a new year's growth. You will also notice that Figures 1, 2 and 3 all show a cutting back of the previous year's growth at terminal of limbs, and also a heavy thinning out of superfluous limbs. But beginning with Figure 4, and thereafter, you will observe that my topping consists of cutting back only to lateral limbs, always cutting so as to leave the remaining limbs toward the prevailing winds. And I want to say right here that I can hold a tree in better shape relative to the wind by pruning intelligently than by any other method known to horticulture. Props, poles, anchor wires or ropes sink into insignificance compared with the pruning shears when you desire to build a beautifully shaped



Figure 5—Fifth Year



Figure 6—Sixth Year

and stocky growing tree under unfavorable conditions. However, after you have built the above described tree then it becomes necessary to render nature some assistance in maintaining its abundant supply of fruit. How to do this I will describe later in this article.

Figures 4, 5 and 6 all show the development of the main structure of an apple tree. The pruning in all these is about the same. At each pruning I remove all superfluous limbs, as those growing inward or crosswise of tree, also those that are too close to other limbs, and which will later become a part of the framework of the tree. One of the most common errors made by the inexperienced orchardist in starting the head of an apple tree is to leave too many limbs for the lower framework of the tree. I prefer three limbs at base, and would prefer to have them distributed up and down the trunk as far apart as possible, but we cannot always obtain our preference, and have to be satisfied with what we can get. This is true in building an apple tree. Hence we may at times be forced to let four branches form the main frame-

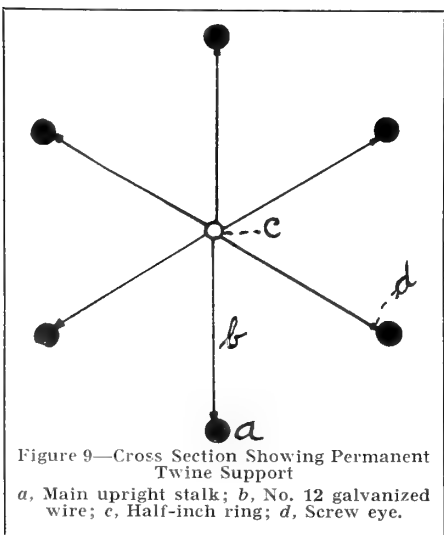


Figure 9—Cross Section Showing Permanent Twine Support
a, Main upright stalk; b, No. 12 galvanized wire; c, Half-inch ring; d, Screw eye.

work for the head, but in all cases hold your first uprights as far apart as possible, and keep the center open and free from all limb growth. Sometimes it becomes necessary to sacrifice a part of one of the already established uprights by cutting it back to a lateral limb, so as to more evenly balance the head of the tree, and also to make a wider opening in the center of the tree.

In all of these illustrations you will observe that there has been many prunings compared with the age of the tree. This is explained by my pruning twice a year—in the middle of July and in winter or spring. I am confident that two prunings each year is by far the best. With young trees it enables me to obtain a tree of a more perfect balanced head in a shorter period, and also stimulates the growth of fruit buds on trees that are inclined to delay in bearing. However, after a tree has become large and is bearing nicely the pruning in summer consists in removing watersprouts, while in the winter months or early spring the grower can then cut out all cross or inward growing limbs, broken or injured limbs as well as an occasional limb which has become a nuisance by crowding some other part of the tree.

I have now told you how to build the framework and shape the head of an open-center apple tree, but I have not told you how I make it stronger and more desirable as well as more convenient than the center-stalk tree.

To those who are opposed to the open-center tree on account of it being weak and easily split down, either with snow, sleet or fruit, I will frankly admit that if we do not give nature some mechanical assistance in this style of tree that it is a failure compared with a center-stalk tree. But under our climatic and soil conditions in this valley we are compelled to either use props or some other device to assist our apple trees in carrying their heavy loads of fruit, and it matters not what age, or whether we have open or center-headed trees. To do away with propping is one of the greatest advantages of an open-center headed tree. I have adopted a system of wiring which remains permanently in the tree without injuring it, and without a rival as far as natural or mechanical supports are concerned. Each main upright stalk is wired to a small ring in center of tree. See Figure 9. Each wire is fastened to a screw eye, which is screwed into the main upright. This gives an umbrella system of supports and every upright is held in its natural position to be used as a framework, to which we support all outside limbs which are heavily loaded and require a support. The higher this interior wire system is placed the better, for it gives a better opportunity to tie the outer and lower limbs. I used a twelve-gauge galvanized ring and a half-inch galvanized harness ring and a small eyed screweye about one inch long. In about three years the wood growth has about covered the screw eye and only a small wire



Figure 7—Thirteenth Year

remains protruding from the main stalk. When these wires are put in carefully and in a neat manner it is there for a lifetime, and it matters not what kind of a crotch is at the base of tree, it is absolutely the strongest tree that can be constructed. Instead of a center-stalk tree with one main upright about six or eight inches in diameter, you have from four to eight uprights from three to four inches in diameter, and all of them arranged in a circular position forming a circle from three feet to four feet in diameter. This wire system should not be put in limbs smaller than one inch in diameter, and in order to get these wires as high as possible I have adopted a temporary support (see Figure 8) to be used for a few years until trees are taller and uprights larger.

If trees are early bearing varieties, or you are in a district where sleet and snow weight your trees during the winter, it is then advisable to add a temporary support to these trees which are too small to receive the permanent wire supports. Figure 8 shows a cross section of the main upright branches

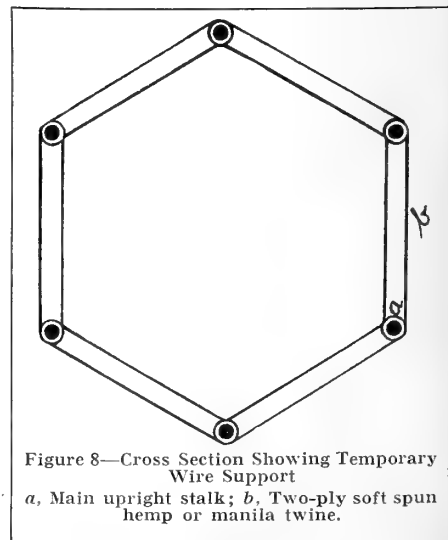


Figure 8—Cross Section Showing Temporary Wire Support
a, Main upright stalk; b, Two-ply soft spun hemp or manila twine.



Examining the Buds in F. R. Barney's Orchard, Grand Junction, Colorado, After the Freeze
Ideal Coal Heaters used. Crop saved

of a tree from four to six years of age which needs an early support. I encircle the main uprights with a system of separate loops of twine. You will observe that each limb is connected with each other limb next to it by tying the twine in a circular belt around both limbs. This gives each upright an opportunity to expand in growth without obstruction of sap flow, and also insures the uprights to always retain their correct position, and it matters not to what kind of stormy weather the trees have been subjected. I use a soft spun two-ply tarred twine, either Manila or hemp. Under our climatic conditions this will last at least three years, after which I put in the permanent wire support, as shown in Figure 7 and Figure 9. In Figure 7 one of my orchard men is standing on the wire system, which was placed there three years ago. The wires upon which he is standing are too small to be shown by a photograph. If you will look closely you may see some of the twine strings which connect the side limbs to main uprights. These side limbs were heavily loaded with fruit last season. I use the same twine for tying the side limbs that I use for temporary supports, and I never remove a twine until it has become rotten or has broken.

The cost of placing the permanent wire system in each tree is about twenty cents, including labor and material. Compared with propping trees the tying with twine and supporting with wire is by far the cheaper method, less liable to injure the limbs and more safe in protecting apples from falling or limbs from breaking.

I believe I have given you some ideas that will assist you in obtaining an open-center tree, and I believe I should now give a few reasons to substantiate my ideal method of building an apple tree. An open-center tree, braced as I have outlined, is much stronger than the center-stalk tree. It provides better opportunity for sunlight and circulation of air, thereby producing higher color and better keeping qualities of

the fruit on the interior of tree. It provides an open center which is a workhouse for my apple thinners and pickers. It makes it possible for me to get to the center of my tree on a bridge supported by two tripod step ladders on either side of the tree (which time and space forbids me describing here), and from this bridge my apple thinners and pickers can work without climbing out upon the limbs. It enables me to spray my fruit more thoroughly and holds the head of the tree in the best possible shape for self-protection against storms, heavy winds and heavy loads of fruit.

I could give many reasons why I prefer a low-topped tree, but I cannot impose upon your good nature at this time. However, I must say something relative to the pruning tools. All tools that I want are a pair of small hand pruners, two long extension pruners (one eight feet and the other twelve feet) and a small pruning saw. I was somewhat amused when I noticed a picture in a back number of "Better Fruit" wherein it showed eight or ten pruners upon high step ladders trying to prune with short wooden handled

pruners about two feet long. This represents, in my opinion, a waste of labor as well as very poor results. You are too close to limbs to make comparisons. When you work from the ground you are farther from the top, can better compare one side of the tree with the other, and hence can make a more shapely tree, and you can cut off twice as many limbs in half the time. If it is a cold day you can move around enough to keep from freezing.

One more thought on pruning, then I have finished. If it should become necessary to remove a medium or large sized limb, cut it close to the remaining stalk and cover the wound with good grafting wax. Please don't use paint. It is absolutely worthless as compared with wax, and is no cheaper. No end grain wound on an apple tree was ever painted that did not in a short time show cracks, and at the bottom of which the wood soon begins to rot. In my orchard I can show you end grain wounds five years old on some worked over Ben Davis trees that have not yet healed over, and the wood is just as sound as it was the day it was first cut. I rewax the wounds each spring. These trees were eight years old when grafted, and many limbs from three inches to four inches in diameter were removed.

The wax I use is made as follows: One pound tallow, two pounds beeswax, four pounds resin, which melted together forms the stock solution, and, when using, thin with turpentine, according to weather conditions. If real cold it will require more turpentine, and if real warm it will need but little or no turpentine. Add turpentine by remelting a part of the stock solution.

Editor Better Fruit:

Yours of the sixth instant at hand, and in reply I wish to thank you very heartily for the favor of your most excellent publication. It does not require it, however, to keep us convinced of your good work, but we are mightily glad to get it, for it is good reading and instructive. Again thanking you for your courtesies, we are very respectfully,
Walla Walla Commercial Club. L. M. Brown, Publicity Manager.

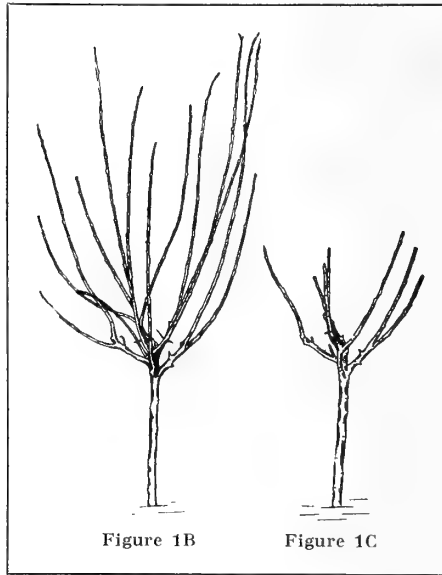


Loading the Ideal Orchard Coal Heater for the Second Time, After the Freeze of April 15, 1910
Orchard of F. R. Barney, Grand Junction, Colorado

The Science of Pruning and the Shaping of Fruit Trees

By Professor Wendell Paddock, formerly of Colorado State Experiment Station

IT is not generally realized that when a tree is taken from the nursery row a large portion of the root system is left in the ground. The balance between the roots and the top is thus destroyed, and obviously a part of the top should be removed. Practically all of the elements which nourish and build up a tree, save one, are taken from the soil by the roots in liquid form. This material is carried in the cell sap mostly through the outer sap wood to the leaves. Here the crude food is changed by the influence of the sunlight and the green substance of the leaves to a form that can be readily assimilated by the plant. Much of this elaborated food may be stored in the cells, especially in the fall, to be drawn upon at any time that the roots fail to supply the requisite amount. In transplanting the nursery tree is often deprived of one-half or more of its roots, and not only must it become established in the soil, but it must produce a large number of new roots before much new food can be supplied. In the meantime the leaves begin to push out and the reserve food and moisture may all be used before the root system is in a condition to supply more. Is it any wonder, then, that the failure to cut back the tops of newly planted trees results in the death of many of them? This is especially true in Colorado, as the dry air and intense sunshine cause the young trees to dry out rapidly. The trees should be heeled in deeply, at once, in damp soil, and when planting the work should be so arranged that the roots shall be exposed to the air for the shortest possible time. All bruised and torn roots should be carefully removed, leaving smoothly cut ends which will readily heal; if this is not done decay is apt to



set in, which may seriously injure the tree. Long, straggling roots may well be shortened, and if a tangled mass of fine roots are present they should be shortened and thinned. Some successful growers also insist that where large spreading roots occur a slanting cut should be made, so that the cut surface may rest flat upon the ground.

There are several insect pests and plant diseases which are very common on young trees. The woolly aphis is such an insect, and it is doing a great amount of damage in all sections of the state. This insect lives on the roots of trees, and is introduced to our orchards almost wholly by infected nursery stock. When once established it spreads rapidly and is almost impossible to eradicate. Crown gall is a common disease in many nurseries, and it attacks all kinds of fruit trees. It is the worst kind of folly to plant a tree which has a trace of this disease, for not only is the tree pretty sure to die before it comes into full bearing, but the infection may be spread by the cultivator or in irrigation water to all parts of the orchard.

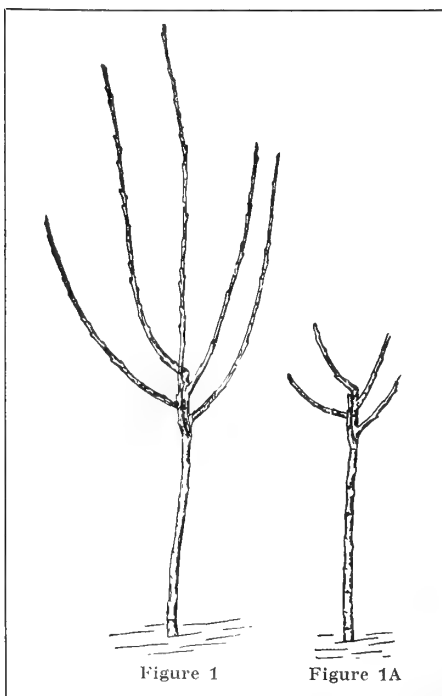
The proper formation of the top is by no means the least important reason for cutting back the branches of newly planted trees. In the first place, the importance of low-headed trees for this climate cannot be too strongly emphasized. In addition to forming low heads there can be no question but that it pays to still further protect the trunks of newly planted trees from injury by sun scald. Various devices are used, such as wrapping the trunks with burlap, paper, straw, wood veneer, or by shading the trunk on the southwest side with a thin piece of board set upright in the ground. Whitewashing the young trunks to serve the same purpose has come to be extensively used in portions of California.

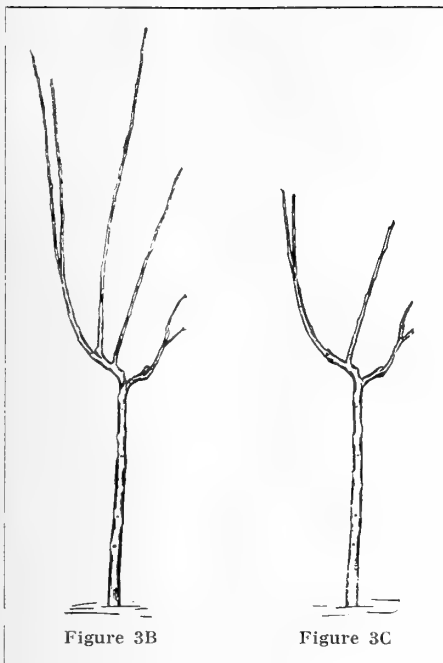
The advantages of low-headed trees may be mentioned as follows: Greater

ease in picking, thinning, pruning and spraying, and less damage to trees and fruit from winds. Some growers object to low-headed trees on account of the greater difficulty of cultivating around them, but with proper pruning low-headed trees develop the ascending branches. These trees (referring to illustration) can be worked around as easily as they could if they had only one trunk.

In pruning trees one of two ideals must be adopted, which are known as the pyramidal and vase forms. The former preserves the leader, which is made to form a central shaft to the tree. This style has the advantage of more bearing surface, as the leader grows, and in time forms a "two-storied" tree. The leader is done away with in the vase form and a few limbs, usually not more than five, are selected to form the top. A more or less open-centered tree is thus formed, but by skillful pruning this space is occupied by branches of bearing wood.

The term low-headed is a relative one, but a top may be considered low when the first branch is thirty inches from the surface of the ground. Our own preference is for a trunk about twenty inches in height. But whatever height is determined upon the tree must be cut back, preferably just after it has been planted. Should the tree be supplied with suitable limbs at the point where the head is desired three to five of them should be selected to form the framework of the tree. The rest should be removed. The selected branches should then be shortened into a sound bud within a few inches of the main stem. But ordinarily the lower branches are pruned off in the nursery, so that we sel-





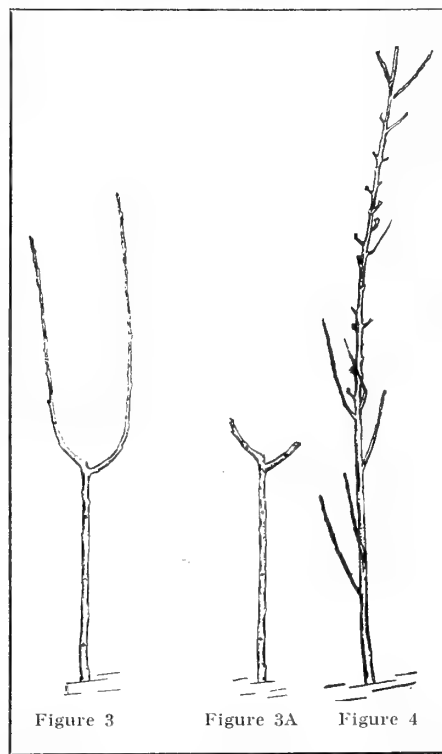
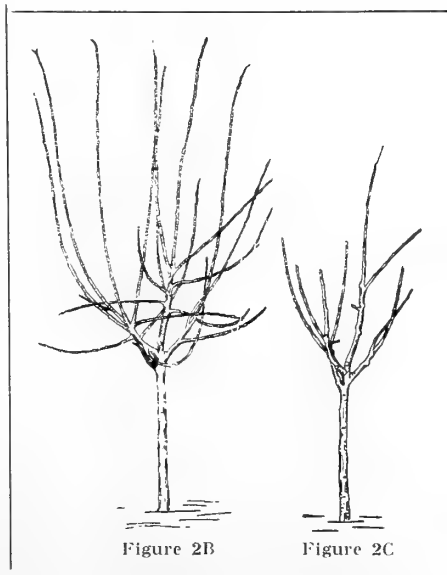
first of March. It is commonly understood among orchard men that trees must not be pruned when the wood is frozen. In any case the rule is a good one to follow. From three to five limbs are now selected to form the framework of the tree, which should be cut back about twelve inches from the trunk. The rest are removed. If the lowest branch has been taken out at twenty inches from the ground the highest branch should be at least a foot above. A common mistake is to cut trees back too far, thus crowding the branches. Neither were these branches thinned out nor headed in during the first season, but were all allowed to develop into leaders. This latter mistake often results in long willowy branches, which droop with a load of fruit, and is the main reason for condemning low-headed trees. Many growers carry their pruning up to this point successfully, but fail to head in the first season's growth, and so miss one of the critical points in the proper formation of the top.

dom get a tree from which suitable branches may be selected. In this case the entire top should be removed without regard to branches, making the cut a foot to eighteen inches above the point where the lowest limb is wanted. In doing this it is expected that branches will push out below in sufficient numbers, so that suitable selections may be made. For this reason strong yearling trees are always preferable to older ones, and in fact apple trees of this age are now commonly used in California. Should suitable branches fail to grow one of the lower branches, which nearly always form, must be developed to form a new head. The trees should be gone over several times during the first summer to remove surplus shoots, and especially those which push out far below the point where the lowest branch is wanted. Occasionally some of the upper branches develop a vigorous growth at the expense of the others. These should be headed back so as to give all a chance to develop, otherwise some of the important scaffold limbs may be found to be very weak at the close of the season. When a branch is headed back great pains should be taken to make a slanting cut just above a sound bud. If made too far above the stub will die back at least as far as the bud, and often farther. If made too close the bud may be so injured that a stub is formed which will die back at least to the next sound bud. Ordinarily a profusion of branches will be pushed out, which may be allowed to grow as they will during the first season, or they may be cut back to one or two buds. By the time these branches begin to grow the roots are established in the soil and new ones formed, so that an adequate supply of plant food is provided.

The kind of top which the tree is to assume is developed with the first season's pruning, which should be begun in most sections not earlier than the

Second Year.—It may be regarded as a rule that when a limb is cut back, unless the cut is made just above a strong lateral, two or more branches will develop near the cut end and some of the buds lower down will develop into shoots. The usual practice is to allow two of these to grow on each of the previous year's limbs to form an additional framework for the tree. The two selected should be some distance apart, one at the end and one farther back, and so placed that the development of crotches will be impossible. They are now cut back from a half to two-thirds of their growth and the laterals are shortened to one or two buds, so that they may later develop fruit spurs and also shade the branches with their cluster of leaves. If too many have formed some of them should, of course, be removed.

Third Year.—The framework of the tree should now be well formed, so that it will require less attention from this time on. Surplus branches and those that rub or are inclined to form crotches should be removed. Very vig-



orous growths should also be headed in. Thus far our discussion has been confined to the shaping of open or vase-formed trees. If a leader is desired the treatment is practically the same, except that the upper shoot is allowed to grow with little heading in. Branches are allowed to develop on this leader at proper intervals, using the same care as to location, pruning and development as in the former case.

The trees in Figures 1 and 2 were all headed back about twenty-four inches in April. This left them mere stubs. Had there been any laterals below this point they would have been pruned back to single buds, so that clusters of leaves might have formed, and thus provided some shade for the trunks. These pictures show how the trees looked the following April, at the time of the first pruning. No. 1 had formed five vigorous branches and No. 2 produced four. The five branches on No. 1 were saved to form a framework for the tree, and were cut back to about one foot in length. These are well distributed about the trunk, but have the fault that they are too close together. The lowest limb might well be double the distance from the top that it now is. No. 1a shows No. 1 after it was pruned, with the idea of making an open-center tree. No. 2 is also open to the objection that the limbs are too close. All of these were saved to form the framework of a tree with a leader, as is shown in No. 2a. The only difference between this and No. 1a being that the topmost branch was left longer than the others. The pruner of this tree is open to severe criticism in that he has allowed three vigorous limbs to grow from near the surface of the ground. These limbs could serve no useful purpose, and so only rob the other limbs of plant food. Such growths are best prevented by pinching off the buds

early in the season. No. 3 has failed to throw out enough branches to form a suitable top. The two which it produced are nearly opposite, so that a bad crotch would soon result. Both these branches were cut back to the second bud, as shown in 3a, in the hope of inducing dormant buds to push out lower down. No. 4 shows one of this lot of trees that was left unpruned. Notice the weak spindling growth and short laterals, as compared with the others. There is small chance of making a decent tree out of such a specimen, even though it should live. Such illustrations as this should prove to anyone that all trees should be headed back when planted, if for no other purpose than to induce a vigorous growth.

Pruning should, of course, be done in late winter or early spring, but these trees were pruned for the purpose of illustration, and the results are shown in 1c, 2c and 3c. Tree No. 1 has now taken the form shown in 1c. One of the scaffold limbs seemed superfluous, so it was removed and the new growth, shown in Figure 1b, was cut back about one-half. The few side shoots were cut back to a single bud, with the idea of developing fruit spurs. During the season of 1906 numerous branches should develop on all of these scaffold limbs. As a rule two of the best placed of these secondary limbs will be selected on each of the main scaffold limbs to form additional framework. The rest may be removed or cut back to develop fruit spurs, as may be. The form of the tree, then, should be developed at the beginning of the season, and subsequent pruning should be directed toward retaining this shape, cutting back excessive growths, and thinning and renewing the bearing wood. The pruning of tree No. 2 is much the same, except that a leader is being developed. Figure 2c shows that although the top was cut back the same as tree No. 1, the topmost branch is developing into a vigorous central shaft. The first set of scaffold limbs have been formed and a second set is to be developed at a suitable distance above. The new growth is to be cut back the same as has been described. The tree shown in the series 3-3c is, so far, pretty much of a failure. The severe heading given it in the spring failed to make branches develop lower down. It would have been a better plan to have inserted two or three buds at suitable points around the main stem in June. This can probably be done next June, but the chance for success is not so great. Limbs can be developed by this means just where they are wanted, but the average person will succeed better with trees which do not require such manipulation.

The form of the young tree should be well established after the third season. From this time on the question of pruning is simply to retain, so far as possible, the form we have started to prevent the formation of crotches and cross branches, to thin out an excess

of branches, so that sunlight may be admitted and the amount of bearing wood reduced and renewed. Prune in summer to induce fruitfulness and in winter to promote wood growth. This is true for the reason that summer pruning checks the growth of the tree by removing a portion of the leaf surface. An injury of any kind will have the same effect, likewise a weak growing or sickly tree should be severely headed in while still dormant in order to induce a vigorous top growth. Thin out the top then every year. No general rule can be given, as each tree presents a different problem. A thick growth of branches results in weak bearing shoots and spurs. And finally, when cutting back limbs on bearing trees, the cut should be made just above a strong lateral wherever possible. The tendency of the sap will be to flow into

the lateral, and thus prevent the formation of numerous branches which nearly always results when a stub cut is made.

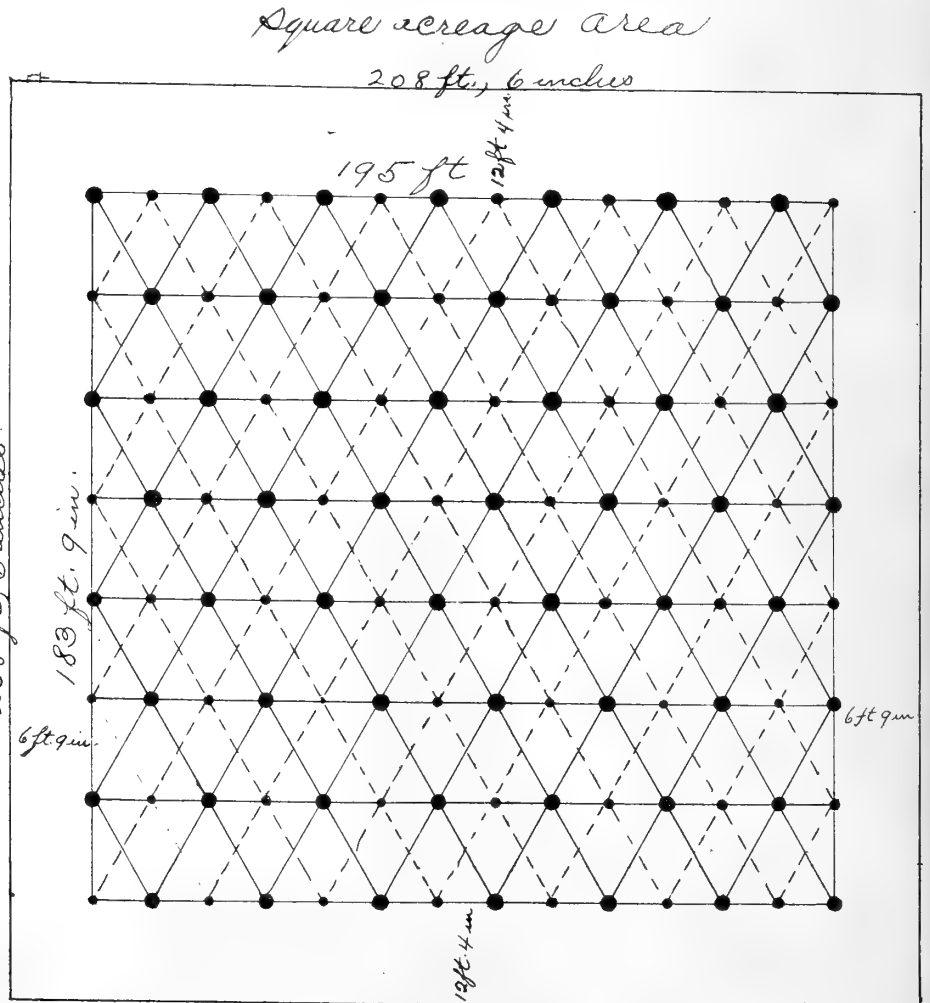
One should become well acquainted with the habit of growth of different varieties, as a few kinds grow slowly and will not bear heavy pruning. Others are erect growers and some are spreading. The upright varieties may be spread somewhat by pruning to the outside laterals, and the spreading kinds may be contracted by cutting to those which have an inward direction. And by cutting back the vigorous growths each season, those two feet and over in length, the limbs are made stocky, thus in a great measure doing away with drooping branches. This can only be done by intelligent annual pruning.

Hints on Hexagon System of Tree Planting

By F. J. Rupert, Salem, Oregon (Reprinted by request)

AFTER looking over the various hints on tree planting by the square and hexagonal, triangular systems it occurred to the writer that the latter system might be placed before the planter in a way which would give him a clear and concise idea of just how to lay off his land, either in setting out one or more acres of apples, pears, etc., and provide him with infor-

mation as to the exact number of permanent trees and fillers required. The article by W. H. Lawrence in December, 1909, number of "Better Fruit," together with the illustrations, was truly of value to the planter who desires to adopt the square method of planting permanent and filler trees, as it shows exactly the number of trees per acre and distance apart of permanent trees,



as well as distance of fillers from the permanent trees, viz.: Permanent trees thirty feet apart each way, seven rows of trees, seven trees to the row—total forty-nine permanent trees per acre. Fillers in center of each square of four permanent trees, $19\frac{1}{2}$ feet from permanent trees, allowing 36 fillers, or a total of 85 trees per acre. Also, on page 28 of the same issue, Mr. Edward G. Merwin describes to a certain extent the method of planting by the hexagonal system, showing small diagrams to illustrate the same, also giving information relative to thinning, but there is an absence of illustration to show acreage planting, number of trees, both permanent and fillers, which will be shown by the accompanying diagram.

Here is shown a plat representing an area of 195x183 feet 9 inches, or approximately 42,997 square feet. It will be observed that the width of the area is the greater. We will presume that one acre is to be set in apples. Commence at a point 12 feet 4 inches below and 6 feet 9 inches to the right of upper left-hand corner and set stake for first permanent tree, 30 feet to the right of this stake set stake for second permanent tree, and so on until seven stakes have been set 30 feet apart crosswise of the area in a straight line, as shown by the large

dots, which represent the permanent trees. Then measure down from a point midway between two first permanent trees 26 feet 3 inches and set first stake for permanent tree of second row. Measuring from this point to the first or second permanent tree diagonally the distance will be thirty feet. Then to the right thirty feet set stake for second permanent tree of second row, and so on across the area. Proceed according to the diagram until you have set stakes for eight rows of seven trees each. Here, instead of having 49 trees thirty feet apart as in the square method of planting, you have 56 trees, each thirty feet apart, a gain of seven trees within the acre area. It is largely the rule with planters in setting out a young orchard, by way of economy in the land, to plant what are known as fillers, or some other variety of fruit, such as peaches, between the permanent trees. Dwarf pears may also be used, they occupying less space than the large or standard varieties. We will presume that peaches are used as fillers. They come into bearing earlier than apples or pears, and also some other fruits, and several crops may be harvested while the permanent trees are coming into full commercial bearing. So long as the fillers do not crowd the perma-

nent trees or render cultivation, pruning, etc., difficult they may remain in the orchard and produce an income from the spare ground space. When they do begin to crowd the permanent trees by way of obstructing the free inlet of sunlight, or interfere in any way with the proper care of the permanent trees they may be removed, but they will have paid for themselves many times over before it becomes necessary to remove them.

By further reference to the diagram it will be seen that there are smaller dots between the larger ones. Each small dot represents a filler tree. The fillers thus set will be fifteen feet distant from the nearest permanent tree. In this case the same number of fillers may be used as permanent trees, or 56. The total number of trees to the acre will thus be 112 instead of only 95 by the common square method of planting.

As aforesaid, it is presumed that one acre is being thus planted. As there are approximately 208½ feet on the sides and ends of an acre square of land, in setting the trees within an area of 195x183 feet 9 inches, as shown by the diagram, there will be a margin on both sides of 6 feet 9 inches, and on both ends of approximately 12 feet 4 inches.

The Appalachian Mountain Orchards

By Professor H. E. Van Deman, Washington, D. C.

FOR the early pioneers who first settled at Jamestown, Plymouth Rock, and in turn all the eastern parts of North America, it was very natural to bring with them the fruits they and their fathers before them had grown in their old homes across the sea. Thus came the grape, the peach, cherry, plum, pear and the apple. Indeed there are few of our standard fruits from the orange and lemon of the same tropics to the currant that flourishes only in the cooler regions that we did not get from the Old World. We have taken under culture, it is true, some of the native fruits of America and made much of them, but for the most part we are indebted to the ancestral homes of our forefathers for those that fill our markets and delight our palates. Some of them, or perhaps all, we have improved by producing new varieties, and of the apple this is notably true, for nowhere in all the world has there originated and been grown so many choice apples as in America. The use to which the grape and apple were chiefly put in Europe and in all the Old World in the centuries gone by was for making wine and cider, and that was the main object in planting these fruits on this side of the ocean by those who came to make their new homes in the wilderness. They had been used to wine and cider, and likewise their fathers before them, and any variety that would make that which was the most alcoholic was the best. But the grape and apple, as

articles of food, have come into their proper estate in this country more than elsewhere in all the world. The pioneers learned to appreciate the value of good apples to eat, and they not only ate them in the fresh state, but dried them to serve as a part of the winter's store of food. And it must have been



The Handy Apple Tree
Description of this tree will be found in article
"Appalachian Mountain Orchards"

in the brain of some thrifty and provident Yankee woman of the olden times that apple butter had its origin. As the settlements spread the orchards spread with them. The coast regions were found to be less fertile and not so well adapted to farming as the valleys along the streams that flowed into the Atlantic, and they were followed up to their sources in the mountains. There the bold pioneers, with gun in one hand and axe in the other, wrested from the savage and the wilderness the bonus of our ancestry. In those days of primitive horticulture there was scarcely a grafted or budded fruit tree planted. The art of propagating and the nursery industry were almost unknown. "Johnny Appleseed" was not only a blessing to the age, but the hero of pioneer American pomology, and it is fitting that to the memory of John Chapman there is standing at Mansfield, Ohio, a monument to attest to the generations to come his many good deeds.

When on a recent tour of observation in the mountain sections of North Carolina and Virginia I saw one of the most notable and, I think, the largest apple tree in the world. It came from seed that was supposed to have been thoughtlessly dropped in an apple core about a century ago at a hunter's camp in what is now Patrick County, Virginia. I have been to the spot and put my arms part way around the giant trunk, which is over four feet in diameter. This tree is over sixty feet high

and over seventy feet in spread. After a storm some years ago two wagon loads of wood were cut and hauled from its broken branches. Over 130 bushels of apples have been gathered from a single crop. It stands in a rich little valley, far up toward the Blue Ridge, is yet in fair vigor and is known as the "Handy Apple Tree." from the name of the owner of the little mountain farm. This tree is only one of thousands of apple and cherry trees of lesser size that flourish in this orchard paradise. In the course of my travels through this part of the Appalachian Mountains I have had the opportunity to see many of the oldest and also the best of the modern orchards planted there. During the last trip, which was made when the spring flowers were in their best attire, but before the rhododendrons and azaleas had bedecked the mountain slopes and borders of the trout brooks with the full glory of their season, I saw more of these orchards than ever before. The planting has increased wonderfully of late, and is still in rapid progress. I saw one large orchard near Altapass, North Carolina, on the Chickfield Railway and on the crest of the Blue Ridge, that has recently been planted, where there are a few very old apple, pear and cherry trees that were set by the pioneers. A more suitable orchard site I have never seen, except in the lay of the ground, and the young trees give every promise of success. The soil is loose, deep and rich in plant food and humus. The climate is cool and rains abundant. The apples grown there keep well and are of excellent flavor. But passing on northward, as I was then on my way from the pecan orchard in Louisiana to my home in Washington, D. C., I stopped to again and more carefully inspect the orchards about Stuart, Virginia, which is near the North Carolina line and in Patrick County. I had been there eight years before and spent a week looking over the country and the orchards. One orchard farm, back from the railroad nearly twenty miles and near the crest of Blue Ridge, had been producing apples that had taken many prizes at the fairs in competition with those of New York and other Eastern states, and I wanted to see the trees. This I did, and was delighted with them and the soil in which they stood. This and the cool, moist climate was the secret of success, aside from good varieties and thorough culture. The owner is Mr. George Via, and he deserves credit for what he has done for his state and himself as well.

The Rangely orchard is one of the best of the older apple orchards about Stuart. It was planted by Colonel Rangely, formerly of New York, and is largely of Winesap, Ben Davis and York Imperial. The oldest trees are some thirty years planted and the younger ones not much past six years. They have been wisely and faithfully cared for generally speaking, I think, from their appearance. They have not

been over-pruned or under-sprayed. The yield of apples has been ample, and the future of this orchard is bright. At the time of my visit there eight years ago there was a large orchard contemplated, and I looked over the tract of some eight hundred acres, and liked it well. At a meeting of those interested I helped in the forming of the company and the plans. Since then there have been planted five hundred acres, and the older trees are in bearing. It is known as the "Stuart Orchard," and is one of the most valuable young orchards I know. The varieties are the best for that region, and largely Stayman, York Imperial, Winesap, Grimes, Black Ben and Rome Beauty. On the higher part are some Newtown trees and a splendid peach orchard of some forty acres. A few trees of Bing and Lambert cherries have been planted at my suggestion, and they are sure to do well, for there are old seedlings of sweet cherry trees of stately size on the property that bear heavily and regularly. There is access to the railroad about two miles away and an easy down grade all the way. Just east of this, the Stuart Orchard, lies another tract of about six hundred acres that is even of better character for orchard purposes. It has the same general south-eastern slope and the land is rolling

without being steep, except in a very few places. At one corner and at the head of a rushing trout stream is one of the famous mountains coves of about forty acres that produces the Newtown, or Albemarle Pippin. The land lies rather steep, but the soil is deep and exceedingly rich. On this splendid site will be planted another orchard of over four hundred acres, with the most approved varieties, and that very soon. The cove will be set to Newtown and the rest to Stayman, York Imperial, Winesap, Delicious and a few other standard varieties. Within the last few days the company and capital have all been arranged. I will have an interest in it, and hope to see one of the best orchards in the country growing there before the next two years pass by. There is ample and never-failing water in the trout stream that flows through the property to develop electric power to move and light everything needed. By a system of underground pipes, such as the Stuart Orchard now has, the spraying will be done by gravity from springs that put out from the mountain range immediately to the northwest. Water and sunshine will thus be turned into wealth, and at no cost to the world that grows under the oppression of the speculators.

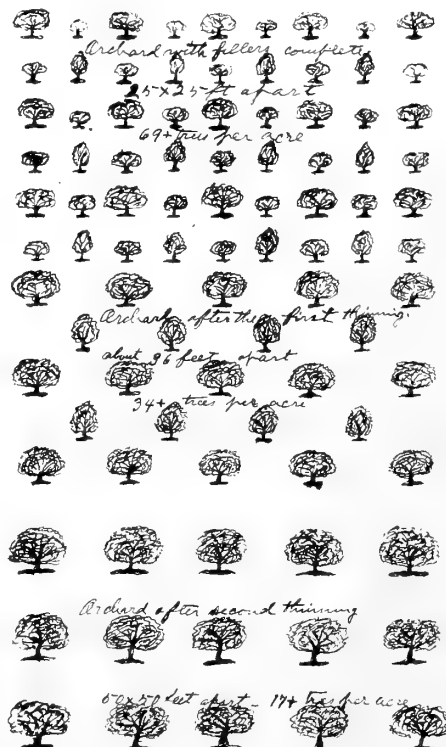
A Superior Orchard Plan

By Professor H. E. Van Deman, Washington, D. C.

DURING the last year there have been several instructive articles in "Better Fruit" about orchard plans and ways of laying them out. After carefully looking them all over and comparing them with each other and with others that I have known for many years past, I feel that more can be

written on this subject that would be of advantage to those who are planting orchards. Some of the plans and methods of planting described I have tried out practically, and all the others I have seen demonstrated. Some of them in hundreds of places and with many kinds of fruit trees, and from one coast to the other. I am always looking for something better than what we already have. Now and then a good idea is suggested or an improvement seen, and I think it both duty and pleasure to let others know of anything of the kind.

In the spring of 1871 I began planning orchards of my own and the next spring I had them well started on my Kansas farm. The hexagonal plan appealed to me as the most economical and practicable, and I followed it throughout. The filler system I have devised, by which early bearing varieties of apples were to be set between those that were desirable, yet later coming into the fruiting stage. If anyone else had thought out and worked out this plan before this time I have never heard of it. I also had a fine theory about growing peach trees as fillers in apple orchards, and this I put into practice in one of my orchards. After a few years of experience my theories had to be readjusted to suit the facts. I had planted the permanent apple trees two rods, or thirty-three feet apart, and the fillers between them, which made the completed orchard stand one rod apart. This was right enough for the conditions in Kansas,





The Olson Orchard Coal Heater in Action in the Grand Valley, Colorado
Manufactured by The Colorado Fruit and Commercial Company, Grand Junction, Colorado

where the trees stood, but the problem of thinning out the fillers had to be solved, and to take out a part of them would not leave those remaining equally distant apart, as anyone can easily see by making a draft of the plan. This was an objection that I did not fully foresee, and I had to make the best of it. During a long talk with my old friend, Fred Wellhouse, the great apple king of Kansas, we devised a plan that has since withstood the test of time, and seems to be without a fault. If there is one I am ready to see it and make any change that may seem to be for the better. The hexagonal system had to be abandoned entirely and a system of planting in plain squares adopted. From a system of equilateral triangles the change was made to a system of equilateral rectangles. Theoretically the trees may seem to cover the space more economically, and certainly do so more evenly, but practically there is no difference for the roots ramify the entire soil between the trees and the branches fill all the air space that they should occupy, and leave sufficient light to vary the foliage and color the fruit.

The plan may be very properly called the progressive filler system because of the ease and practicability of working it out from start to finish. The accompanying diagram will show it almost at a glance. The plan is made after the most simple fashion, in plain squares, and it does not matter if the rows run square with the work or at any desired angle to suit the location of the orchard. The distance apart may and should differ according to the kinds of trees and where they are to be planted. For most fruit trees, and over the greater part of the country,

twenty-five feet is the proper distance apart. This I have decided after many years of practice and careful study of orchard trees of many kinds planted at distances and in all sections of the country. It is the ideal distance for apple trees unless it be in the prairie states, where they bear very early and die soon from this cause, and from the severe weather and violent changes of temperature, and from humidity to aridity. I once thought twenty feet to be space enough and advocated planting apple trees that distance apart, but after more experience and observation

I am sure that twenty-five feet is much better. It gives more room for the trees to spread and allows the fillers to stand and bear several years longer than they could if they had less room. When the branches show that they will soon come together between the rows a part of the fillers must come out, and there must be no delay about it until they do come together or serious injury will be the result. It hurts fruit trees to even show by their growth that they are afraid of each other, for this is positive evidence that there is trouble between them. There is a struggle going on for room for full development, and both are the worse for the fight. By cutting out each alternate diagonal row, or one-half the orchard trees, the remaining will be nearly thirty-six feet apart, and there will be ample room for the trees to grow and bear for at least ten years longer. After that time has passed or whenever the signs of too close approach are seen all the remaining fillers must be taken out, leaving only the permanent trees, and they will be fifty feet apart. This is ample room for full development to old age. These stages of gradual growth and thinning out of the fillers are shown in the diagram. If only one variety is planted in the orchard the trees will be equally as well benefited by the thinning as if two or more varieties are planted, but the opportunity for mixed planting is excellent. Cross-pollination is a well determined fact, and its benefits are evident to all who have intelligently followed the practice of inter-planting varieties. For pear, cherry and peach trees twenty-five feet apart is a good distance, although many would think it to far, and this would be true of dwarf pear trees and for peach trees in regions where they do not grow to large size. Sweet cherry trees will



Photograph Copyrighted 1909 by F. E. Dean, Grand Junction, Colorado
Mr. J. L. Hamilton Lighting the Hamilton Reservoir Orchard Oil Heater.
Manufactured by Hamilton Reservoir Orchard Heater Company, Grand Junction, Colorado

need the thinning out of at least one-half of their number, or the first stage, as has already been described for apple trees, and in some sections they grow to such large size that they will require at the second thinning fully fifty feet of space. When I was in the olive orchards of California and Arizona last year I noticed that this system and the twenty-five feet distance with progressive thinning would work splendidly. It is also just right for orange, lemon and pomelo trees, and I am growing them in this way very successfully in Florida. It is a very common and serious blunder to plant and continue to grow these citrus fruits too closely, and to the injury of both trees and fruit.

One of the mistakes that I made by following an untried theory was injuring an apple orchard by growing peach trees in it. The theory of early bearing and profits from peaches is all very nice, but the practice is bad. Peach trees are more rampant growers than

apple trees, and their roots rob those of the apple trees to an injurious extent. Besides the little experience of this kind that I had years ago I have seen thousands of orchards since in which the same mistake had been made by others. Apricot trees are even worse than peach trees in an apple orchard because they are more greedy growers. Plant them in separate orchards for the above reason, and also because they need different culture and spraying. There is no good reason, so far as I can see, for planting the two together. They will occupy no more ground if on separate plots than if inter-planted. Apple trees of early bearing varieties will produce returns soon enough, and the peach or apricot trees can be planted on an adjacent tract if desired, and the grower can have the fruit to sell from them standing there as well as if they were between the apple trees, and without the objections I have mentioned.

The Art of Summer Pruning

By W. S. Thornber, Chief Department of Horticulture, Washington State College

PRUNING of trees and plants has been practiced as an art ever since plants have been cultivated, but like many other agricultural arts, the countries and districts to which fruit growing has been carried have differed so materially from where the fundamental ideas were conceived that in reality new fundamentals for the art of pruning have been developed. When the early writer said "prune when your knife is sharp and always keep your knife sharp" he did not take into consideration the effect that pruning at different seasons of the year would have upon the tree or plant.

The real purpose of summer pruning is to check the naturally rampant growth of your young fruit trees on the rich, virgin soils and hasten the period of profitable fruit bearing. Very little consideration has been given to summer pruning in most fruit growing districts of the East for the reason that land generally used for fruit was cheap, practically worthless for anything else, and that it was an

established fact that a tree could not be made to bear fruit before nature, in her slow way, intended it should. The high values of Western orchard land, and high cost of bringing orchards into bearing, compelled man to seek early returns. Certain naturally tardy, shy bearing varieties, when planted on deep, rich, moist, clay soils of the Pacific slope, under normal conditions, delay the bearing period even more than the same varieties in the East. I have known of Northern Spy trees eighteen and nineteen years of age that have never fruited, this, of course, is absurd and cannot be profitably tolerated.

Practical fruit growers now recognize the general law that heavy winter pruning tends to develop wood growth, while heavy summer pruning tends to develop fruit buds and fruit. Theoretically this statement is true, but practically it is not, as it is possible to secure just as heavy wood growth by pruning in June as it is by pruning in January. In fact, under Western conditions, I frequently favor the May or June pruning to the January pruning. Under very favorable conditions both January and June pruning are advisable for the production of wood. This is especially true with strong growing varieties of both apples and pears when one desires to avoid long pole-like branches and hasten the fruiting time of certain trees. On the other hand, it should not be practiced on weak, tardy growers. The reader will readily see that the so-called summer pruning may affect trees in diametrically opposite ways, and produce wood under one condition and fruit buds under another. To differentiate and intelligently practice summer pruning the pruner must have an intimate knowledge of tree growth in his particular district and be more or less



Figure 2—Another very light bearer partially corrected by summer pruning. While pruned at the same time as the former, yet it was too early for this naturally late grower, as is illustrated by the long twig growth and the rather light formation of fruit buds.

familiar with the habits of the varieties. No specific dates for particular sections can be set when summer pruning for the formation of fruit buds should be done, but dependence must be placed upon the variety, the district, the method of culture and the season. In Eastern Washington, during normal seasons, on the uplands where irrigation is not practiced most varieties give good results if pruned after the tenth of August and before the tenth of September; while in the irrigated valleys, where the seasons are longer and the summer temperature higher, August 20 to as late as September 20 is about right. In Western Washington, where the growing season naturally closes earlier even though killing frosts do not come before very late, the non-cultivated orchards are ready to prune as early as July 10, while the cultivated orchards may not be ready for summer pruning before August 1 to 15. The final judgment as to the time to do summer pruning must be based upon the condition of the tree. The pruner should anticipate the beginning of the period for the formation of fruit buds and begin to prune at once. This formation period for bearing trees can be accurately determined by means of a high power microscope, but practically determined by an examination of fruit buds. As a general rule, for the best results, the pruning should be done just at the close of the vigorous summer growth, while the tree is storing up reserve food, forming buds and developing



Figure 1—Sixteen-year-old apple tree summer pruned at just the right time for the formation of fruit spurs. Previous to 1907 this tree had produced very light crops. Two severe summer prunings corrected the evil.



Figure 3—A sixteen-year-old apple tree which has been given a good, reasonable pruning every January for the past nine years. Its average annual crop is less than one box of fruit. Two good, thorough summer prunings will change this tree from a brush producer to a profitable tree.



Photograph Copyrighted by F. E. Dean, Grand Junction, Colorado
The Troutman Orchard Oil Heater in Action
Made by The Round Crest Orchard Heater Company, Canon City, Colorado

them for the coming year's growth. If pruned too early the naturally dormant newly formed buds develop short, tender laterals which frequently perish during the winter, while if pruned too late only strong buds are developed for the coming spring's wood growth.

Practically the same principles are carried out in summer pruning as in winter pruning, only it usually requires a little more nerve and decision to remove the same amount of wood during the summer time as during the winter time. Especially is this true when the branches are laden with half-grown fruit because very few men realize the actual limitations of an average bearing tree. If the tree is old and has a dense top open up the center to permit sunlight and air to enter. Thin out the sides by removing from one-tenth to one-fourth of the branches, always cutting back to a limb and never leaving a long stub to die or throw out a big crop of sprouts. Summer pruning cannot be profitably practiced on old, stunted, dying trees, as they need rejuvenation which comes with winter pruning, but may be profitably practiced upon old, thrifty, shy bearing trees. Large limbs can be removed at this time just as safely as at any other season of the year, only it is not advisable to remove too much of the top at once. Where great quantities of wood must be removed it is better to distribute its removal over a period of from two to three years rather than entirely unbalance the tree's growth. To properly summer prune a young tree one need pay little attention to the small, slender twigs on the inside of the framework. These are naturally tardy growers, and while they can be made to bear earlier, the important work consists in cutting

back the upper, stronger leaders and lateral branches, removing from one-third to one-fourth of the present season's growth. All limb growth should be checked; to cut some back and permit others to grow gives advantage to those left. Study the framework of the tree carefully and prune each main branch just as you would a small, independent tree, removing from one-third to one-fourth of the present season's growth. Where desirable cut to outer buds, and never shear the top even, but cut each limb according to its vigor and vitality. It is sometimes necessary to thin the framework, however severe thinning should not be practiced. The practice of breaking or

bending over shoots is an old one, and where a few trees are to be treated may be profitably employed, but if the leaves wilt and die they serve as an excellent breeding place for all kinds of pests and present a very unsightly appearance. A better plan would be to weight down the limbs by attaching light weights to their ends.

Sweet cherry trees of bearing size and age should be gone over very carefully immediately after the fruit has been harvested, and all diseased, injured or surplus limbs removed at once. If the tree is making a vigorous growth it should be checked and compelled to prepare buds for the next year. Heavy winter pruning of bearing trees is always accompanied by more or less risk, and should be avoided as far as possible. Summer pruning checks the growth at a season when there is the greatest risk of an outbreak of blight and should be made one of the real methods of eliminating the blight. When there is greater danger from winter killing of peach trees than from late spring frosts, then summer pruning becomes very advisable. But where late spring frosts are the important factors keep the tree growing as late in the fall as possible and delay the formation of the fruit buds, even until early winter, thereby compelling late rather than early blooming.

In conclusion, I consider summer pruning one of the important factors to be taken into consideration in the development of uniform trees and heavy annual crops, even with our most tardy or shy biennial bearers. The most serious obstacle to summer pruning generally is that it comes at a season of the year when labor is scarce and particularly high. I have no suggestions to offer for this beyond the statement that our experiments demonstrate that it will pay, even though the cost be several times greater than that of winter pruning.



Crystal Springs Farm, C. E. Mineer, Manager, Hamburg, Iowa
Picture taken during the time of the freeze last spring. Oil pots used. The photograph was taken in the morning, when the temperature outside of the orchard was 24 degrees and everything covered with heavy killing frost. Inside orchard temperature was 33 to 36 degrees, and leaves were wet with dew. The entire crop was saved.

Special Varieties for Particular Sections of the Northwest

By W. S. Thornber, Washington State College, Pullman

BEFORE attempting to discuss this phase of fruit culture I wish to state that I would not have any grower feel that I desire to lay down rules for him to plant by; that is not the purpose of this article, but would offer this suggestion as a general guide for those who need help. The idea of this article was emphatically forced upon me while critically studying the various exhibits of apples at the three national shows held in Spokane. I simply wish to place before you a few facts which are of interest to me, and while not entirely to my own liking, and possibly yours, they are nevertheless facts of which notice should be taken.

It is almost impossible to formulate a perfect conception of how varieties behave under different conditions by studying them in their respective places of growth. However, when brought together it is comparatively easy for even a novice to study by comparison. I desire to present to you the results of a study of this kind with such additional notes as I could secure, and believe that it will be of value for the future plantings in the Northwest. Before taking up this study let us get a conception of the factors that influence fruit growing in the various fruit districts of the Northwest. Fruit men everywhere are recognizing that there are certain conditions that naturally influence the growth of certain varieties, and so we have come to recognize the proverbial recommended fruit list of each state, and occasionally for each district. Many of these lists are made up from personal likes or dislikes of the growers—good in some cases, but not always to be relied upon commercially; others are made up by office men from nursery catalogues or books written twenty to thirty years

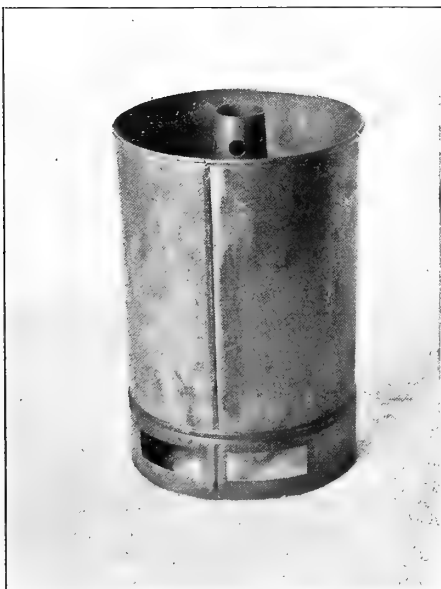
ago for conditions three to four thousand miles from here.

The following factors or possible combinations of the same very largely influence the behavior of varieties in a given section: (1) Soil: A heavy, rich, wet soil delays fruiting from one to five years and then frequently produces poorly colored fruit. A light sandy loam or sandy volcanic ash hastens fruiting even to a detrimental degree under some conditions, while the extremes of soil moisture or lack of moisture change the texture and palatability of the fruit. (2) Climate: The summer climate has much to do with the ripening period of the fruit, thereby materially changing its shipping habits. A long, hot summer, particularly at a low altitude, ripens fruit from two to three weeks earlier than a cool climate in a higher altitude. (3) Altitude: Very little is known about the effect of altitude upon certain varieties beyond the fact that above certain heights some commercial sorts become shy bearers, or produce at best very inferior fruit as to size, color and shape. The higher altitude fruit is later, ships better and when properly handled has better texture than the lower altitude fruit. (4) Temperature: The extremely cold winters of some regions entirely eliminate certain tender sorts, particularly if they produce a late fall growth. While not common to many sections, it is true of the Rome Beauty, Spitzenberg and similar sorts in a few sections. (5) Amount of Sunshine: The total amount of absolutely clear sunshine common to a section during the latter part of the summer and early autumn very largely decides the advisability of certain varieties. If hazy or smoky weather annually prevails for a long period of time, then the dark red sorts should be eliminated to a very large degree. Eastern growers very frequently attribute our rich colors to the long hours of sunshine, and while this is largely true, the sunshine is only one of the many factors. (6) Length of Growing Season: A long, unbroken growing season, if not too closely followed by severe or cold weather, gives ideal orchard conditions. If hard freezes follow the fall weather closely, or winter sets in before the trees have had an opportunity to prepare for fruiting, wood is sure to result.

While most of our fruit sections vary distinctly, yet there are relationships existing among these varieties which makes it possible to group certain varieties together for certain combinations of natural conditions. We have come to recognize four distinct horticultural regions in the Pacific Northwest; true it is that there are many local variations, but the general factors are fairly uniform for these groups of districts or valleys. The

Coast region, or that part of Washington, Oregon and British Columbia west of the Cascade Mountains, is characterized by a rather heavy clay soil, an altitude varying from sea level to four hundred feet above, a rather even temperature with few striking variations or extremes, a heavy annual rainfall, most of which comes during the winter months, and the summers are generally dry, a long growing season; and while a lot of sunshiny weather, the autumns are generally hazy, which, to a limited extent, prevents the highest possible coloring of the fruit. A region with factors of this kind is particularly well adapted to such varieties as Olympia Baldwin, Northern Spy, Ortley, Yellow Newtown, Glowing Coal and Wagener. By a comparison of these fruits one will readily see that they, with the exception of the Wagener, have a common origin in rather low altitudes, and generally in clay soils. It will be seen later that the Wagener is one of our cosmopolitan fruits and has few limitations. The other varieties are limited to certain groups of factors or conditions and cannot be successfully grown in regions where the conditions are strikingly opposite to those of the Coast region. The Northern Spy and Olympia Baldwin become very shy bearers at high altitudes on deep, rich but rather dry soils, and the Ortley and Yellow Newtown, while generally juicy and crisp, become dry and woody under similar conditions.

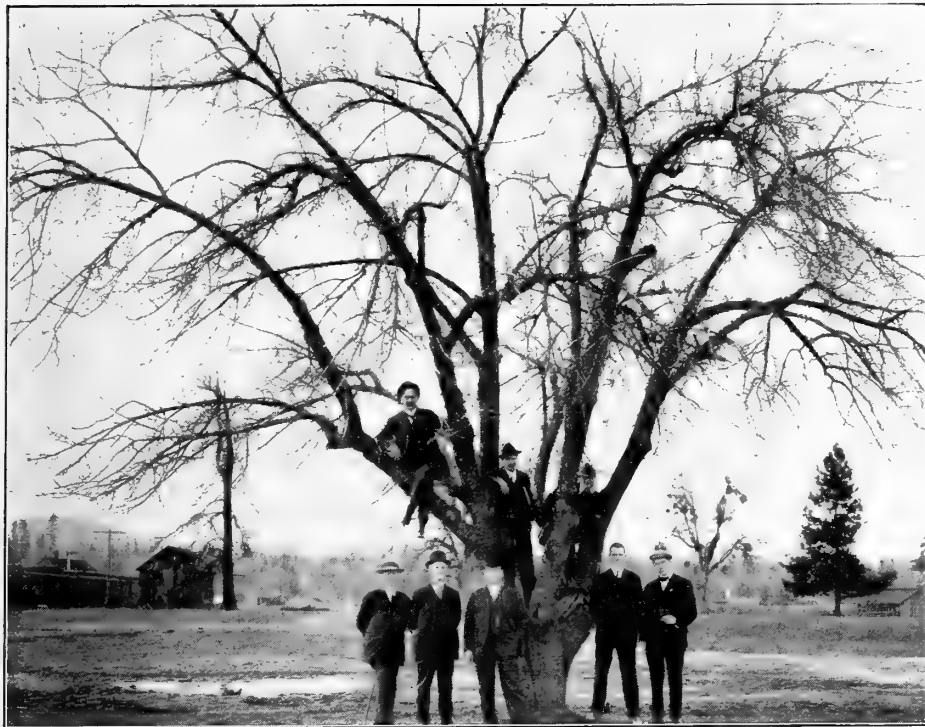
The inland valleys region of Central and Eastern Washington, Oregon and British Columbia, and Eastern and Southern Idaho are characterized by a light, sandy to volcanic ash, or even a gravelly loam soil, an altitude varying from 350 to 1,400 feet, a very light annual rainfall, long growing seasons and the maximum amount of sun-



Troutman Heater



National Orchard Heater



In the Shade of the Old Apple Tree

Press representatives with the Southern Oregon demonstration train at Merlin, Oregon, March 25 1909. This apple tree is now fifty-six years old and still bears fruit. Planted in 1853 by the Haines family, who were later massacred by the Indians

shine and mild, pleasant winters. Districts with common factors of this kind will produce Winesaps, Spitzenbergs, Yellow Newtowns, Arkansas Blacks, Jonathans, Grimes Golden, Rome Beauty and kindred sorts of the highest grades of apples, providing good cultivation and reasonable treatment be given. If the valley is too warm and the season forced too much early winter sorts do not color sufficiently before they have to be picked, and are very apt to ripen before they normally should. While on the other hand, if the soil is too deep and rich and an abundance of water is used, the Spitzenberg, under normal treatment, may become a shy bearer or producer; only occasional heavy crops of well colored fruits grow in sections of this kind. Experience shows greater difficulty in the selection of commercial fruits for these valleys than any other in the Northwest, inasmuch as any variety will grow and produce good fruits, but which is the best is always hard to determine. The McIntosh Red, when grown under these conditions, is probably the most perfect apple for desert use for a short period of time, but the great difficulty is that instead of remaining a winter fruit it becomes an early fall fruit, and soon passes its season. If certain apples of the group particularly adapted to the valleys be planted in high altitudes where the seasons are short, they fail to color, produce size and attain development. Others become shy bearers, while still others take on abnormal characteristics. The Winesaps do not attain sufficient size, while the Yellow Newtowns vary in size, color, form and texture. The Rome Beauty is not seri-

ously affected because it is more or less of a cosmopolitan fruit.

The inland upland regions are characterized by a deep, rich, basaltic or even loamy soil, moderate amounts of rainfall, dry, warm but not extremely hot summers, an altitude varying from 1,200 to 3,000 feet above sea level, comparatively short growing seasons and long but not severe winters. This type of country is adapted to a comparatively short list of orchard fruits. It is essential that varieties that succeed here be sorts that attain their growth early in the season. Late maturing sorts are not adapted to those conditions. Such varieties as Jonathan, Rome Beauty, Wagener, York Imperial, Gano and Black Twig attain a degree of perfection that is highly desirable for long keeping shipping fruit. Very frequently autumn sorts, in most sections, become early winter sorts in this region if they are properly handled. While some of the later sorts become extremely late under favorable conditions. It is almost useless to attempt to grow commercially such varieties as Northern Spy, Spitzenberg, Rhode Island Greening and kindred sorts, as they almost cease to bear. We have a few definite records of these varieties which show an average of less than one box per tree during the past six years from trees twelve to sixteen years of age. Varieties like the Winesap, Ortley, White Winter Pearmain and Yellow Newtown require entirely too long a season for regions of this kind, and occasionally such sorts as the Ben Davis become veritable corks or blocks of wood when grown here.

The mountain regions are characterized by deep gravelly loam, light

clay loam bearing more or less gravel or volcanic ash soil, comparatively short growing seasons, a minimum amount of rainfall, warm in summers, frequently very cold winters, very high altitudes, frequently ranging from 3,400 to 5,000 feet above the sea level, and plenty of sunshiny weather during the summer and autumn days. The number of commercial varieties for these sections are, of course, limited, especially in sections where the cold winters cut out the more tender sorts. Commercial work has progressed nicely in these cold sections by planting Jonathans, McIntosh Reds, Wageners and Wealthy. The high altitudes and climatical conditions have completely overcome the earliness of these naturally early sorts until now we frequently find them keeping late into spring. The cold winter appears to have little or no effect upon them when properly treated, and the seasons are sufficiently long to develop all that is desired. The warmer, milder high altitudes are producing Jonathans, Rome Beauty, Wagener and various other sorts of commercial value. The battle is one of attaining sufficient size for some of our common sorts. One particular condition that might exist in almost any of these regions is that of extreme drouth where irrigation is impossible and the conservation of moisture must be resorted to by means of cultivation. In sections of this kind no late developing varieties of fruit should be planted, as the drouth of the later part of the season is sure to interfere with proper maturity. Such apples as Rome Beauty, Yellow Bellflower and York Imperial for winter use, McIntosh Red, Duchess of Oldenberg, King of Tompkins County and Wolf River for fall use, and Yellow Transparent and Red June for summer use are practically all that can be depended upon to do anything where severe drouth, without irrigation, exists.

The Northwestern Harmony.—Careful perusal of the foregoing will show that the Northwest is probably the best all around balanced variety fruit district in the world. All of the high class commercial sorts are at present grown to a degree of perfection not excelled anywhere, and so systematically divided into groups for different regions that, while state vies with state, or district with district, the competition among ourselves need never reach that stage that will be serious to one another. The regions described present vastly different conditions in the production of first class fruit. Each produces a higher grade of fruit of a few well chosen varieties than it is possible to produce in any other region with the same varieties. However, there are certain varieties that are more or less cosmopolitan and can be grown to a high degree of perfection almost anywhere in the Northwest.

Cosmopolitan Varieties.—There are comparatively few fruits that enjoy

the distinction of being so-called Western cosmopolitan fruits; however, the Rome Beauty, Wagener and Yellow Bellflower apples belong to this group, grown as they are practically all over the Northwest at high and low altitudes, wet or dry, and with culture and without culture, if any apples grow these will. This same thing is true to a certain extent of the Bartlett and White Doyenne pears; while they will not stand the same abuse that the apples will, in all cases they are grown if pears grow at all. The peach plum, Italian prune and the Yellow Egg plum are also not seriously particular as to their choice of region, just as they are given a chance to grow. There are a great many apples being planted in the West which are adapted only to very limited localities. Extreme care should be used in extensive plantings of these sorts until thoroughly tried and their commercial merits demonstrated. When well grown they have few strong competitors, but if poorly grown they are almost worthless to the trade.

Pears.—The behavior of commercial varieties of pears under different conditions has not been as closely studied as it should. However, general recommendations can safely be made from the information at hand. The Bartlett pear is generally recognized as one of our most cosmopolitan fruits and does well at all altitudes under normal conditions, with the exception of sections that are extremely dry just previous to and during the ripening season. In these sections the fruit is under sized, contains a surplus of stony tissue and is of unsatisfactory quality. Winter Nelis is not so cosmopolitan in nature, but does well under most conditions. In Western

Washington, where russetting is common, it frequently becomes entirely covered with russet, while in other sections it may have only a lacing of russet. It must have sufficient water to finish upon or it becomes entirely too small for commercial purposes. The Comice and Anjou are two of our highest class pears, very satisfactory in most sections but rather tardy bearers in all sections. However, after once coming to full bearing, they give satisfactory yields. The Clairgeau and Boone de Jersey are not as commonly grown as many sorts, but are especially valuable orchards west of the Cascades and in sections where there is plenty of moisture to finish upon. In addition to these varieties there are many more that can be satisfactorily grown, but are not well known in commerce.

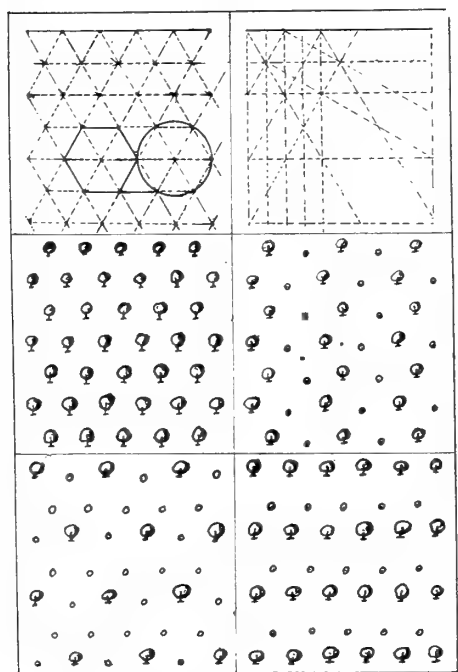
Cherries.—Commercial cherry culture is limited more or less by cold winters and late frosts; however, the Bing and Lambert are doing well in most of the fruit districts. These are the best all purpose black cherries that are growable in practically all sections. The Royal Ann is the most popular white or light cherry grown, but tenderness in bud and wood prevents its use in any section that has cold winters or very severe late spring frosts. The Royal Ann is supplanted in the colder, more severe locations by the Vilne Sweet cherry, a light colored, very hardy sweet cherry imported from Russia. While productive it is not a first class shipper, nor is it of high quality, but is especially valuable for regions where the Royal Ann cannot be grown. If the Royal Ann can be grown do not plant the Vilne Sweet, as there is no comparison between the two from the quality point of view. Black Republican and Black Tartarian are two more very popular varieties for mild climates, but cannot be grown in high altitudes where the winters are severe, nor on the uplands where late spring frosts are common, as they are very tender in both fruit and bud and blossom. The May Duke, Late Duke and Reine Hortense are all comparatively hardy, resistant sorts of the Duke type and can be grown where it is impossible to grow the sweet sorts. As a fruit of high quality these varieties are taken by many in preference to the sweet sorts. They are not good shippers, but are excellent bearers. The sour cherries have many first class sorts adaptable to Western conditions and growable almost anywhere. The Olivet is by far the most popular both as a home orchard and the commercial sort. Other good sorts are the Northwestern and Dye-house.

Grapes.—The cold uplands of the Inland Empire and the unfavorable slopes of Western Washington and Oregon are limited to a very small number of varieties that will mature early enough in the fall to warrant the general planting of the crop. The

European varieties are rather tender unless well protected during the winter in sections of this kind. Moore's Diamond, Moore's Early, Campbell's Early and Empire State are the best varieties for unfavorable locations, and should always be planted on southern slopes. In the warmer valleys the Worden, Niagara, Concord, Delaware and many other high quality American sorts can be profitably grown. The Alexander-Muscat, Flame-Tokay, Rose of Peru, Black Hamburg, Sweet Water, Thompson's Seedless and many other European sorts can be commercially grown in nearly all of the low altitude, warm irrigated valleys. However, very few sections are absolutely safe for European grapes without winter protection of some kind. While they will stand the winter weather of most years occasionally they will freeze to the ground, or at least to the snow line.

The following is the recommended list of the Washington State College, arranged and issued by the writer. While it has never been issued in bulletin form, yet thousands of copies have been mailed to the prospective planters of the West. Local conditions very frequently make it possible to vary it considerably, yet the general plan is a safe one for commercial planting. The letter following the name indicates the season of the variety—"E" early, "M" medium, "L" late:

Apples—Western Washington: Northern Spy (L), Olympia (L), Glowing Coal, Yellow Newtown (L), White Winter Pearmain, Yellow Bellflower, Wagener, Gravenstein (M), King (M), Ortley, Yellow Transparent (E), Williams (E). Inland Valleys: Spitzenberg (L), Yellow Newtown (L), Rome Beauty (L), Winesap (L), Jonathan (L), White Winter Pearmain (L), Gravenstein (M), Duchess (M), Grimes Golden (L), King (M), Yellow Transparent (E), Winter Banana, Williams (E), Delicious (L). Inland Uplands: Rome Beauty (L), Wagener (L), Jonathan (L), White Winter Pearmain (L), Gano (L), York Imperial (L), King (M), Grav-



Hexagonal System of Planting
 1, Field staked by use of triangle; 2, Field set;
 3, Field property thinned; 4, Field partly rowed off by running lines; 5 and 6, Improper thinning.

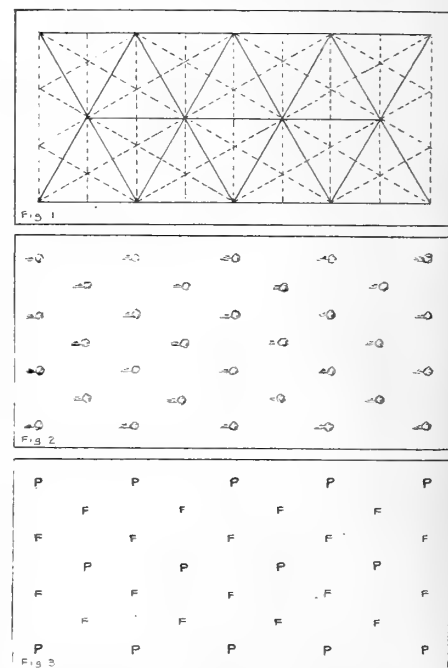


Figure 1, Field marked for hexagonal planting. Large triangles indicate which trees are permanent. Figure 2, Orchard planted. Figure 3, P indicates permanent trees, F filler trees.

enstein (M), Duchess (M), Yellow Transparent (E), Winter Banana (M), Williams (E).

Pears—Western Washington: Winter Nelis (L), Clairgeau (L), Anjou (M), Comice (M), White Dovenne (M), Seckel (M), Bartlett (E), Clapp (E), Flemish (M). Inland Valleys: Winter Nelis (L), Clairgeau (L), Anjou (M), Comice (M), White Dovenne (M), Seckel (M), Bartlett (E), Clapp (E), Flemish (M). Inland Uplands: Winter Nelis (L), Clairgeau (L), Anjou (M), Comice (M), White Dovenne (M), Seckel (M), Bartlett (E), Tyson (E), Flemish (M).

Sweet Cherries—Western Washington and Inland Valleys: Royal Ann (E), Bing (M), Hoskins (L), Lambert (L), Black Republican (L). Inland Uplands: Bing (M), Centennial (M), Hoskins (L), Lambert (L), Vilne Sweet. Sour Cherries—All sections: Olivet (M), Northwest (L), Montmorency (M), Early Richmond (E).

Dukes—All sections: May Duke, Late Duke, Reine Hortense.

Peaches—Western Washington: Alexander (E), Triumph (E), Early Crawford (E), Charlotte (E). Inland Valleys: Alberta (M), Foster (M), Hills Chilli (M), Salway (L), Early Crawford, Late Crawford, Hale (E). Inland Uplands: Alexander (E), Triumph (E), Wonderful (M), Champion (E), Hale (E), Early Crawford, Foster (E).

Apricots—Western Washington and Inland Uplands: Gibb (E), Moorpark (E). Inland Valleys: Royal (M), Hemiskirke (M), Early Golden (E), Moorpark (E).

Plums—All sections: Abundance, Bradshaw, Peach, Wickson.

Prunes—All sections: Italian, Silver, Hungarian.

Grapes—Western Washington: Concord, Niagara, Worden, Campbell's Early, Moore's Diamond, Moore's Early. Inland Valleys: Campbell's Early, Moore's Early, Moore's Diamond, Concord, Worden, Delaware, Sweetwater, Thompson Seedless, Tokay (Flame), Hamburg, Alexander. Inland Uplands: Moore's Early, Campbell's Early, Moore's Diamond.

Raspberries, Red—Western Washington and Inland Valleys: Cuthbert (M), Antwerp (E), Marlboro (M), Superlative (M), Ruby (M). Inland Uplands: Cuthbert (M), Marlboro (M), Ruby (M).

Raspberries, Black—All sections: Cumberland, Burkhart, Gregg.

Blackberries—Western Washington and Inland Valleys: Snyder (E), Mammoth Black

(E), Kittatiny (M), Himalaya Giant (L), Evergreen (L), Lucretia Dewberry. Inland Uplands: Early Harvest (E), Rathburn (M), Kittatiny (M), Evergreen (L), Lucretia Dewberry.

Gooseberries—All sections: Downing, Industry, Portage, Smith.

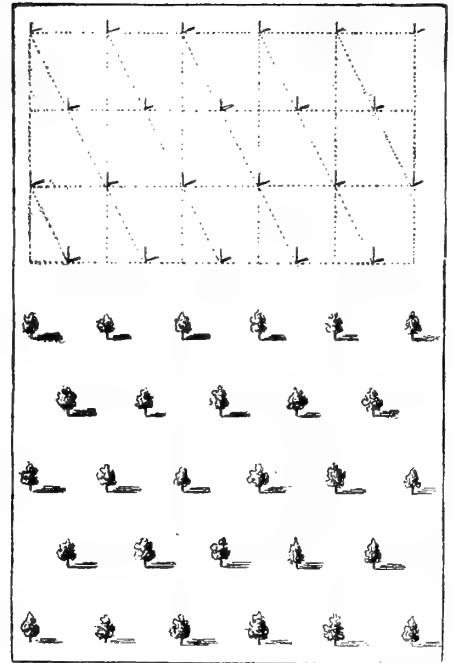
Currants—All sections: Victoria, Wilder, Perfection, Cherry, Red Dutch, White Grape.

Strawberries—Western Washington and Inland Valleys: Hood River, Magoon (M), Marshall (M), Warfield (E), Bederwood (E), Crescent (M), Gandy (L). Inland Uplands: Glen Mary Ann (M), Marshall (M), Warfield (E), Bederwood (E), Crescent (M), Hood River (M), Gandy (L).

English Walnuts—All sections: Franquette, Mayette.

Other Nuts—All sections: Black Walnut, Cob Filbert, Butternut, Jap Chestnut.

The table herewith shows a comparison of the scores as given by disinterested judges of the exhibits of the various districts at the National Apple Show in Spokane in 1910. Inasmuch as these fruits were selected by different exhibitors with different ideals in mind the personal difference will enter into the real value of these figures; however, it shows in a general way the value of the color, development, size and shape of each variety for several districts. The judging did not enter into the flavor, quality, texture or the internal condition of the fruit, but judged much as a retail buyer would have to measure value. This work has been done for the past four years at various shows, fairs and exhibits, and sooner or later will be compiled into one general report of the behavior of varieties under different conditions. This report, however, is taken from the scoring of the last year's exhibits.



Triangular or Alternate System of Planting

culty of effecting the transmission. Providing the stock and scion are of exactly the same size the adjustment can scarcely fail to be accurate in the most skillful hands; it is in the common case of the scion being much smaller than the stock that the operation is to receive more particular attention.

There can be no question as to the utility of grafting, for by its aid a bad kind of apple or pear may be transformed into one that is good. The best season will soon be here, and, while I would not advise the working over of very old or unhealthy trees, there are those in a fair state of health, and only unsatisfactory from being inferior sorts or not suited to the district or soil, in which cases re-grafting is to be commended and should have good results, as an established tree reworked will be in bearing much sooner than a young, freshly planted one.

The first process, as a matter of course, is to behead the trees to be operated upon, and in doing this the branches should be cut clean down in

District	Wine-sap	Yel. New'n berg	Spitz-berg	Jona-then	Rome Beauty	Wag-ener	N'ithn Spy	Stay-man	Bell-flower	Ark. Black	Bald-win	Ortley
Methow	9.5	9.5	10	10	9	9	9.5	10	10	10	9	9
Spokane	8	..	..	10	9	10	..	..	..	9	10	..
Oroville	..	..	7	9	9	..	..	..	8	8	10	..
Stevens County	8.5	8	7.5	10	10	10	9	7	8	9.5	9	10
Yakima	10	9.5	10	10	10	9.5	8.5	..	9	10	9	10
Prosser	10	10	10	10	9.5	9.5	9.5	10	9.5	10	9	10
Goldendale	9.5	10	10	9	9	9.5	10	9.5	10	9	..	10
Clarkston	9.5	..	9.5	10	10	9	..	..	9	..	9.5	..
Wenatchee	10	9.5	9.5	10	10	..	9	10	10	9	9	..
White Salmon	8	10	10	..	..	..	..	..	10	8.5	..	..
Lyle	..	9.5	10	9	9	8	..	..	9	8.5	10	9.5
Walla Walla	8.5	9.5	..	10	10	..	..	..	8.5	..	..	..
Hood River	..	10	10	..	..	..	9.5	..	..	..	..	10
Palouse	5	8.5	8.5	10	10	10	6	6	9.5	10	7	6
Western Washington	..	10	9	..	..	10	10	..	10	7	10	10
California	..	..	..	10	9.5	..	..	..	10	..	..	10
Montana	..	..	..	8.5	..	..	..	..	..	..	..	..
Colorado	8	..	8	9.5	10	..	..	..	..	..	..	..

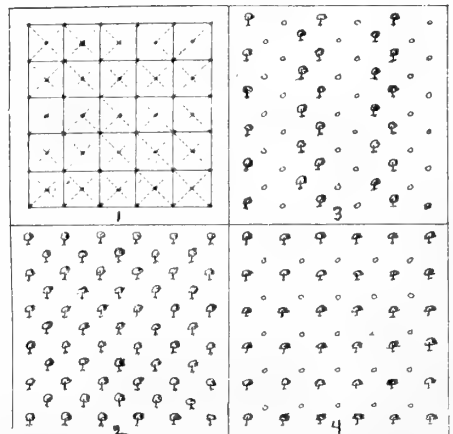
Making Over An Old Orchard

By H. L. Jenkins, a British Columbia Horticulturist

FOR the benefit of those who may have matured trees which do not produce so much fruit as they should, I wish to present this sketch on grafting. The operation of re-grafting takes place toward the end of March, or earlier if there are signs of spring influence. Grafting differs from budding in its being the transfer of a shoot, carrying several buds, from one tree to another instead of only a single bud; and, as budding has been compared to sowing seeds, so has grafting to making cuttings. The art of grafting consists in bringing two portions of growing shoots together so that the soft woods may unite and make but one growth, and the same general principles apply to it as to budding. There are some fifty modes of grafting described in books, but

only three or four are in common use. In all methods of grafting the shoot to be transferred is called the scion and the tree that is to receive it is called the stock.

The first point in successful grafting is to secure an intimate union of the parts—not a mere sticking together, but an absolute union. The new or young layers of the inner bark must be brought into close contact and then, if the air is kept from the wounded parts until nature effects a cure, there is a perfect graft. It is obvious that the more accurate the adjustment of the line separating the wood from the bark the more ready will be the transmission of young fibers from the one to the other, and that the less the accuracy that may be observed in this respect the greater will be the diffi-



The Quincunx System of Planting
1, Field staked; 2, Field set; 3, Improper thinning; 4, Proper thinning.



a sloping direction so as to throw off the wet. To assist in this and help the healing process, the parts sawn should be shaved with a sharp knife so that the wound may be smooth. As to the operation, the proper way is to make a slit right through the rind, rounding from the top down, extending about three inches and on opposite sides, making either two or four slits or cuts; which done, the next thing is to raise the bark in readiness

for the insertion of the grafts. A very ready, safe and easy way of doing this is to have a small, hard piece of wood about the size of a cedar pencil and shaved off one side, sloping down to the end, which part can then be thrust under the rind where the cut is, and it will thus be at once raised. The scions should be prepared in precisely the same manner as the stock, which they will then follow by being pushed in without being bruised, and, when inserted, should be tied so as to hold them steadily in position and prevent the bark gaping. Raffia grass or soft string is the most suitable material for tying in, and then the clay must follow. This is a preparation of clay and horse manure, well mixed together. It will be seen that there is really nothing very difficult in grafting, and if the scions have been carefully kept and clearly cut a closely fixed union will take place at once, and the scion will make a good joint and grow freely. I have actually seen bloom and fruit on a first-year graft, but this should not be allowed. The chief thing to be remembered is that the parts of scion and stock must be so cut that they fit closely together; then, if they are protected from the air and from the effects of winds by the clay ball, nature will soon accomplish the rest.



TOP WORKING

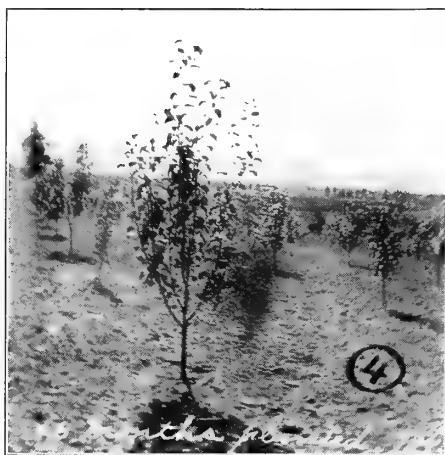
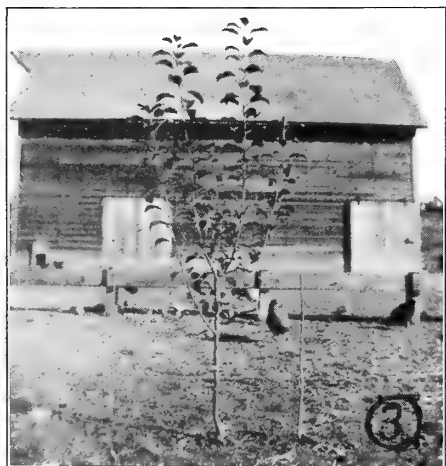
The best time to do top working is just about when the buds are bursting into leaves, but of course this particular period is too short to accommodate all the work that must be done, and so the agony is spaced out in this country for two or three months, as it has to be. The great secret of success under these circumstances is in keeping the scions dormant and not allowing them to dry out. A dormant scion and a sappy stub is the rule to go by. In working over a tree eight or ten years old, pick out four or five of the main prongs and graft them, but this does not mean that the work must all be done one season. Be sure to select the limbs to be grafted so as to have a well balanced top. All limbs not grafted should be left on until the following spring, when they should be cut off. These limbs should be left for leaf surface in which the sap may be elaborated. Remember, the nourishment taken through the roots cannot build up the tree until it goes out into the leaves, where it meets the sunlight and air and takes in carbon, which combines with this non-elaborated sap and forms carbohydrates and proteids, which alone can build up the tree. If everything is cut off but the grafts the tree suffers for want of prepared food. A tree without leaves will die just as sure as a man on a prospecting tour will die without grub. Stubs as much as four inches in diameter are oftentimes grafted. In such cases four scions are put in and then all but one are cut away when the healing has sufficiently advanced. The four kerfs are set equidistant.—Field and Farm.

Views from British Columbia

A RECENT letter from Mr. Wm. R. Craig of Rutland, British Columbia, enclosing the five orchard views printed herewith, will be of interest to many of our readers. The letter follows: "Having some good views taken in my young orchard, I enclose five herewith, hoping that they may be of interest or use to you. Nos. 1, 2 and 3 are views of trees planted less than four months previous to taking of photo—one-year-old, straight whip, cut back to thirty inches high. No. 1 is a Gano about six feet high (was over seven feet high in fall). No. 2 was purchased for a Gano, but is not; it was nearly seven feet high. No. 3 is a "Wismer Dessert" tree; the stick on the right is a dead tree to show the size

of living tree when planted. No. 4 is the same tree (No. 3) taken a year later from different position, with part of orchard in background. No. 5 is a Tragedy Prune planted in May, 1909, as were the others. Tree grew poor shape first year, so I pruned it back very close to where white rags are tied on. All above the rags is this year's (1910) growth. When photo was taken (in September) tree was nine feet ten inches tall; is now ten feet four inches. Rutland is about five miles east of Kelowna, in the Okanogan Valley, British Columbia. We have splendid orchard land and an ideal climate, and you are sure to hear more about us in the future. "Better Fruit" is read with profit by a goodly number of the ranchers near here."

There were a number of up-to-date portable power fruit sprayers at the State Fair at Salem, Oregon, this fall. The Reierson portable power fruit sprayer took the blue ribbon, highest award. This sprayer is manufactured by the Reierson Machinery Company, Portland, Oregon, and sold direct to the fruit grower. Our ad. appears on another page in this issue. *



The Char-Pitting Method for the Destruction of Stumps

By H. W. Sparks, Supervisor Washington State Demonstration Farms, Pullman

THERE seems to be a well founded report that this method was first used by some Germans in Oregon about twenty years ago, but for some unknown reason the art was lost, or rather seemed to lie dormant for several years. Rumors of the method had gone out, and we believe the later methods are due to difference of understanding of these first reports. After investigations we became convinced of the value of the method, and gave our first public demonstration of it under the management of the Extension Department of the State College of Washington during a meeting of the Cowlitz County Pomona Grange, October 28, 1909. Several demonstrations were given in different parts of the state as a part of the regular farmers' institute work. After learning that the method, while proving so successful in the clay soils, was a failure in sandy, gravelly, loam soils, we commenced some experiments at Lake Whatcom in the winter of 1909-10 with the object of learning the reason of this, but were called away from the work again before any definite results were reached. Taking up the work again in co-operation with the Bureau of Plant Industry, Department of Agriculture, Washington, District Columbia, in Sep-

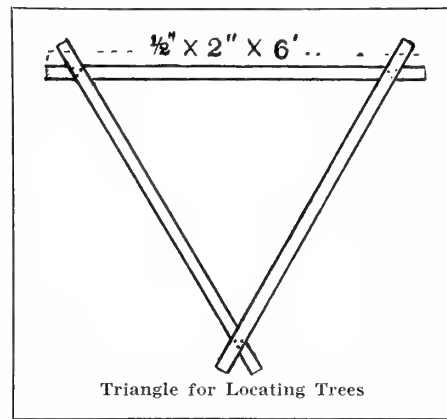
tember of 1910, Mr. Harry Thompson, representing the federal department, and the writer undertook work on the farm of Mr. Henry Dupurtis at Adna in order to obtain reliable data of the costs, and to study the factors with a view of extending the system to the supposed unfavorable soils.

observations of methods of clearing land ready for destroying stumps, and of investigations and experiments with the char-pitting of stumps has been published as general bulletin No. 101 of this experiment station. This popular bulletin contains a summarized description of the char-pit method, with some experimental data as to the cost of destroying stumps by this process. For fuller details interested readers should procure a copy of this bulletin.

We will first give directions for the method as adapted to clay soils. Starting in after a "good burn," on the stumps, if the operator will follow as soon as the ground is sufficiently cool he will find many stumps with sufficient fire as not to require any more than perhaps a few fragments of bark or other light material added to them to secure a good start, which should be covered immediately with earth. Stumps not so burning should be treated as follows: First, remove the bark to the ground, then if the sap wood is wet or green chop into the inner dry wood. Now procure some fuel for the good start; in the dry season any half-rotted material that can be secured easily will answer, provided there is enough dry material to start the fire. Pile this fuel around the base of the stump in such a manner that the fire will follow. The fuel should be continuous and fairly uniform in quality and quantity. It does not make any difference whether the wood is set on end or laid lengthwise. Where some of the fuel is long and there is a portion of the stump where there is a side sufficiently straight to allow the piling of long pieces without leaving too much space between the fuel and the stump this may be done so as to save labor of breaking up the wood. As to the amount of fuel to be used much depends upon conditions. If the fuel is piled to reach about fifteen inches high and about the same distance out at the ground line this will be sufficient. Our experience indicates that it is best to have less rather than more kindling material if it is so arranged that the fire will burn evenly, thus allowing the cover to settle uniformly. If the fuel burns out quicker in some places than in others the cover settling down as the fuel is burned in these places leaves breaks in the cover, thus permitting the heat to escape.

Place some of the finer material to act as kindling next to the stump and under the main supply of fuel to lead the fire and start the burning next to the stump, keeping the fire as near as possible to that which it is to burn. To further conserve the heat, cover the fuel with the soil most convenient. In friable, loose soil the manner of putting on this cover is important. If carelessly done, or if the operator stands at a distance and throws the soil, there

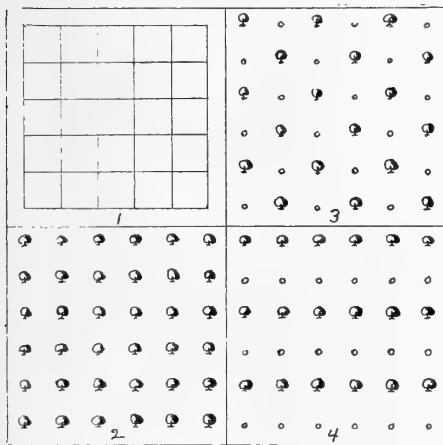
will be a breaking up into the finer subdivisions of soil, which will fall into the crevices of the fuel and perhaps considerable portions of it drift in between the fuel and the stump, thus protecting the stump from the fire. Hence the best results will be secured by laying each shovelful of earth on the fuel without throwing, and if the soil shows a tendency to break up fill in around the stump at the top of the fuel with the most convenient material at hand, small pieces of bark, rotten or wet wood, ferns, twigs or anything that will hold the fine material up at the start. Build the soil covering up from the bottom and cover the top tight. Be careful at the top of this



Triangle for Locating Trees

covering to close all the holes. A few shovelfuls of finer earth sifted over this portion of the covering will be found to be an advantage. Allow the air to enter freely at the bottom, since as the burning proceeds the air becomes heated and rises to the top of the covering, where it will escape if there are any holes, but if confined within the space the cover soil becomes hot, and that heat is radiated back to the stump. If the soil covering settles down to the horizontal, or nearly so, this heat is radiated back to that portion of the stump which we wish to burn, namely, the roots; and this is the special reason for keeping the fuel down to the lowest minimum for successful firing.

Cover all the fuel except a small opening to the windward side, where some kindling should be placed for the purpose of conveying the fire around the stump. Leave this opening on the windward side of the stump so that when the wind blows it has a tendency to drive the fire in under the cover. As soon as this fire is well under the cover, which may be easily told by the operator from the amount of smoke issuing through the covering at different places, cover that opening in the same way as the rest of the fuel was covered. Sometimes if it has not been convenient to reach the newly fired stump at the proper time and the fuel has burned out pretty well at this opening, where it has been exposed to

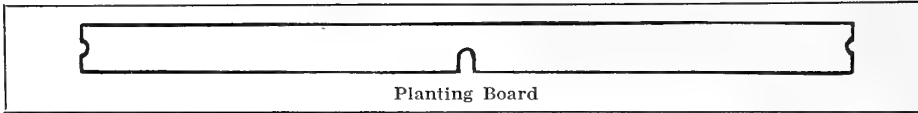


The Rectangular System of Planting

1, Field lined; 2, Field set; 3, Proper thinning; 4, Improper thinning.

tember of 1910, Mr. Harry Thompson, representing the federal department, and the writer undertook work on the farm of Mr. Henry Dupurtis at Adna in order to obtain reliable data of the costs, and to study the factors with a view of extending the system to the supposed unfavorable soils.

Later in the fall and winter I undertook a series of experiments designed to make the method applicable to stumps in soils which were too sandy or gravelly to permit its successful use without some soil binder, and other experiments to ascertain whether fuel oil or other cheap combustible matter might not be successfully and economically used in starting the fire under the stump. A report of our



the strong air currents, it may be necessary to fill in with a few small sticks or pieces of bark, which takes the place of that burned out, before banking up. The stump may now be left to care for itself for several hours while other parts of the work are done. The operator should make regular visits to each of the stumps to see that they are progressing as desired. If he finds holes breaking through the covering at any place they should be filled up, avoiding at all times packing the covering. Leave a loose, porous covering, because the more air space there is in this cover the better non-conductor it is, air being a non-conductor of heat. As a general rule the operator will find it best to arrange his work so that most of his stumps can be fired in the morning, leaving the afternoon so far as possible for the removing of bark, getting the fuel ready and fully preparing the stumps, all except setting fire to the kindling. Fire early in the morning in order that this first fuel may become burned down to a bed of coals before night, and the earth covering settled down to a position where there is less danger of breaks in the cover. Then, if these newly fired stumps are looked over as late as possible before retiring for the night, they take care of themselves until the early morning with a very small percentage of failures.

If a stump has been successfully fired, about twenty-four hours after the fire has been applied white smoke will be seen issuing from several places around the stump. At times we have thought that the fire had not caught some of the stumps, but upon examination found considerable heat there. If such stumps are left alone for a day or two the fire seems to gradually gather force by slowly drying out the wood, then begins to burn quite rapidly. From that time on the operator should visit the stumps regularly night and morning, dividing his time as evenly as possible, as it is quite essential that the stump be not left too long at one time to care for itself, as the fire burning under this cover will gradually eat into the stump and work its way from under the covering. If allowed to go too long in that condition the accumulated heat is lost through the opening. We have found that the fires usually burn better at night. The incoming air is cooler, and consequently expands more when coming in contact with the fire, thus stimulating stronger draft with more oxygen and better burning. This work is not heavy, but is exacting in its nature. Regular visits must be made to each stump, and where the fire has gone beyond or through the covering it must be covered over with more soil. It is best to cover these openings with dry, hot earth from near the fire,

replenishing from the soil outside over the top of this to keep the required thickness of earth over the fire. This should be kept as nearly as possible between two and four inches, the depth depending largely on the nature of the soil and the method the operator wishes to employ, that is, either to burn rapidly and consume most of the charcoal as fast as carbonized or to burn slowly and preserve most of the charcoal. The amount of this covering regulates the speed of burning. A fairly good guide for the operator is to watch the color of the smoke issuing from or through the covering. If the smoke is blue, moves upward rapidly and the fire can be seen through the cover, the carbon is being consumed too rapidly. This calls for more cover. But if the smoke is dense and white, and moves slowly, this indicates good work, the moisture and gases being driven off without actual burning of the charred wood, which is the desired condition. Heavy clay soil which does not break up much but retains the form as shoveled on is not as good a non-conductor as a soil that breaks up into smaller particles, hence a little more of this heavy soil must be used for the same speed of burning that would be necessary for the soil that breaks up better. On the other hand, if the cover disintegrates from the action of the heat, as sandy loam soils do, there is a tendency for this fine soil to run into the fire before it is well established in the stump and smother it. Also, these sandy loam soils, which from their nature are inclined to settle down closely together when hot, are better conductors of heat, and conduct the heat away from the stump instead of conserving it and radiating it back to the stump.

In the course of a few days the fire will have progressed so that the stump will be cut off about the top of the

earth covering and fall to one side. If proper care has been given during the first few days of burning, covering the fire as it progressed into the stump, there will be but a small portion remaining to be covered. This should be completed as soon as possible after the stump has burned entirely off. From that time on the care consists of regular visits of the operator. As before stated, there are two distinct methods which may be adopted: that of rather heavy covering, which is much slower but preserves the charcoal, and that of rapid burning, promoted by a light covering, consuming the charcoal as fast as possible. In the slow burning the soil is heated less and is left in a better condition for agricultural uses. In a few days more the crown of the stump should be entirely burned out. A little experience soon enables the operator to judge of the progress of the burning by the appearance. The covering will settle down so there will be quite noticeable depressions with smoke issuing from them. The cold air from the outside finds its way into the lower places, bringing the full store of oxygen and the fire burns faster, eating out still greater spaces until there is at times a considerable opening in front of each of the roots the fire is following out into the soil. Encourage and assist this burning by following up the fire with the soil. If a rapid burn is desired leave a very small air space at the top of the hole. If a slow burn is preferred and it is desired to convert the wood into charcoal, fill up the entire space with not more than three or four inches of covering over the fire. This checks the air circulating so that not more than enough oxygen reaches the fire to carbonize or char the wood.

It has been the opinion of many who have tried it that this method is not adapted to gravelly or sandy soils, but our experiments have convinced us that it may be profitably employed by modifying the method to the needs in the changed conditions of soil. We have done this successfully as follows:

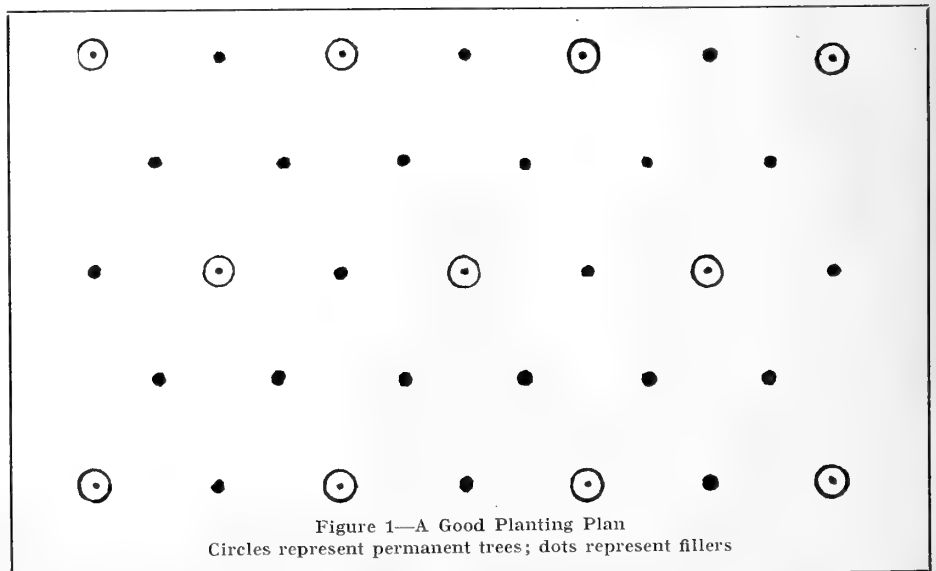
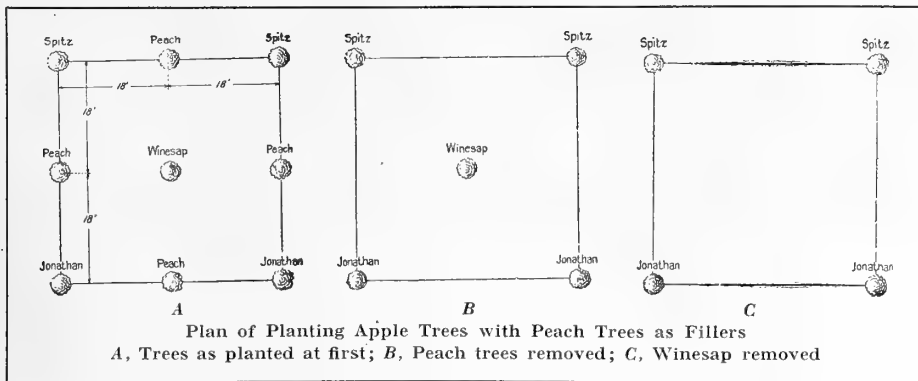


Figure 1—A Good Planting Plan
Circles represent permanent trees; dots represent fillers



Prepare the stump in the usual way, that is, removing the bark and digging away objectionable soil to about the depth one would want to plow, making a trench around the stump, wider at the top than at the bottom, the sides sloping toward the stump. Now put the fuel in this trench, using the same amount of fuel and placed in the same way as we have described above in the dry season. During the unfavorable seasons a concentrated fuel may be used with good success. Where dry sawdust is available use about one-half bushel of this in the trench, with kindling wood laid around next to the stump, then use from one to three gallons (depending on the size of the stump) of fuel oil poured over this kindling wood and sawdust. Next place a small amount of coarse wood and pieces of bark or any good fuel which may be at hand over this, and fill in with pieces of bark, chips, rotten wood or ferns around the top of the fuel to prevent the dirt falling in between the fuel and the stump at the start, cover the fire and care for the stump as before described. For unfavorable soil conditions an artificial covering is necessary. This may be of any material obtainable that is sufficiently granular in form to not settle together too tightly, making as nearly as possible a non-conductor of heat. We have successfully used ordinary coal cinders and clay hauled from the nearest supply point. The coal cinders and clay make a splendid covering except at a time of heavy precipitation. They do not have the capacity to absorb moisture that clay has, hence more water reaches the fire, although our experience with this feature of the work has been limited. However, this does not seem to make a great deal of difference, as the cooling, heat absorbing effect of the water in the clay gives about the same result. There is an advantage in the cinders for artificial covering. The supply can be taken up from the stump burned out and carried to the next stump to be burned. Perhaps in time we shall find other materials that will take the place of these where they are not convenient. We have been frequently asked whether it might not be possible to use sheet iron or other like substance for this covering. At first thought it would seem that this would be possible, but in actual practice it fails, first because

such materials are conductors of heat and conduct the heat away from the stump, and, second, they are rigid and do not follow the fire closely. Any cover that is rigid might be successful for a time, but when the material has burned away some distance the radiating effect is lost, and since radiated heat diminishes as the square of the distance increases the loss is apparent.

We do not think it advisable to use large pieces of bark for fuel, but if the bark is broken up pretty well it serves the purpose of fuel when placed on the outside of the fire. Bark is a natural non-conductor provided by nature with many air cells to protect the growing trees from the extremes of heat of summer and the cold of winter, but when broken up into small pieces and placed around the top it will take the place of fuel, although it is not as good as dry, sound wood, except to fill the smaller spaces between the other fuel. From our observation where clay, which has been shoveled over a few times before being placed over the fuel, is used for artificial covering it is pretty well broken up, so that in placing it over the fuel there are not many air spaces left around the bottom to help draw the fire around the stump at the start. We have found it advantageous to so lay in a few pieces of bark or other material that there will be openings left around near the ground line to admit the air. Fuel oils may be had very cheaply wherever they are used for fuel in factories, steamboats or railroad engines, costing about three dollars when bought by the barrel but as little as ninety cents per barrel in quantities. One barrel of oil used as we have suggested is sufficient for from twenty to thirty average stumps,

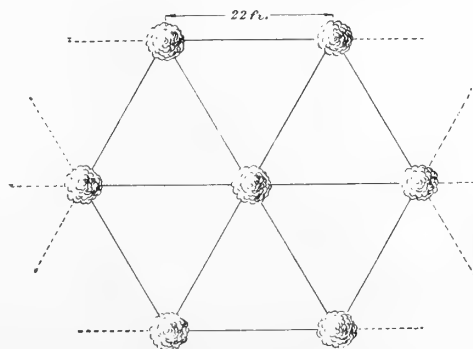


Figure 6—Hexagonal Method of Setting Out Orchard Trees

and where one can use his time to advantage this is about as cheap a fuel as one could get by any method of preparing fuel. There is a further advantage in the fact that oil is a concentrated fuel and permits the maximum heat production in the minimum space.

The following data as to the cost of removing stumps from burned-over land was obtained during the fall of 1910. Three distinct methods of firing the stumps have been observed, and cost data for each method was secured. The plan most generally used is that known as the "Yount Method," since Mr. Harry Yount of Woodland, Washington, was one of the first farmers who made use of this method of destroying stumps. His method consists essentially in starting a fire entirely around the base of the stump, under a covering of earth and sod, which confines all of the heat of the fire to the stump and causes it to "char" or become destroyed by the same general process as is utilized in charcoal pits. Mr. Yount has been using this method for several years, and in order to furnish exact data on the cost he commenced August 30, 1910, to fire twenty-four stumps, performing all the labor necessary to complete burning out of these stumps in thirty-six hours, which, at twenty-five cents per hour, gave a total cost of thirty-two and one-half cents per stump. These stumps were of an average size, forty inches at the cut-off, varying from twenty-four inches for the smallest up to seventy-two inches for the largest. About the first of September 100 stumps were fired on the farm of Henry Dupurtis of Anda, Washington, the average diameters of which were thirty-two inches at the cut-off and forty-six inches at the bottom. The work of firing the 100 stumps was completed in four days and four hours. The after care consisted of one hour each morning and evening for three weeks, making a total of 130 hours, at twenty-five cents per hour equals \$33.33. Ninety-seven of these 100 stumps were burned out successfully, which gave an average cost of thirty-four and three-tenths cents each. J. W. McCutcheon of Adna burned out 130 stumps from an old field in thirty days. Mr. McCutcheon paid \$2 a day for labor, making \$60 for the 130 stumps, or forty-six cents each. Mr. David Fay of Adna removed 39 stumps from an old field in eight days' time for firing and three hours a day for five weeks in after care. He valued his time at \$2 per day, making a total of \$37, or ninety-five cents per stump. These stumps were much above the average size, all the smaller ones in the field having been removed by other methods.

Another successful plan for applying the same principles with a slight change of method is that employed by Mr. W. H. Booth of Sopena, Washington. In 1908, with the help of his two boys, he removed 603 stumps from sixteen acres in nine weeks, and in 1909

he destroyed 350 stumps from twelve acres. In 1910 225 stumps from eight acres were destroyed, not keeping any record of the time for the last two years. Counting nine weeks' time at \$36 per week for the three laborers would give \$324 as a total cost of removing 603 stumps in 1908, an average of a little less than fifty-four cents per stump. These stumps were removed from old fields where all small stumps had been previously taken out. The average size of these stumps was fully up to anything that was found in the state, being very large. Mr. Booth's method is to fire the stump at but one place. He first prepared good fuel from good wood by cutting it up during the winter season in convenient sizes to handle. This is piled up to dry and the firing is not undertaken until the driest part of the summer months. He then selects some part of the stump where two large roots are coming out near together from the stump and digs away the earth from fifteen to eighteen inches deep, or until he gets a little below the point where the two roots fork. He then goes on the ground and builds a good fire in each of the previously excavated holes and leaves it burn several hours uncovered, then if there is a good bed of hot coals and the stump begins to show indications of taking the fire he replenishes the fire with a little fuel and covers over with earth about the same as previously described. The after care consists of keeping the stump banked up ahead of the fire all the way round. Mr. Booth thinks that on large stumps it would probably pay to fire them from two opposite sides, as that would very much hasten the operation. This method of burning by firing from one place is necessarily slow for each stump, but where there is plenty of work ahead in firing other stumps the time required for a stump is not so much a factor.

The most favorable data that we secured is that furnished by Mr. A. W. McCormick of Woodland, Washington. Mr. McCormick had an old field with a large number of stumps which he contracted to have burned out by Mr. George Lanham at fifty cents a stump. Mr. Lanham commenced work August 12, 1910, keeping, at our request, accurate account of his time. He successfully burned out 219 stumps in 198 hours. This is the most favorable record we have obtained, and we believe that the burning was done under the most favorable conditions that we have yet seen. The time, August and September, was when everything was very dry, there having been no rain to speak of for more than two months. The natural slope of the hill was very much in favor of cheap destruction in that there was a very good slope to the west and toward the prevailing winds at that place. This field had been plowed for many years in the same way, throwing the furrows down hill, thus banking

up the upper side of each stump and removing much of the earth on the lower side. Mr. Lanham, with his axe and mattock, would pull down some of the half-rotten wood from around the top of the stump, build a little fire under the exposed part of the roots, cover over with soil and go on. The stumps being pretty well banked up, as described, there was little more to do than to visit the fires regularly and keep them covered as the burning progressed. It should be said, however, that of the 240 he fired twenty-one failed to catch by the first firing, leaving 219 successfully burned out. The work here reported and all the figures given were obtained under most favorable climatic conditions and in a soil naturally adapted for this method of burning.

We have no reliable data at hand as to the cost where artificial covering for the fires has to be hauled to the ground, but think from experience that where material for covering may be had so that the operator can haul in three or four loads of clay or cinders

a day the average stumps, say of forty inches diameter, can be burned out under average conditions for somewhere between fifty cents and a dollar each, which is much less than the expense of removal by any other known method. From our observations we believe that it will pay those desiring to clear land by this method to so plan the work as to take advantage of favorable seasons and conditions, and that the method will not be so successful in the heavy clay soils during the extreme wet seasons as it will be during a more favorable season, since there will not be so much success in burning out the roots because of the water holding capacity of the heavy clay and consequent wetter condition of the roots. On the other hand, we believe that in sandy, gravelly, loam soils, the burning will be just about as successful during the wet season as at any other time because of the fact that such soils are naturally well drained and the soil saturation is not so great as with the heavy clay soils.

Expert Tells How to Prune Trees

R. E. Trumble in Wenatchee (Washington) Republic

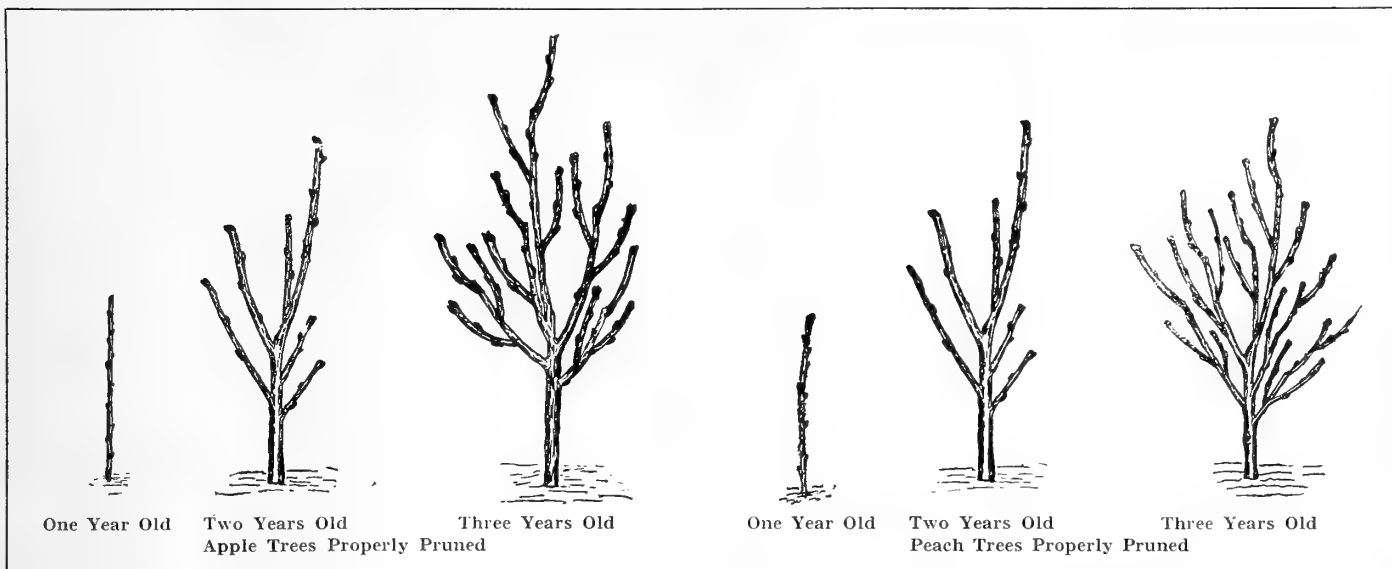
PRUNING can be considered from two viewpoints. First, from the well being of the tree, and, second, from the artistic viewpoint. Under the latter point comes the matter of high or low headed trees, round or tall shape, and other matters of personal preference. These things are not vital to the well being of the trees. A thorough exposition of pruning has never been written. This is due in part to the fact that in pruning each tree is a new problem and cannot be treated like any other tree. It follows, then, that the only way to learn to prune correctly is to learn the underlying principles.

In the same way that no trees are alike, no two branches are alike, yet all have some traits in common. One of these is the fact that all branches grow from the terminal, and that the buds farther along the branch are stronger than those near the crotch. This is because the buds near the end are able to secure more sunlight than the others. Every bud on a tree if permitted to grow would develop into a branch. This we know never happens, so it follows that the tree develops some buds at the expense of others. There is a struggle for existence between the buds and twigs, and the great majority of buds never develop. This is natural pruning.

The question has been raised and agitated by prominent authorities as to whether pruning devitalizes the trees. This can be considered from three viewpoints. First, from the principles of growth, we know that a tree is a group of smaller trees. Unlike animals, the branches are not organs performing specialized functions; but each branch does the same thing the other branches do, so that

cutting one will only help the remaining ones. You are merely following the practices of nature. Some plant physiologists have raised the theory of initial vitality and that pruning lessens this vitality, i. e., an unpruned tree will have a vitality of ten, and after part of the tree is removed the vitality will be nine. The error in this theory is in the hypothesis. The vitality of a tree depends on the nourishment and outside conditions. Cutting off part of a tree does not rob it of vitality, but, on the other hand, the shock tends to increase the energy of the other parts. The exception to this rule comes in the case where too many leaves are cut off. The third circumstance in support of pruning is common experience. It has been proved again and again that more and better fruit can be grown on pruned than on unpruned trees.

In studying the principles of pruning, we must study and watch the fruit spurs and buds of the different trees. These vary greatly. Peaches bear on last year's wood, apples on year before last's. Peaches grow from lateral buds, apples from the terminal buds. Peach buds come in triplets, a fruit bud on each side of a leaf bud. In apples the fruit buds are separate; they are identified by their shape and size, being larger and more blunt than the leaf buds. In the East a fruit bud bears every other year, but in the West they bear every year. Differentiation into fruit and leaf buds takes place in the summer, so that only summer pruning can effect them. Summer pruning will cause an increase in the number of fruit buds. A very important detail, and one that is generally overlooked by the pruner, is the method of making cuts. Cut



smoothly, close to branch. If you cut otherwise stubs projecting will be slow to heal, and will probably become infected, in time rotting the entire heart of the tree. This is a point often spoken of but rarely observed. That it is important is shown by the fact that several species of bacteria live entirely on the cuts and exposed wood of trees.

All healing is done by the cambium layer. The aim of the grower, then, is to keep the cambium active, especially around the big cuts. This can be done by irritating the callous formed with a knife or, better still, by slitting it. The pressure of the cambium on the bark has been demonstrated at fifty pounds to the square inch, so that a cut will cause a rapid growth. No dressing has been devised that will cause a wound to heal rapidly, the function of a dressing being only to cover the wound and to prevent infection. Lead paint is most satisfactory. Cornell University has held a series of experiments to determine the time to prune, and has proved that successful pruning can be done at any month in the year. The wounds heal far best, however, if pruned just before the growing season. In the sawing of large branches it is best to make a first cut about a foot from the trunk and then saw the stub off at the trunk. In this way you prevent the weight of the branch tearing the cut when part way through. Altogether too much pruning is done by growers and professional pruners from a viewpoint of form and appearance. This is all right for shade trees, but fruit trees have a different purpose, and must be pruned with a view to fruitfulness and well being. Since no two trees are alike, and since conditions vary, it follows that no specific rules can be given for pruning each and every tree; but, as before mentioned, there are principles of pruning that apply to all trees.

Top pruning produces wood growth. The reason for this lies in the fact that the top and roots of a tree balance each other, i. e., the top is just

large enough to handle and transform the sap sent it by the roots. If this balance is disturbed by the loss of part of the top, the tree at once restores it. Root pruning lessens the production of wood. Checking growth tends to develop fruit spurs. This is true if done at the right season and if done in such a manner as to give an excess of food. Nature has provided that all living things, when destruction threatens them, will hasten to reproduce. Therefore, checking the growth by ringing, or summer pruning, will cause increase in the number of fruit buds. Heavy top pruning in the winter will rejuvenate sickly trees and stimulate slow growing ones. Trees injured by frost can often be saved by pruning severely just before the growing season, the excess of food overcoming the injury by frost. The season of pruning affects the habits of the tree. Summer pruning will cause fruitfulness because of the excess of food and the check to the growth; winter pruning will cause a woody growth because the balance of the tree is disturbed. Pruned plants tend to resume normal habits of growth, i. e., the effects of pruning are temporary and must be repeated.

Habits vary from youth to age both as to bearing and growing. Young trees grow erect and rapidly; later they broaden and give more strength to fruit bearing. Fruit bearing is a habit and may be changed some when young. Once the tree is bearing properly keep it bearing constantly, and never let up for a year, as it will be hard to start when older. Growth is from the terminal buds; put each terminal bud in the direction you wish the branch to go. Heading in young trees will broaden and thicken the top; this process can be used for branching drooping trees. An obstruction just above a limb tends to develop longitudinal growth; the reason is that food returning from the top of the tree is stopped and that food coming from the roots is directed up the branch. An obstruction just below a

limb tends toward quiescent growth because the food from the roots is cut off.

One part of a tree can live at the expense of another. Water growths and suckers develop too rapidly to manufacture all their food. The cold countries are apt to have excessive evaporation, therefore one wants few branches and leaves. Warm climates have sunscald, and there lots of foliage is needed. These rules, as can be seen, are general in their nature. Anything more specific would be apt to be misleading because of the great variation of conditions. They must be taken by the grower and applied to his own specific orchard, and to each tree in that orchard. Each grower should prune his own trees; first, because he is most interested in them; second, because he knows what the trees are doing and what they want, and, third, because he knows what he wants.

COMPETING FOR PRESIDENT ELLIOTT'S \$500 APPLE PRIZE

Nineteen apple growers of the Northwest have entered the prize contest at the American Land and Irrigation Exposition which will be held at Madison Square Garden, New York City, November 3-12. President Elliott of the Northern Pacific has offered \$500 in gold for the best display of twenty-five boxes of apples, any variety. Those entering the contest are: Beasley & Dinges, North Yakima; John H. Estes, Toppenish; H. M. Gilbert, North Yakima; Robert Johnson, North Yakima; Elmer B. Johnson, Prosser; Ulrich C. Johnson, Toppenish; J. D. Laughlin, Toppenish; Harry Maxted, owner, and Frank L. Howting, manager, North Yakima; C. H. Pearl, Prosser; Ella D. Rowland, Toppenish; C. C. Greageson, Prosser; Yakima-Euclid Fruit Company, Prosser; Ernest C. Hill, Selah; John Scoon, Sunnyside; Olson Fruit Company, Toppenish; C. Tichacek, Moses Lake, and Laughlin McLean, Spokane, Washington; H. A. Brigg, Victor, and S. W. A. Wilson, Paradise, Montana. The outcome of this competition will be watched with deep interest by the people of the Northwest, and may the best man win.

The King of the Woods drag saw machine got the blue ribbon, highest award, at the Oregon State Fair at Salem this fall. This is a wonderful wood harvester, and with the new improvement the operator without changing his position can lift the saw out of the cut and at the same time operate the lever to pull the drag saw ahead. A very handy arrangement for sawing small logs. It will pay you to look into the merits of this machine. Write the manufacturers, the Reierson Machinery Company, Portland, Oregon, for their special offer.*

Gardena Orchard Experience of E. C. Burlingame

From Freewater (Oregon) Times, January 24, 1910

THE object of this article is of vast importance to the thousands of prospective fruit growers and home builders in the Pacific Northwest; and in talking to you on the subject of planting and care of young orchards I shall not undertake to do so from a scientific standpoint, for the simple reason that I am not a scientific man. I shall talk to you as a fruit grower young in the business, and give you the benefit of my experience and observation along this line.

If a fruit grower gets the right start in putting out his trees, uses common sense and applies himself seriously to the making of a successful orchard he is bound to succeed; and in succeeding he is giving to society as well as to himself an object lesson. In selecting a tract of land for home or an orchard plenty of time should be taken to examine soil and climatic conditions, water supply, transportation facilities and everything that pertains to the same. It is important to consider this truth: The better the general soil condition the better and greater the product and income of your farm is ultimately bound to be.

It is an assured fact that if from seventy-five to ninety per cent of the upper ten feet of your orchard tract is gravel or coarse sand, rock and boulders it will not begin to give you the revenue that a tract would where these objectionable features do not exist, as growth, color, size and appearance of your fruit to a great extent is going to correspond with the condition of your top soil and sub-soil. A reasonable amount of sand or gravel in the sub-soil is not an injury to an orchard, as it gives it natural drainage regardless of the slope of the land. Inasmuch as seventy-five per cent of the orchard tracts in the Pacific Northwest are going to be irrigated land the question of drainage is always a serious one; but where irrigation is conducted with intelligence—which is being done more every year—it becomes a matter of judgment in applying the water to the land rather than drainage. If a farm does not lie naturally so that the water drains off well the intelligent fruit growers, realizing that a water-logged condition of the soil is injurious to his fruit, will quickly learn to apply only the amount of water needed for the growth of the crop and not allow a surplus water to be turned on, thus, through his intelligence, reaping the greatest returns from his orchard.

The poorer the soil and the more boulders and rocks it contains the greater the amount of artificial fertilization required; and it is only a question of a few years when the now easily obtainable fertilizers, such as barnyard manure, will be in such great demand as to be come costly, and artificial fertilizers will have to

be shipped in at great expense, as is now being done in the orange orchards of Southern California.

In planting an orchard great care should be taken not to get the trees too close together. Figuring all the time ten or twelve years ahead, the orchard grower should picture to himself the size of the tree when it will be ten to twelve years old and plant accordingly. One of the chief causes of so many small size, inferior looking apples is that the trees have been planted too close together. Hardly two fruit growers agree on just how far apart the trees should be, but the progressive fruit grower of today is giving his trees plenty of sunshine and room for thorough cultivation with teams between trees. Orchards that I have been planting the past year or two are planted on the hexagonal plan, thirty feet apart with fillers, equaling the number of the original trees, leaving my orchard rows twenty-six feet apart and the trees fifteen feet apart in the row. I am using an early quick bearing fruit tree for fillers, thereby enabling me to secure an early return from the orchard. The Rome Beauty or the Jonathan make excellent fillers, commencing to bear the third year and at five years yielding about two boxes to the tree. Filler trees should be allowed to bear as long as possible without injury to permanent orchard, and should then be taken out. Some orchardists argue that one of the drawbacks to the filler tree is that the planter will not cut the filler out on account of the money he is receiving from it. That might have been the method pursued by orchardists in former days, but I believe the intelligent fruit grower of today will not hesitate to remove the trees that he knows are a menace to the future welfare of his orchard.

In digging the holes for the trees I make it a rule to dig as large, deep hole, say two feet to two and one-half feet in diameter, and not less than two feet deep, in good soil; and where hardpan exists, as it does in some localities in this country, if from six to sixteen inches thick I invariably go entirely through the hardpan, even though I dig the hole four and one-half feet deep. In removing the soil from the hole I always place the top foot of soil in a pile to one side by itself, placing the soil below that in another pile by itself, and after the hole is dug I refill it to within eighteen inches of the top with the best top soil in the vicinity, leaving the soil taken from a foot below the surface to be scattered on the top of the adjacent land. This gives the young tree the benefit of all the strength of the humus in the topsoil and gives it a fine bed to start its young roots in, and in the case of the hardpan gives opportunity for the

roots to go down and leaves a drainage through the hardpan for any surplus water that might naturally accumulate there.

As the Pacific Northwest is a country of prevailing winds, I lean my trees sharply in the direction of the winds. In setting the trees out where I have water I always run the water in a furrow down alongside the proposed tree row, allowing the holes that I have already partially filled with the top soil to fill with water, thereby settling the ground compactly and firmly below the roots of the trees that are to go into the holes. I set the tree on top of this foundation of top soil, already settled and wet by the water, and spreading out the roots with my hands tramp them firmly and fill within an inch of the ground level, completely and firmly, with the best top soil in the orchard and again run the water down the tree row, letting it into the tree hole, thus settling the new top soil around and over the tiny roots and fibers of the tree; and after a couple of hours I follow along with a shovel, completely filling the hole with dry, mellow surface dirt, thereby preventing any crust forming around the tree. Healthy trees thus planted will give ninety-nine per cent of a stand. I cut my trees off about sixteen inches above the surface of the soil.

In this country the hard fight will be to get the trees evenly balanced or shaped—I mean the side away from the prevailing wind is apt to be the heavier and the limb growth on that side much the better, as the trees lean the way the wind blows, and those limbs have no hindrance to their growth; whereas the limbs on the windy side of the tree from the time they make their appearance as tiny sprouts until the end of the season are blown and twisted around in all directions by the wind. It is one of the problems of the orchardist to get as many limbs on the windy side of the tree as on the other. I advocate grafting new limbs or buds into the young trees where the wind has kept them from growing, and shall continue to do so with my own every year until such time as my orchard is big enough to partially protect itself and until I get the trees uniform in shape, that is, for the limbs on the windy side of the tree to balance in size and length the limbs on the opposite side of the tree. This is absolutely necessary to produce a beautiful, shapely and symmetrical tree, bearing fruit equally on all sides. If an orchardist persists in this method a few years he is bound to have what he wants—a perfect shaped orchard tree.

I cut back the first year's growth of the young trees to about six inches, the second year's growth to about eight inches, leaving the third year not to exceed one foot, estimating that it will take three years to form the main tree and its permanent limbs. In our windy country a low, droop-

ing, broad spread tree is the ideal for the commercial orchard.

The application of water to an orchard depends entirely upon the location of the orchard and the nature of the soil therein. If the orchard is situated on a side hill and the ground is inclined to be gravelly and porous it will necessarily have to be irrigated oftener than on heavy, fine grained soil. In my young orchard in the Yakima Valley I was compelled to irrigate, cultivating thoroughly after each irrigation. In the Walla Walla Valley, with its light volcanic ash soil, in my young orchard, I only irrigated once during the season, but I cultivated the orchard several times with a spring-tooth harrow early in the spring before irrigating. Immediately after irrigating I continued cultivating and working the top soil thoroughly, so as to conserve all moisture therein and prevent the ground from caking or forming into clods later on. After irrigating an orchard it should always be cultivated very thoroughly as soon as it is safe for horses to go upon the ground without miring.

In my opinion cultivation is the one thing which so many orchardists fail to appreciate. When an orchard is free from weeds and is dry and mellow on top, the general impression is that this is all that is needed to keep it in proper shape. This is entirely wrong. What has been done is good so far as it goes, but the good work is only commenced. Constant and thorough cultivation is the one important thing in orchard culture. If an orchard is cultivated every week or ten days many people think it a waste of labor and time, because the soil looks just as it did before, but if you will get right down to nature and take a piece of land and cultivate it once a month and take another piece directly adjoining it and cultivate it once a week, the end of the season will tell you plainly that the orchard cultivated once a week will have a greater amount of conserved moisture in the soil and a healthier growth of the trees.

My young orchard of 140 acres at Gardena, Washington, where the natural rainfall does not exceed seven inches per annum and oftentimes is only five, I thoroughly irrigated once in the spring and immediately afterward cultivated the ground, plowed it deep and commenced the summer's work of cultivation. It took a four horse orchard cultivator exactly eight days to go over the orchard, and my man never ceased cultivating from the time he started in April until the end of October. As fast as he went over the orchard he immediately turned around and recultivated it, keeping this up the entire summer, gauging the cultivator a little deeper at each cultivation until at the end of October it was being cultivated about ten inches deep; and you could see at that time that the cultivator teeth still continued to bring up moist ground. It was in

reality a practical demonstration of what cultivation will do. I did not myself expect to conserve the moisture as was done. I fully expected to have to irrigate the orchard in August, and I went weekly to examine the soil, but I saw, with agreeable surprise, that the moisture continued in the soil. Knowing that it would be much better for the trees to go into winter with a tough, matured wood growth rather than a fresh burst of new growth, I refrained from irrigating them. The result was that I had on young trees planted this spring from two to three and one-half feet of wood growth, and on trees planted a year before from two and one-half to five feet wood growth. Talking with fruit growers this fall after they had looked at my orchard, several of them remarked: "Why, your orchard has made too much wood growth this year." To my mind cultivation is three-quarters of the battle. By constant cultivation every weed is killed, no insects are allowed to grow or live in the soil and almost the entire amount of moisture put in it is conserved. The dust blanket formed by constant cultivation makes a splendid non-conductor, and while the soil may not

have lungs to breathe with, one watching the growth of trees would almost think they got their inspiration from the lungs of the earth.

I believe that anybody writing an article on the growth of orchards, or on any other subject about which he presumes to know something, should actually practice what he preaches; and a visit to my orchard would tell you that I am doing so. If a man were to get one dollar each for the growing weeds found in my orchards I seriously doubt if he could, with his money, pay his board at country rates for the time spent in the search. I take it for granted that you would not expect me, a farmer, to write as well as I work, but I fully believe that if the fruit growers of the Pacific Northwest will constantly cultivate their young orchards during the growing season they will become imbued with the idea that if constant cultivation makes a successful growth for a young orchard, constant care and constant application of the best methods after the trees are grown will without doubt make successful orchardists—in my mind, the best class of people in the world.

June Budding of Cherries

By W. H. Addis, Montavilla, Oregon

JUNE budding is not practiced in this climate and is not considered practical. Many consider it impossible. Cherry budding is more difficult than any other kind of fruit tree budding. The accompanying photograph shows buds inserted at three different times. The larger limb from the upper joint is the result of a bud inserted in Sep-

tember, 1910. The bunch of leaves standing out in front is a bud of this year's growth, inserted in June of this year. The string on the limb to the left marks a September bud of this year, while the limb to right and the one seen dimly behind it are grown from dormant buds taken from graft sticks, inserted in June of this year. The one that can be seen least of any is from a terminal that I split and inserted as I would a bud. It will be seen that the buds of this year's growth lived and made leaves, but did not grow a branch. On the other hand, the dormant buds of last year's growth made a splendid limb growth, almost as much as was made by grafts set in March, and a much smoother, better joint.

Keeping the buds dormant is the most important point. The best way to do this is to cut your sticks in January and put them in a cool place with their buds to the ground. Never pile the dirt around them nor allow them to become too warm. Too much moisture or too high a temperature will cause them to start growing and to soften up. The buds should be as dormant as when cut if possible, but not too dry. If the stick has not withered so much the better. Top working Mazzard seedlings is very difficult, but I have found that it can be done more successfully and satisfactorily by budding in June with dormant buds than by any other method. June budding can be done on trees where the grafts have failed to grow. This gives us two tries at the same tree the same year.



Illustration Showing Buds Inserted at Three Different Times

Art of Careful Pruning a Very Helpful Practice

By C. I. Lewis, Professor Horticulture, Oregon Agricultural College

MANY people seem to think that pruning is a weakening, a devitalizing practice, and it may be such, but only under very unusual circumstances. Nature is a vigorous pruner—probably not more than one bud in ten survives in the race. Notice the forest trees, how the lower branches die; or even in our orchards how many of the branches succumb in the battle of life. Pruning, when properly done, instead of devitalizing should give more life, more vigor to the plant.

The first lesson for us to learn is that there is a natural balance between the root and the top. Disturb gently this balance and you give rise to serious reactions. Deep plowing of an orchard which has not been plowed for years cuts off many of the feeding roots. Unless the top is pruned back we find that the tree makes a feeble growth, the leaves being often less than half their normal size, the fruit small and often worthless. On the other hand, should you prune the top very severely on trees of good vitality, the reaction will be a thick growth of watersprouts, which will sap the vitality from the other parts of the tree. Only by laborious summer pruning and everlasting vigilance for several years can the tree be restored to its normal condition. There are certain cases where heavy pruning is advisable. Often old peach trees have lost all the vigorous wood, especially that which is found on the inside and lower sections of the tree. Such trees have outlived their usefulness, but often have the vitality sufficient to grow a new top when they are very severely cut back to stubs. Likewise, old cherry trees which have in some cases ten or twelve feet of dead wood in the top can be built into strong, vigorous, heavy producing trees by cutting back severely to vigorous wood. In such cases we are confining the whole energy of the trees to a much reduced number of buds. Badly frozen trees are subjected to the same treatment.

Young trees will stand much more severe pruning than old ones. The reaction can be handled much more easily by a combination of summer and winter pruning. The problems of pruning, then, differ with the age of the tree. We find the habits of the young tree to be different from those of the old one. In the young tree the terminal buds are the dormant ones, while in the old tree the lateral buds become the stronger. A pruned tree always tends to return to its natural habit of growth. Cut the center from a tree and you will note that it strives to develop a new one. Head in a strong grower, and it tends to shoot upward again. I would not have the reader think that we cannot modify by pruning, for it is well known that the heading in of young trees develops a stronger lateral growth. This head-

ing in, if not too severe, in some cases serves as a check to the tree and serves to induce fruitfulness by causing the formation of fruit spurs.

The season has an influence on pruning. Winter pruning, if it is done heavily, tends to produce wood. Summer pruning, if lightly done, probably aids in the formation of fruit buds. A combination of the two will probably give the best success. As an example, the thinning out of surplus wood in winter and the light heading in during the summer. Such phases will be discussed more in detail in the future. In conclusion I would state that the habit and individuality of the tree

must be studied if one prunes intelligently. Some trees are naturally very fruitful, others are not; and often in such cases pruning seems to be of little value.

Editor Better Fruit:

Please accept my thanks for the additional copy of the September issue which I have received from you. I also have your letter of the twenty-seventh and am pleased to say that you have good cause to be proud of not only your July number but of every month's issue that I have seen. Yours respectfully, Joseph Flaherty, Pittsburg.

Editor Better Fruit:

We find that your paper is a very valuable one to the fruit grower, and we get a great many inquiries on account of our advertisement in your paper. We advise all of our people to subscribe for your paper, as we find that the articles which you publish are of such high order that they are valuable to every person who is interested in this subject. With best wishes for your success in maintaining this high standard, we beg to remain yours truly, Spokane Valley Irrigated Land Co., Inc., by D. M. Thompson, President.



There has been considerable discussion about the life of an apple tree. The above illustration is a picture of an apple tree planted at Vancouver, Washington, in 1824. It must be borne in mind that this tree has stood for eighty-six years without cultivation, without care and neglected in every way. It is still bearing fruit at eighty-six years old, showing the life of an apple tree in the Northwest. Some people are under the impression that apple trees in the Northwest do not live as long as in the East. Elsewhere in this edition we give an illustration of the "Handy Apple Tree," grown in Virginia, claimed to be one hundred years old, also an illustration of an old apple tree grown in North Carolina, claimed to be one hundred years old or more



Largest Apple Tree in the Country

WE are indebted to the Southern Railway Company of Washington, District of Columbia, for the accompanying illustration of the remarkable apple tree grown in Wilkes County, North Carolina. Apparently the climatic conditions of that section are particularly adapted to apple raising and peculiarly conducive to great longevity of apple trees. This tree is known to be over one hundred years old, and may be one hundred and fifty. It certainly must have been a large tree ninety years ago, for Mr. Newton Gentry of Trap Hill, Wilkes County, North Carolina, states that his grandfather, Jim Fields, killed a deer in 1820 near this tree, and hung it on a limb to put it out of reach of dogs and wolves while he continued his hunt. Mr. Gentry has used the fruit from this tree for over sixty years, and Mr. W. A. Johnson, his neighbor, states that the tree was as large fifty years ago as it is today.

A recent measurement showed the trunk to be sixteen feet five inches in circumference at the ground and twelve feet six inches just below the first limb. It is also stated that the trunk is perfectly solid to this day. Were it cut down and the center hollowed out it would be large enough for an ordinary cow to walk through without touching her sides or back to

the inside walls. The tree has been neglected for years, but was recently pruned. Before the large limbs were cut off the spread was about sixty-two feet.

The variety is not exactly known, but the natives call it the "Rich Apple," as the color is a rich yellow and striped red, and has a very fine flavor. The fruit is ripe about September and keeps until late fall. Mr. Gentry does not recall a year in the past sixty that it has not blossomed, and thinks he has seen at least fifty bushels of apples grown on it in a single season. The tree is now owned by J. B. Horton of Elkins, North Carolina, and the apple will be cultivated and perpetuated under the name of "Horton's Second Century Rich Apple." This name has been suggested as the tree is now in its second century, and bids fair to live a great many years longer.

Editor Better Fruit:

We have yours of the sixth stating you were going to send an extra copy of your paper each month that it may be taken home. We certainly appreciate this very much, for it always contains valuable articles and suggestions, and the writer has been religiously keeping all the marked copies you have been sending for the last two years. Keep the good work up, for you have surely set a pace that is hard to follow and one that is well worthy of emulation. With best wishes for your continued success, we are yours very truly, Yakima Valley Nurseries Company. B. R. Sturm, Manager, Toppenish, Washington.

NEW SPRAYING RECOMMENDATIONS OF VALUE

We have never yet found a man too old or too experienced to learn. In fact, the more we learn the more we realize how little we do know. No fruit grower, however experienced, can afford to pass by without considering the experience of other successful growers. Therefore every fruit grower should obtain a copy of the new book, "Spraying Simplified," just published by the Vreeland Chemical Company. There are two points in this book of especial interest to the experienced grower, the section on fall spraying and the recommendations for the extensive use of lime-sulphur solution as a fungicide. A few growers, no doubt, will take issue with some of these spraying directions, but as the book was compiled from the recommendations of the highest authorities and from the experience of practical growers who have used and thoroughly tested out the spraying suggestions recommended, they are entitled to respectful consideration. The recommendations are new—not a rehash of old matter which has been proved obsolete in the light of our later and more complete knowledge of the orchard's enemies. "Spraying Simplified" is one of the most comprehensive yet concise booklets ever issued on this subject. While written to meet the needs of the average farmer who does not make a business of fruit raising, there is much in its sixty-eight pages that will interest every raiser of fruit. A free copy will be sent to any grower who will mention this paper in writing to The Vreeland Chemical Company, 50 Church street, New York City.*

Editor Better Fruit:

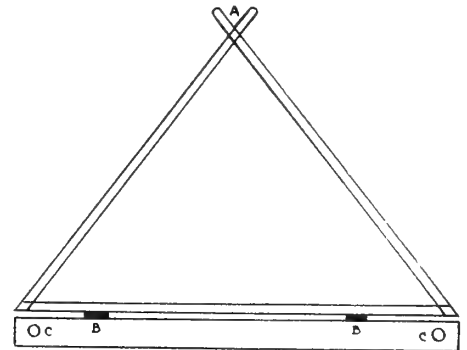
I am enclosing \$1.50 for a yearly subscription to "Better Fruit," beginning with the number for November, 1911. I am a student in horticulture, returning home to Bombay, British India, after a stay of over five years in the United States. I shall see what I can do, in my humble way, in introducing "modern scientific methods" in that ancient land of wonders. With every good wish in your work, I am, for mutual benefit and success, yours truly, B. L. Joshi.

P. S.—Sorry I have not time to visit Hood River before leaving.

J. A. Kiggins & Sons, Springwater, Oregon, cut twenty-four cords of wood in four and a half hours, and seventeen cords out of a dead log in three hours. The dead log no doubt would have been burnt up in order to clear the land but for the King of the Woods drag saw. The log will easily net the owner \$34 or more. Write the manufacturers, the Reierson Machinery Company, Portland, Oregon, for their special offer on the King of the Woods drag saw.*

Editor Better Fruit:

The drawing herewith is a convenience I use in tree planting which I think is somewhat handier than anything I have seen for the purpose up to this time. It can be made of any light material that is handy, and should be made large enough to overcome any unevenness of ground surface. A good stiff plank should be used for the base, to which the triangle is attached with ordinary hinges at points marked "B." The points marked "C" are holes through base board through which wooden stakes may be driven into the ground to hold the whole contrivance in place. In



using, place the crotch of the triangle (marked "A") against the stake which marks position in which tree is to be planted, then drive stakes through base as before stated; now fold the triangle back and proceed to dig your hole; this done, bring your triangle back into its first position and place tree in hole with its trunk through the crotch in same position that the stake occupied. The advantage I claim for this device over others in use is that one man can handle it and always get the position of tree right, as the base is not lifted from the ground after being staked down until the job is finished. Respectfully, J. I. Benton, Millville, Washington.

BETTER FRUIT

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OFFICIAL ORGAN OF

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1906, at the Postoffice at Hood River, Oregon,
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The Law of Supply and Demand.—Political economy tells us that prices are regulated by the laws of supply and demand. It is not our intention to deny this law. On the contrary, we admit it. So far so good. Invariably growers hear of this or that fruit glutting the market, which is equivalent to hollering over-production, or supply is greater than demand. What we want to show is that such conditions do not actually exist as often as claimed; secondly, when they do methods will and can be devised to overcome them. A few years ago electricity on street car service called for the prediction "horses would be worth nothing," but a good team costs more money today than then. Just an illustration to show predictions are not always true. A few years ago the prune grower got the cart before the horse by setting out very large acreages without established demand, or business principles for marketing. The story of the prune grower should be familiar to all. While it must be admitted many orchards were dug up, the prune grower with sense went after a market and today prune growers are making big profits, and the business has been on a steady increase and not enough prunes are raised to meet consumption.

At the National Apple Show at Spokane a commercial man who had been traveling through the Northwest said

fruit growers complained of the low prices, etc., and added that he had been in dozens of small towns in Eastern Oregon and Washington and could not get a peach to eat.

A few years ago when the editor first took charge of the Hood River Fruit Growers' Union the business by express was doubled the next year, and doubled again the following year. Seattle was not consuming a single carload of Hood River strawberries in a year; neither was Spokane. In less than two years each of these cities was consuming large quantities. The first year the editor was manager of the berry union the average price of strawberries was \$1.28 per crate; during the last six years the average price for the season has been somewhere between \$2.25 and \$2.50 net.

These facts illustrate the importance to the fruit business of developing local markets. A wide and thorough distributing system must and will be worked out, so that all markets, however small, will be supplied, realizing good prices. It is all nonsense to say that little towns won't pay fair prices when it is known that bananas sell at thirty cents a dozen and Florida grape fruit sells readily in the little town of Hood River, about 3,000 population, at fifteen cents each. Then, too, the supply of green fruits can be decreased to equalize the demand and create a sale at fair prices by canneries, evaporators, cider and vinegar factories. The output of the canneries, evaporators and dryers in California in 1911 amounted to \$28,000,000.

So let us be up and doing to open up new markets, increase old ones and establish a wider distribution. Let us save the waste by canneries, evaporators, cider and vinegar factories. The problems of today are to market the fruit on business principles, create a greater demand as well as a wider demand—save the by-products; and last, but not least, study the economic side of production and marketing.

The new era is fast dawning for country life—with its many conveniences of cities—graded schools, good roads, electric lights, telephones, home comforts, good fresh air, clean atmosphere, peace and plenty; what more does the unselfish one want? Country life has ceased to be one of drudgery, and it would be difficult to find any class of business where those engaged in it have bettered conditions, surrounded themselves with more comforts than farmers and fruit growers. Once upon a time the daily papers cartooned uncle hayseed with a clumsy pair of stoggy boots, overalls hanging by one gallus, and that one fastened with a nail; seventeen patches of various pieces, never forgetting the chin whiskers, the pitchfork and the old-fashioned straw hat. "God helps him who helps himself." These farmers and fruit growers have worked hard to become prosperous, and their prosperity has not only been earned but is

deserved. Robert Louis Stevenson, an author loved by all who know him through the beautiful books he has written, says: "To earn a little, to spend a little less, to save a little, to have a few friends, that is worth while." Pardon the inaccuracy of the quotation, but it illustrates a mighty good kind of a feeling toward one's fellow man, a feeling that is strong in the country, for it is a well known fact that there one seldom finds the insatiate desire to amass millions by any and all kinds of ways.

Christmas comes but once a year, and with it brings good cheer. The fruit grower's work for the year is done, winter has come and all our thoughts should now turn to getting the most out of the long, peaceful winter evenings around the family fire-side; and it can be truthfully said that no other part of the home affords more comfort, furnishes more pleasure or gives better cheer than the good, old-fashioned fireplace.

R. M. KELLOGG COMPANY

Breeders of

THOROUGHbred PEDIGREE
STRAWBERRY PLANTS

Three Rivers, Mich., Nov. 8, 1911.

Editor Better Fruit: Your statistical number is without doubt the most valuable issue, considered from the statistical viewpoint, of anything we ever have seen, and it should become a permanent record in the hands of every fruitgrower in the country. You are to be congratulated upon having assembled together such a vast amount of important data and for presenting it in such fine form as you have done in this instance.

Yours very truly,

R. M. KELLOGG COMPANY

Editor Better Fruit:

While every issue of your paper is brimming over with the most valuable news for everyone connected with the fruit business, and while each and every issue seems to be more complete than the last, your October number is undoubtedly of more value than any other. From time to time a few statistics have been printed here and there, but no other publication has ever taken up the subject with such thoroughness and featured it so comprehensively as you have. There is seldom a day passes but we receive inquiries for information on subjects which you have covered, and by having them all together in one publication you have made it possible for us to answer questions without going through a mass of correspondence, press clippings and files. We feel we cannot say too much in praise of this splendid issue and know we will have to keep it under lock and key in the office to prevent its being carried away by information seekers. Sincerely, National Apple Show, by Ren H. Rice, Secretary, Spokane, Washington.

Editor Better Fruit:

I beg to say my thanks for your courtesy in inserting the cuts of Poydras Street and of our business location, and also for the publication of the letter. However, I did not think that you intended to publish the letter, otherwise I would have written it in a different shape. I wish to assure you of my appreciation of what you have done for me and trust that I may have the pleasure of reciprocating. Yours truly, George H. Appel, New Orleans.

The Northwestern Fruit Exchange

Announces on December 1st the following maximum and minimum prices obtained for the Cashmere and Rogue River Fruit Growers' Associations, respectively, during the season of 1911. The figures shown were, in all cases, f.o.b. shipping point. They cover all sizes, from 3-tier to 5-tier inclusive. They cover all sales made, without reserve or exception:

VARIETY	EXTRA FANCY	FANCY	CHOICE
Arkansas Black.....	\$1.75 to \$1.90	\$1.60 to \$1.75	\$1.00 to \$1.35
Black Ben Davis.....	1.35	1.15 to 1.25	1.25
Black Twig	1.40 to 1.50	1.15 to 1.30	
Champion	1.50	1.35	1.00
Chicago	1.50	1.35	1.00
Commerce	1.60	1.50	1.00
Gano	1.25		
Grimes Golden	1.40 to 1.60	1.25	
Hoover Red	1.35 to 1.50		
Jonathan	1.40 to 1.75	1.15 to 1.50	.90 to 1.35
Rome Beauty	1.50 to 1.75	1.35 to 1.50	1.00
Spitzenberg	2.00, \$2.10, \$2.25	1.75 and 2.00	1.25 to 1.50
Stayman Winesap	1.50 to \$1.75	1.25 to 1.50	1.00 to 1.50
Winesap	2.00	1.75	1.25
White Winter Pearmain.	1.60		
Winter Banana	2.25		1.25
Yellow Newtown	2.10		1.15 to 1.50

The EXCHANGE adopted the above scale of prices during the month of AUGUST. It sold the bulk of the entire output of the Cashmere and Rogue River Associations before harvest, and practically the entire output of both before packing. The prices were maintained strictly throughout the season.

The EXCHANGE invites special attention to the following factors in its marketing system: 1st, Prices received; 2nd, F.o.b. sales; 3rd, Quick cash returns; 4th, Wide distribution; 5th, Its extensive sales organization: **101 branch offices** distributed throughout the United States, Canada and foreign countries.

The EXCHANGE invites every fruit grower in the NORTHWEST to inspect its records for verification of all statements made.

Northwestern Fruit Exchange

418-423 Spalding Building, PORTLAND, OREGON

Reginald H. Parsons, President

W. F. Gwin, General Manager

C. A. Malboeuf Secretary

GET A MANVILLE APPLE GRADER

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Awarded the gold medal at the Spokane National Apple Show, 1911, for the best sizing and grading machine ever put on exhibition. It will reduce the cost of grading and packing five cents per box; it has a capacity of from 1,000 to 2,000 boxes in ten hours. The demonstrations given were each most satisfactory to all large fruit growers. All growers are planning to install this grader in their packing sheds the coming season. They realize the necessity of a machine of this design to handle the fruit crops in the near future.

With this machine the inexperienced packer can do as good work as any of the most professional packers

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To the Jobbing Trade:

We cordially invite correspondence from all high class fruit jobbers relative to supplying their trade the coming season with the finest apples grown on earth. Our brilliant red *Spitzenbergs* for early *winter* trade and our beautiful *Yellow Newtown Pippins* for the *spring* trade are the two ideals of the Apple World, and for flavor, beauty and keeping qualities they are not equalled. Buy goods of *quality* and your trade will appreciate the same. Write

Hood River Apple Growers' Union
HOOD RIVER, OREGON

Co-Operation in the Handling and Marketing of Fruit

By G. Harold Powell, Pomologist, United States Bureau of Plant Industry

THE handling and marketing of crops through co-operative associations is more highly developed in fruit growing than in any other agricultural industry in America. These organizations are formed to purchase the supplies used in the production and marketing of the crops; to standardize the harvesting, handling, grading and packing of the fruit; to sell the fruit of the members as a unit under whatever system of marketing is adopted; to prevent disastrous competition by bringing about an equitable distribution throughout the country and to handle the fruit business in other ways, collectively and effectively. There are several hundred of these associations among the fruit growers of the Western States, and a number that are successful among the fruit growers in the Central West and along the Atlantic Coast.

Fruit growing is a highly specialized industry in the Western States. The growers have often had extensive business experience before engaging in horticulture. The industry in the West is confined to the valleys and foothills, or is more or less geographically localized in other ways. Land values are usually high in comparison with the price of land in the East, cultural practices are more expensive and intensive,

the markets are thousands of miles distant and the problems of production, transportation, distribution, marketing and legislation are too complex for the average individual grower to meet and solve alone. Under these conditions co-operative effort is a business necessity, just as the consolidation of capital in other industries is necessary for its own preservation. The production, buying, distribution and selling of crops must be accomplished by working together. Things must be done in a large way if the fruit grower is to deal on the same level with the combinations of capital with which his product comes in contact at every step from the orchard to the consumer. The Western fruit growers have, therefore, formed associations of various kinds to work out the problems that confront them. At the foundation of the semi-arid Western horticulture lies the necessity for irrigation, and the irrigation systems, which are largely owned and controlled by the farmers, form a common tie which binds them closely together and makes co-operation in other things more easily accomplished than is the case in the humid fruit growing sections of the East. They may co-operate to protect the orchards from insect pests and diseases, or from frost; to pick the fruit,

to prepare it for shipment and to direct its distribution, storage and marketing. They may own outfits for spraying and fumigating, packing houses that cost thousands of dollars and storage plants of large capacity. They may develop a system of distribution and of market reporting which keeps them in daily touch with the markets in every part of the United States and Canada, and with the general movement of fruit in transit. They may advertise their products extensively, and through their organizations handle the legislative and other public policy questions that vitally affect the industry.

In the central and eastern parts of the country the growing of fruit is not usually specialized or localized. It is more likely to be an incidental feature of the general agriculture of a community. It is slowly developing into a specialized industry, especially in many sections of the East and South, though it is still largely in the hands of men whose only experience has been gained on the farm. In the eastern half of the United States, where irrigation is not required, the difficulties of production are more easily overcome, competition among fruit buyers is more or less keen, markets are comparatively close at hand, and the problems of transportation and of marketing are not as

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60,000 Wagener
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Sunnyside, Washington

acute as they are with the Western fruit grower. The need of co-operation has not faced the Eastern fruit grower as squarely as it has the grower in the West. Hence the co-operative movement has been of slower development in the East, except in such industries as grape growing in Western New York and the citrus fruit industry in Florida, where the stability of the capital invested has been threatened as a result of a haphazard system of individual distribution or of local selling and marketing. Under these conditions there have been formed virile organizations of growers for the distribution and marketing of the products, and such organizations, when properly directed, have been successful.

Co-operation among farmers is more difficult to effect than the consolidation of capital in other business enterprises. The farmer is the most individualistic of American citizens. It is not easy for him to transact his business with his neighbors. Independence in handling his affairs is a tradition that has been his for generations. He would rather conduct his business man to man, as his fathers have done before him, unless necessity compels him to do otherwise. The co-operative movements that have been organized among prosperous fruit growers have usually failed. The social, the political or the altruistic motives have not been strong enough to hold a group of money-making farmers together. Until recently the only successful co-operative efforts

have been those which have been born of desperate necessity. Co-operation must be effected when the fruit industry is at low ebb to have the virility to live in the face of the attacks to which all such efforts are at first subjected, but after the growers have learned the power of co-operation as a business opportunity their organizations become permanent and exert a powerful influence in the development of a better social life, and through their participation in the progress and management of rural affairs in the development of a better citizenship. No other agency is so powerful in bringing about better farming, better methods of handling the industry, a greater prosperity and a better community than a group of farmers who are successfully organized to protect and develop their agricultural interests. The American farmer is beginning to realize that the powerful influence of consolidated capital has been the source of the tremendous industrial progress of the last generation. He is beginning to take a greater interest in the possibilities of co-operative action when applied to his own problems.

There are many kinds of co-operative associations among the fruit growers of the United States. In a non-profit association, which represents the ideal type of co-operation, the members usually have an equal voice in its management and share proportionately in its benefits and risks. Such an organization is a vol-

untary industrial democracy in which the fruit growers manage and control the distribution and marketing of their own products. Every member of the association is a bona fide producer, and his fruit is handled exclusively by the association. All of the operations are carried on at cost, and after operating expenses, depreciation and a reasonable interest on the capital invested in the equipment of the association are deducted, the profits are distributed to the members in proportion to the amount of business each has transacted through the organization. The powers of the association are vested in a board of directors, selected by the growers, who manage and control its affairs and business through officers or agents appointed by it and subject to its advice and direction.

The first step in organizing a co-operative association is to incorporate it under the laws of a state. This usually has to be done under the laws that authorize the formation of stock or membership corporations, as few of the states have provided for the incorporation of non-profit co-operative agricultural or horticultural associations. The association needs to be incorporated on broad lines. The articles of incorporation should set forth the purpose for which the association is formed and should provide for every activity in which it may wish to engage. They should define the principal place of business, the life of the association, the number and

power of the directors, the voting power and property rights of the members, the amount of the capital stock and all other things of a general nature that are needed to be included in the incorporation of such a body. A code of by-laws needs to be adopted for the government and management of a co-operative association. The by-laws should define the method of exercising the power of the corporation through the board of directors and the officers appointed by it, the conditions surrounding the admission of members, the dues or stock to be paid by each and the conditions surrounding same. They should provide broad powers for the manager, including the supervision of the harvesting, grading, packing, distribution and sale of the fruit or for such of these operations as the association may wish to perform. They should define the grades to be adopted by the association for each kind of fruit. They should contain a provision by which the grower gives the association the exclusive right to market the fruit, with the possible exception of the lowest grades and to harvest, grade and pack. This includes the selling of the fruit for the members either as individuals or through pools, a penalty to be collected by the association for every package sold outside of the association. The objects are attained by the signature of the farmer to the by-laws of the association or the association may require a special contract to be executed with the co-operating

member. The methods of providing money for operating expenses, such as a fixed assessment against every package of fruit handled by the association, with a method of prorating the balance if the total amount of the package assessment amounts to more than the operating expenses, and other things usually included in such organizations should be set forth in the by-laws.

The fruit growers' organizations vary in form from joint stock companies, composed of growers or dealers or both, who distribute their own products or the products of others to the simple non-profit form of co-operative association which purchases the supplies and distributes the products of its members at cost. The voting power of the members in the different associations varies from a single vote for each member to a vote proportional to the amount of stock owned by each, or to the acreage held by each. His voting power may depend on the probable crop production or the actual production of the preceding year. The capital may be contributed in limited amount equally by each member in proportion to the acreage held by each or to the probable production of each member, or unequally, without reference to either of these factors. It may be contributed by business men who are not fruit growers, but who desire to encourage the formation of associations; or the capital stock may be subscribed as an investment, and a high rate of interest

paid on it before the profits are distributed to the growers. Some of the associations handle fruit on speculation, or for non-members at a specified rate per package. All of these types of so-called co-operative associations and many others are in operation with a greater or less degree of success. The most virile and effective from the standpoint of the producer are those which are strictly co-operative, non-profit in type, each member contributing an equal amount of capital, and having an equal voice in the management or a voting power and capital contribution in proportion to the acreage of bearing fruit held by each. The association handles the fruit of the members only, and the fruit is under the control of the association from the tree to the market. The objection urged against this form of organization is that the small grower has an equal voice with the large grower in fixing the policies of the association. The objection to the voting power based on acreage is that the exceptional grower has no more influence than a poor grower of equal acreage. There is equally strong objection to the form of power based on production, as the pro rata of production may vary with the seasons.

Not all of the co-operative associations are successful. In fact comparatively few of them have been distinctly successful, especially among the early associations formed before the citrus fruit growers of California organized

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(SEE PAGE 9)

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to distribute their products and to protect the capital invested in their industry. The citrus fruit organizations, most of which are founded on the true co-operative, non-profit basis, have had a far-reaching influence on the co-operative movement in the United States. The orange and lemon growers of California have the most powerful and successful organizations to be found in any agricultural industry in the United States, if not in the world, one organization, acting as an agent in distributing \$15,000,000 worth of fruit a year for its six thousand members, organized into more than a hundred associations on a non-profit basis. This agency sends fruit to every part of the United States and Canada, and to several foreign countries, maintaining its own exclusive representatives in all of the principal markets of America. Many of the co-operative associations organized in recent years have been formed on the principles that underlie the citrus fruit associations, and these, when wisely managed, have shown great strength.

Several factors have contributed to the downfall of fruit growers' associations. Many of them have been formed by impractical, often unsuccessful, enthusiasts with high motives, but with no business experience and little standing in their communities. Others have been formed ahead of their time, when the industry was too successful for the members to be held together. Many of them have been managed by

incompetent, low-salaried men, not infrequently by those who have been unsuccessful in business. The successful handling of a co-operative association requires a manager who is competent to assume the general direction of the affairs and business of the association. He must have a high order of business ability, sterling integrity, unusual tact and judgment in handling men and unlimited energy. An association under any other kind of management is not a serious business undertaking. It is more difficult to direct a co-operative association than a stock company or corporation. In the latter the manager is responsible to a board of directors, but the stockholders do not often take an active interest in the management of its affairs. In the co-operative association the manager is also subject to the advice and control of the board of directors, but the farmer who joins with his neighbors in an association is likely to take more than a passing interest in the management of the association. A manager who cannot hold the interest and the confidence of the members, who cannot make them feel they have a voice in the management, and who fails to develop a progressive, constructive business policy will fail in handling a co-operative organization. Nor can such an organization succeed if the directors do not realize that it must have a strong, competent, aggressive, well paid manager at its head. It is

not too much to say that no single factor has operated against the success of the co-operative associations as much as the incompetent managers selected by the directors of the associations to handle them. A board of directors cannot manage a co-operative agricultural association. The outcome of the organization will be determined in a large degree by the character and ability of the manager.

Another factor that has operated against the success of many so-called co-operative associations has been the payment of high dividends on the capital invested, the stock having been subscribed unequally by a comparatively few of its members. The organization in which the business is not transacted at cost cannot hold the confidence and support of its members. The payment of one or two high dividends on the capital stock before the proceeds are distributed to the growers has caused the downfall of many associations that have been well organized in other respects. Another dangerous element has been the ambitious effort of new associations to buy and sell fruit and supplies outside of the membership. The speculative element must be rigidly excluded from co-operative associations. The harvesting, grading, packing and handling of fruit not grown by members invariably leads to a lowering of the established standards of grading and packing, and to injury to the reputation and financial standing of the association.

Many of the co-operative efforts fail through the disloyalty of members, when the association is subjected to the skillful, insidious fire of those who oppose it. The farmer is not used to having his business attacked, and those who are interested in disrupting the organization appeal directly to his pocketbook by attempting to show that the association does not realize as much for the fruit as the farmer could realize outside the association. They also persistently insinuate that the association is grossly mismanaged. It is a favorite practice of the opponents of co-operative distribution and selling to offer association members a premium for their fruit. The apple grower is tempted by a premium of twenty-five to fifty cents a barrel over the probable returns of the association; the peach grower by an advance of ten to twenty cents a box or basket, and the pear or small fruit grower by an equally attractive bonus. The man with a small crop and a still smaller capital often falls before this kind of temptation, and if it is held out long enough the association may be disrupted. These devices are coming to be well understood, and the fruit grower who joins an association in good faith and sells out for a small premium is in danger of losing the respect and confidence of his neighbors.

It is a fundamental necessity that the members be held together by a contract or a provision in the by-laws

which gives the association the exclusive right to pick, pack, haul, grade, mark and sell the fruit of its members, or to perform as many of these operations as it may decide to perform, or to supervise or regulate these operations under rules made by the association. The contract should be drawn for a term of three to five years, giving the grower the privilege of withdrawing by notice at the end of any fruit year, thereby making his continued connection with the association voluntary. The contract should specify a penalty to be assessed against every package of fruit sold outside of the association, this penalty to equal not less than twenty-five per cent of the value of the fruit. Under any other plan an association cannot build on a solid foundation. It cannot foresee the probable volume of business to be transacted, nor can it provide the means to purchase the supplies for handling the crop or reach that degree of stability that is essential to the success of a business undertaking. The membership contract with the grower is the foundation stone on which the business of the association is reared, and without which its existence and stability are problematical.

In every co-operative association there should be a division for the purchase, sale or manufacture of supplies of every kind used in the production, packing, handling, shipping and marketing of the crop. The association should be prepared to purchase fer-

tilizers, materials and equipment for spraying and fumigation, the facilities used in frost protection, pruning, harvesting, orchard machinery, or any other equipment on which a saving can be made by co-operative purchase. It should be prepared to purchase the supplies for fruit handling and marketing, such as box shooks or packages, picking boxes, nails, wrapping paper and all kinds of packing house equipment. The money needed to operate this purchasing division may be raised by assessment, by the individual notes of the directors of the association, or in other ways. The association should sell the supplies to the members at a fair market price, and at the end of the season should prorate the surplus to the members or invest it in the business, after deducting the operating charges, depreciation and other necessary expenses, including interest on the assets and capital devoted to this supply division.

The condition in which fruit reaches the consumer depends largely on the care with which it is handled. The most common rots of apples and pears, of small fruits and of citrus fruits are directly related to the mechanical bruising of the fruit, most of the diseases not having the power of penetrating a healthy, uninjured skin. The association must, therefore, provide rigid rules for picking. It must either supervise the harvesting, grading and packing of the fruit, and provide for the most rigid inspection of every lot



Sept. 15, 1911.

Hood River Standard Nursery Company,
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Very truly yours,
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before it is accepted by the association for shipment, or else the harvesting, grading and packing must be done by the association. In most of the associations where the fruit is not packed in central packing houses it is picked and packed by the grower according to the rules of the association and inspected by an employe of the association before it is accepted for shipment. The system works fairly well with the small fruits and the deciduous fruits which have to be handled quickly from the field to the consumer. It is not a satisfactory system to apply to the citrus fruits, or to the apple or pear crops. With these the handling, grading and packing must be standardized, and this can be done only when the association controls all of the handling operations or actually performs them. Many apple associations establish rules of grading and packing. The association grower picks and packs the fruit and the association accepts or rejects it by inspecting the packages when delivered at the railroad station, the association warehouse or some other point. Experience has shown that the grower can rarely be depended on to pick and pack the fruit in the best manner. It requires skilled labor. Fruit grading and packing is an art that is acquired by few individual fruit growers, therefore an association who operates on this principle seldom reaches the highest degree of success, and is likely to fail outright. A better plan is to have the grower pick the fruit when directed to do so by the association. It is then graded and packed according to the rules of the association in the orchard, or in the fruit house on the farm by trained men in the employ of the association. Under this plan the grading and packing of the fruit of the entire membership can be done with comparative uniformity. Even then the packages need to be inspected before they are accepted by the association. Every package rejected should be regraded and repacked or placed in a low grade. This system is in operation in several of the most successful co-operative apple growers' associations in the United States. Another plan is to grade and pack the fruit at a central packing house owned and controlled by the association. The growers pick the fruit, haul it to the packing house,

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Frank W. Stanton

Of the firm of Frank W. Stanton & Company, southwest corner Dock and Walnut streets, Philadelphia, who advises us that they are leaders in fancy fruits, handling the best apples coming out of the Cumberland and Shenandoah Valley districts, and they are also anxious to connect with Northwestern fruit dealers in the apple business. This firm is also interested in the orchard business near Keedysville, Maryland, where they have 400 acres in peaches and apples.

and there it is graded and packed by the association. This is the plan that was formerly in general operation in the orange and lemon growing districts, and is followed to a limited extent at the present time. The objection to this plan is that no two growers handle the fruit with equal care, and the different lots of fruit, therefore, vary in physical condition and in susceptibility to decay. Under this system there is a wide variation in the percentage of decay that develops in the fruit of different members while in transit to market. If the fruit is pooled the grower who handles his fruit carefully has to share the losses that develop in the fruit that has been carelessly handled. The most satisfactory plan in the citrus fruit industry (and this may be applied to some other fruits) is to have the association train gangs of laborers who shall pick the fruit of all of the members. The laborers should be paid by the day, as contract or piece work places a premium on rapid, careless work. In this way the picking can be standardized, the quantity of fruit that passes through the packing house can be controlled, and the grading and packing can be uniformly done. This system has been generally adopted in the citrus fruit industry as a result of the investigations of the Department of Agriculture into the causes of decay in oranges and lemons while in transit from California to the East. This investigation showed that the decay was the result of the improper handling of the fruit in preparing it for shipment, and that it could be controlled by placing the handling of the fruit entirely in the hands of the associations. The same laborers often fumigate the orchards of the members for scale insects and spray the trees wherever spraying is practiced.

The tendency in the co-operative movement is toward a central packing house, where the fruit of the members is brought together and is graded and

packed for shipment. In the small fruit industry this plan is hardly practicable. It is sometimes successfully operated in the deciduous fruit and in the grape industries. There are about two hundred of these association packing houses in the citrus industry in California, and the Florida citrus growers are rapidly organizing along these lines. A packing house is erected by the association, usually alongside the railroad, and is equipped with the necessary appliances for fruit handling and packing, the manager of the packing house usually being the general manager of the association. Precooling and cold storage plants, box nailing and labeling machinery and other devices required in the industry are to be found in many of the association houses.

To be continued in next edition.

After the fourth year we do not attempt to maintain a permanent leader in fruit trees. I find very few trees naturally attain this, so I do not attempt it. Prune to a thin, open-top tree, in order that the sunlight may get in to color and develop the fruit. In the Kelowna region of British Columbia we have observed many growers attempting to grow a pyramid tree with a leader. We do not consider this the best tree to grow for fruit purposes. We feel that it is a good, strong framework that we can depend upon for crop production, rather than a leader.

Editor Better Fruit:

Kindly forward us by mail, with bill, one copy, recent date, of "Better Fruit." It may interest you to know that this order comes from our house in Paris. Yours very truly, Brentano's, New York City.

Editor Better Fruit:

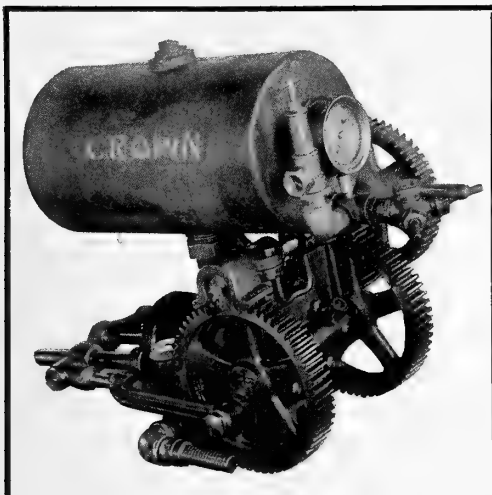
Find enclosed check for two dollars to pay my subscription for two years. I can't get along without "Better Fruit." You will know how I value it when I say that I cleared the land and planted 650 trees last spring and lost only one tree, and "Better Fruit" has been my sole guide, for I knew nothing from experience. If I can succeed as well in growing the fruit I will be satisfied. Your truly, H. W. Scaave, Mosier, Oregon.

Editor Better Fruit:

You certainly have boosted the Apple Show game strong in your October issue. You used just the kind of stuff that would do us the most good among the growers, and you used so much of it, when I know how valuable your space is, that I feel that I cannot thank you enough for your kindness. It is the same old story of Shepard boosting his best for the other fellow's gain and asking no reward. I took the issue of "Better Fruit" to the trustees' meeting and showed it all around the board, and I was instructed to thank you as best I could for the trustees. I cannot express our sentiments in the way I wish, and I hope you will understand that we know you are about the best friend we have. Sincerely, Ren H. Rice, Spokane, Washington.

Editor Better Fruit:

The fame of "Better Fruit" has reached a foreign land. We know this for a variety of reasons. We recently had an inquiry from a point in Northern Ontario, Canada, for further information on our spraying outfit, as advertised in "Better Fruit," and later on two more inquiries from British Columbia reached us. Today we are in receipt of a request from the Canadian Fairbanks Company, Vancouver, B. C., for a copy of the "Better Fruit" number containing one of our ads. Will you kindly mail them a copy of this, and, by way of suggestion, we might add that a subscription blank enclosed might meet with a suitable response. Yours very truly, Fairbanks, Morse & Company, by G. K. Towerel, Portland, Oregon.



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Crown 2-Way Hose Valves
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Crown Spray Pumps
Crown Relief Valves*

Fall Planting of Trees and Vines

THE question is often asked, when is the best time to plant trees and vines? A writer in the Journal of Agriculture answers it by saying that in his experience—which covers many years—fall planting is preferable for most trees and vines. After many years' planting in fall and spring, my experience convinces me that fall planting, in most species of trees and vines, is much the best. In fall planting they get the benefit of winter and early spring rains, which, in some years, make double the growth. The trees that should be planted in fall or

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during the winter when the ground is not frozen are cherry trees, plum trees, pear, apple and most other trees. Peach trees may be planted in the spring, but I have planted them in the late fall and winter, and they made a better growth than those planted in spring.

One of his strong objections to spring planting is that the work often has to be delayed until late in the season because the ground is wet. It is never advisable to set a tree in a soil of the consistency of mud. As regards the method of fall planting he says: In fall planting the dirt must be banked around the tree from six to ten inches high and in spring, as soon as the leaves begin to come out, this mound should be leveled down. This answers for the first cultivation. For this leveling I use a four-pronged potato digger, prongs standing like that of a hoe. Currants, gooseberries, pie plant, grapes and all vines that are propagated from cuttings and layers are much the best planted in fall, after

the leaves are killed by frost or during open spells in winter.

Not all plants, he says, are adapted to spring planting. He makes these exceptions: Blackberries and the red raspberries that grow from sprouts and root cuttings like blackberries, raspberries that are propagated from the tip end by layering, and strawberries, as a rule, grow best planted in early spring, but I have been having good results planting in late fall and winter by mulching two or three inches with strawy manure. This protects them from freezing and thawing and heaving out of the ground.

Planting should be done in fall after the frost has killed the leaves. Great care should be taken to prevent the roots of trees and vines from getting dry while they are out of the ground. If received early in the season, or before the ground is ready for them, they can be kept in good condition by burying the roots in moist earth and covering their tops with straw. If the ground is not frozen, planting can be done late in the season if care is taken to use fine soil in filling in about the roots when the trees are set out. Make this firm by tramping it down or pounding it with some heavy, blunt implement. The writer gives this advice in conclusion: Be sure not to lose the tags with the names of the trees on them, as it is very vexing to have an orchard or berry patch and not know the names of the varieties.

Editor Better Fruit:

I have just received the copy of "Better Fruit" this morning and wish to thank you for the most liberal donation of space in your paper for the benefit of the apple show. While all issues of your paper are good, the last one I think one of the finest ever published, as the statistics you have gathered are of great value to growers. Yours very truly, Frank W. Power, Secretary Oregon State Horticultural Society.

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Pruning Pears, Cherries and Walnuts

By J. M. Jenne, Prosser, Washington

AS I was lately and unexpectedly asked to prepare an article on some subject of my own choosing, I decided to say something concerning the care, culture and pruning of the peach, walnut and cherry trees. I do not remember of ever hearing this subject thoroughly discussed. I shall begin my discussion with a few pertinent remarks concerning peach culture. I do not see why we should pay more for a peach tree than for an apple tree. I should rather raise the former. By planting the pits in the fall or winter and budding the young trees in July or August you can still get some growth that season. I have had them grow as much as two feet the same summer they were budded. If the budding be done in the fall before the tree stops growing the bud will have time to heal in nicely, and the following year you will have a very vigorous tree. When planting the young trees I top them back to from fifteen to eighteen inches, and leave no less than three and no more than five branches. The peach tree will grow good branches the first season, and every season thereafter the trees should be pruned back two-thirds or more. This should be continued so

long as the tree is good. By this method the fruit is larger and the tree more vigorous than if a lesser amount of pruning were done. The tree will also not have any dead wood in it and will live to more than twice the age it would have attained otherwise. This method of pruning will also save much time in thinning the fruit, as the trees are not so apt to be crowded with fruit. Care should be taken to keep the peach tree open enough to allow the same amount of sunlight to pass between the branches, thus insuring well developed and well colored fruit. Care should also be taken to insure an erect and well balanced tree. A tree should not be pruned too heavily on the southwest side, as that is the direction from which come the prevailing winds, at least in this immediate vicinity.

I shall next discuss the walnut. If I can possibly get the nuts from the first or second generation of a grafted tree I prefer planting them. I obtain better results by planting the nuts where I want the trees to stand permanently than by transplanting the yearling trees. If the two methods were tried it would be found that in three years' time the trees grown in

their permanent planting places would be far ahead in growth of those that were transplanted. In transplanting a walnut tree the tap root, which is a great support to the tree, becomes destroyed, thus making it less able to withstand the winds. In a commercial orchard a walnut tree should not be allowed to branch until the trunk is five to eight feet tall. In this way the tree will not be bushy and the winds will have very little effect on it. After the tree is headed properly it should be almost entirely left alone. Should there be too many new shoots they can be cut away, but should never be topped back.

As to variety, I think some species of the French walnut is the best for this climate. I know of one that

J. F. LITTOOY

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WHEN WRITING ADVERTISERS MENTION BETTER FRUIT

comes out about two weeks later than any other in the spring, and thus it escapes the late frosts. It will also bear fruit in two years after being budded or grafted. For a shade tree this species of a walnut cannot be excelled. It has a very large leaf, a fine, clean body and is almost entirely free from insect pests. It can be successfully grown with the trunk fifteen or eighteen feet to the first branch, and yet in fifteen or twenty years' time these limbs will be low enough so that the fruit from them can be picked from off the ground. I have seen a roadway several miles in length with these trees growing on both sides. They were from three to four feet in diameter and seventy-five to ninety feet tall. The limbs were completely interlaced overhead. Most of these trees produced from fifty to one hundred bushels of nuts in a single season.

The cherry trees, like the walnut, will grow to a good age and attain a good size, provided it is planted in good, well drained soil. In dealing with the young tree, it should be headed lower than the walnut tree unless it is to serve the purpose of a shade tree, then it should be headed high. A cherry tree should not be cut back often, as such treatment will cause it to bleed and form a gum or wax, and thus check the growth of the tree or ultimately cause its death. I handle it otherwise, like the walnut.

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WHEN WRITING ADVERTISERS MENTION BETTER FRUIT



The Kimball Cultivator

maintains this high state of cultivation in the orchards on the Morrisania Ranch in the Grand Canyon of the Colorado, owned by the Fruit Grower, of St. Joseph, Missouri.

Smoothing Land for Irrigation

As an implement for smoothing land for irrigation, the Kimball Cultivator has perhaps no equal, since it cultivates the soil and smooths it at one operation. Many fruit growers who practice irrigation use a drag or float to smooth their soil previous to running irrigation furrows, and this work is of little or no value in cultivating the soil—it simply smooths the surface, so that irrigation furrows can be better made. If the soil is not smoothed, there is often great trouble from the water breaking over or through the furrows. When the furrows are made in smooth soil there is likely to be little trouble experienced.

At Morrisania Ranch, near Grand Valley, Colorado, the land has a rather heavy slope, and irrigation is best practiced with the furrows running diagonally with the slope. If the furrows are run in rough soil, there is always a tendency for the water to break through the furrows and run straight down the hill. Formerly the soil was dragged just before the furrows were run, to smooth the soil properly. This was extra work, for the smoothing process was of little benefit otherwise.

During the season of 1911 we bought two Kimball Cultivators from W. A. Johnston, The Dalles, Oregon, and did away with the use of the float altogether. Our method was to use disc harrows after the irrigation, just as soon as the soil was dry enough. This cultivation filled in the furrows and made a mulch to hold the moisture. Within a week or ten days weed seeds sprouted and another cultivation was needed, and here the Kimball Cultivator was used. It killed the weeds, made a perfect dust mulch, and left the soil in ideal condition for the irrigation furrows. If weeds started again before irrigation was needed, another cultivation was given with the Kimball, and the soil was still left just right for the best irrigation furrows to be run when needed.

We were much pleased with the Kimball Cultivator, as a weed-killer, a thorough cultivator and leveler, and as a saver of time. One good man covered a great deal of ground, using one good team. The cultivator works up close to the trees, leaves the soil level and smooth, with just the right kind of dust mulch, and, altogether, we were much pleased with the Kimball and its work. Our crop at Morrisania was a very good one, the apples being of high quality; trees made a very vigorous growth, and there was no skinning of trunks or limbs by the cultivator. In soil which is not stony, the Kimball Cultivator cannot be beaten, where one does not allow the weeds to get too large, and it is especially adapted to use in irrigated orchards for the reasons given in this article.

JAMES M. IRVINE,
Editor The Fruit-Grower, St. Joseph, Missouri.

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OFFICE, 422 EAST THIRD STREET, THE DALLES, OREGON

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Hints on Setting and Trimming Young Orchards

By Professor R. W. Allen, Experiment Station, Hermiston, Oregon

TREES that are correctly planted have a great advantage over those that are carelessly put in. It should be the aim of each planter to give his trees every advantage, for by so doing he greatly increases his chance for success in the work. The best way to care for trees while planting is to keep them covered to prevent the roots from drying out. It is not a good practice to distribute the trees over the field before planting, the better method being to wrap a small number in a cloth and carry them along. When each hole is dug take a tree from the bundle, remove all injured roots by cutting off smoothly and place them in the hole. The hole should be made large enough to accommodate all the roots without bending or cramping them. The dirt should be carefully worked in about the roots and pressed down firmly by tramping several times while filling the hole. The top three or four inches of soil should be left loose to prevent the rapid evaporation of moisture from the soil below. It is advisable to set the trees about two inches lower than they stood in the nursery row, for in light soils they need to root deeper, and when firmly placed are

not so easily whipped around by the wind.

By the time a tree is set out in the orchard it has lost the greater part of its root system. From this loss of roots there is a corresponding lack of balance between that part of the tree and the top, under which condition the tree is unable to thrive as it should. To remedy this trouble the tops must be cut back quite severely. When put out in the spring the tops should be removed at the time of setting, for evaporation of moisture from the tree takes place to a limited extent in dry air, and is quite rapid on warm and windy days. When all the top is left on the tree is in danger of becoming sufficiently dried to kill it before root action begins, or to prevent it from making a satisfactory growth after the growth starts.

By placing one foot on each side of the body of the tree to hold it firmly in place remove the top at the desired height by an upward cut with a sharp knife or with a pair of pruning shears. Under the conditions which exist here trees should be headed fairly low, from twelve to twenty-four inches from the ground. When forked out close to the ground they can be kept from growing so high; when kept low

they are easily gotten at with the spray, are easier to thin and pick fruit from, thus making the cost of care considerable less. Trees that are caused to grow close to the ground are not so seriously affected by the wind, and the branches shade the trunks and prevent loss from sunscald. In the orchards where the trees are headed several feet high there is usually considerable loss from this trouble. The heat from the sun, with additional heat reflected from the ground, becomes too intense, and the bark is scalded and killed.

Editor Better Fruit:

Enclosed you will please find draft for another year's subscription to "Better Fruit." We feel that we could not get along without your publication, although we have a number of other fruit journals and trade papers coming to the office. H. H. Younger, Manager Palisade (Colorado) Fruit Growers' Association.

FOR SALE—In consequence of the death of the proprietor, a gentleman's residence, with about 10½ acres of land, within 1½ miles of the Hood River railroad depot. The house, which is fully furnished, has large living room, dining room with built-in sideboard, kitchen, pantry, basement storeroom, hot and cold water, 6 bedrooms, 2 sleeping porches, bathroom and toilet. Of the land, 8 to 9 acres is planted with apple and other fruit trees, mostly 3 years old or upwards; beautiful lawn, outhouses, stable with bedroom, etc. The caretaker, Mr. Robert Bassett, will show the premises. Apply to G. Y. Edwards & Co., Hood River, Oregon, or The George Lawrence Company, Portland, Oregon.

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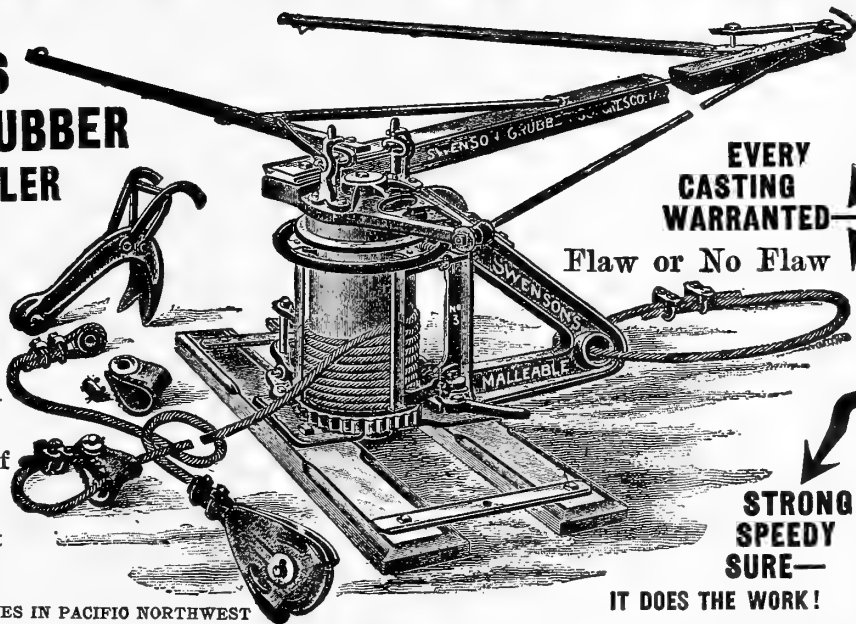
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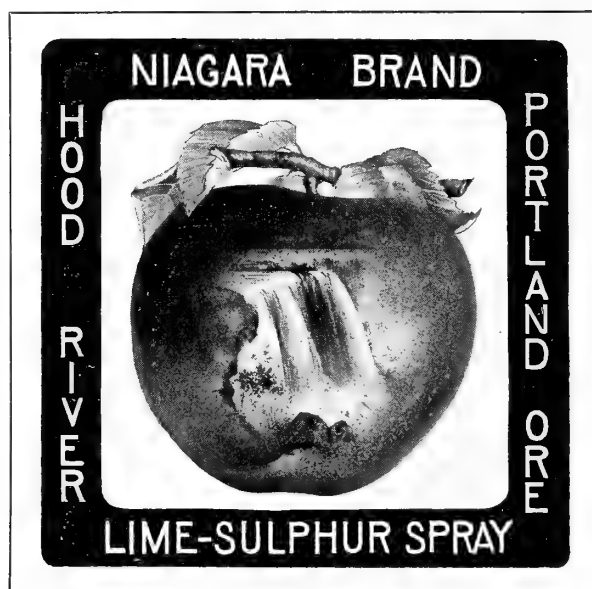
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Practical use by orchardists everywhere, year after year, has demonstrated that Lime-Sulphur is the one spray to be depended upon for successful results every time. "Niagara" has proven best by every test. Last season's sales were unprecedented on Niagara Lime-Sulphur Spray and Niagara Arsenate of Lead.

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The past season's results and the long experience of the Hood River Spray Manufacturing Co. in making this spray proves conclusively that "Niagara" products are the standard goods of the Northwest. Users everywhere have given their unqualified endorsement of "Niagara" as producing perfect fruit whenever and wherever used according to the directions in our booklet, which may be had for the asking.

Our arsenate of leads, "Triangle" and "Niagara," are strictly NEUTRAL and will do the work satisfactorily when mixed with "Niagara" Lime-Sulphur.

Our booklet on "Successful Spraying" has had a phenomenal distribution. You ought to have a copy. Ask your dealer and buy "Niagara" of him.

Hood River Spray Manufacturing Company

Box 54A, HOOD RIVER, OREGON

When to Plant and How

By George C. Roeding, Fresno, California

IN California radical differences in soil and climate are often to be met with in the same orchard, and one locality is often blessed with as great a diversity as may be found in a whole state east of the Rocky Mountains. Hence local horticultural conditions are of prime importance when planting for profit is the consideration. Indeed, it is our experience that it is the very keynote to the successful prosecution of fruit culture as applied to California and the Pacific Coast.

Taking it for granted that the intending planter is reasonably familiar with local conditions prevailing in his locality and on his land, a few suggestions on methods of planting will be found timely. Obviously it is of the utmost importance that the land be put in

first class condition to receive the trees. This is accomplished by thorough plowing, followed by harrowing until the soil is friable as an ash heap. Nothing is so beneficial to soil as sub-soiling, though planters are often deterred from incurring this additional expense, but where time and conditions will permit it will do more to promote a fine, deep root system and an unusually heavy growth than any other one thing that can be done in the preparation of the soil. A sub-soil plow merely consists of a standard about twenty inches long attached to a wooden beam like an ordinary plow, except that it is heavier. It has no mould-board, but merely has a flattened piece of steel at the lower end of the standard, which is slightly concaved so as to lift the soil as it passes underneath. It runs in a furrow made by a single plow, and at a depth of eighteen to twenty inches. It requires from ten to twelve good animals to pull it.

Where irrigation is practiced grading must be resorted to, so that all spots will be accessible from the laterals running from the main ditch. Grading does not necessarily mean leveling, for the less the surface soil is moved the greater will be the ultimate success of the undertaking. No greater mistake can be made than to cut down

the surface of the land for several feet in order to bring it under a ditch. It is far better under such conditions to pump the water from a ditch to the higher level, and thus preserve the land. The slight additional expense of pumping will be more than counter-balanced by the growth of the trees and their fruitfulness, as compared to the poor growth and lack of fruit when the surface soil has been removed to any depth. Drainage should be given consideration, particularly if the land is low and liable to have water stand too near the surface during the spring and summer months.

Early planting is always advisable in California with deciduous fruit, forest trees and shrubs. We do not recommend fall planting for the reason that our growing season often extends into the month of December, and to dig

Who wishes to contract 50 to 100 acres or more of good fruit land, with a responsible, sober orchardist of about fifteen years' experience in developing first-class orchards? None but responsible parties who want the goods need answer. Address B-4, care "Better Fruit."

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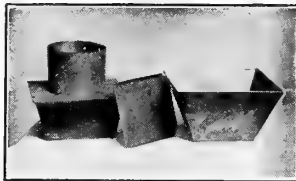
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Next season by ordering Orchard Heaters now. It has been proven without doubt by four years' trial that National Orchard Heaters will afford the surest protection and do it with less expense than any others. The True Principle of Orchard Heating, according to Government reports, is to increase the number of heaters used to the acre rather than to increase the size of the heaters. We have always recommended 80 NATIONAL HEATERS to the acre, which number has been ample to save the crops. WRITE today for full information and prices.



The National Orchard Heater Co.

Grand Junction, Colorado

up the trees until the growth is checked by frost, which rarely occurs before the latter part of November, is a very risky proposition. In the case of citrus trees and evergreens, plantings should commence in the late spring and may continue until the early summer months.

The trees, when received at point of destination, should be immediately unpacked and the roots laid in a trench and well covered with soil, which should then be thoroughly wet down. If delayed in transit, thereby becoming dry and suffering from exposure (the bark showing signs of shirveling), it is a good plan to immerse the trees in a tank over night, and the following day bury root and top completely in damp soil for a few days until they become normal, when they may with safety be planted out. Should trees be frozen while in transit place the package in a cellar or some other place free from frost until thawed out, when they can be unpacked and heeled in, preparatory to planting. Trees treated in this manner will not be injured by having been frozen.

In localities where the seasons are very much later than ours, due to higher elevation or to the difference in latitude, it is far better to have stock forwarded while in the dormant condi-

tion. If purchasers will call attention to the fact that extreme cold weather will not permit of early planting the nurseryman will defer shipping as late in the season as it is safe to do so. The shipment on arrival at destination should be examined by removing a board from the case, and if the roots appear to be in good condition the contents should remain undisturbed and the case should be placed in a cellar or in a cold storage plant, where the temperature should be maintained at about thirty-five degrees Fahrenheit. This method of handling trees is thoroughly practicable, so much so that it has been found possible to ship trees to the Antipodes during the winter season and have shipment placed in cold storage there until the opening of the planting season.

Just immediately before planting be sure to examine the roots carefully and cut away to a smooth surface all bruised, lacerated and broken roots and rootlets with a sharp knife. The tree can now be said to be ready for its permanent orchard home. If planting is delayed through circumstances beyond the control of the orchardist

and a warm spell should intervene in February or March, causing the buds of the trees or vines to start, remove them from the trenches, shake out all the dirt from the roots and expose them for three hours in the morning on a calm day to the rays of the sun. This will cause the small white rootlets which have started to dry up, and if the trees are heeled in (wetting them down, of course) in a shady place their dormancy may be prolonged several weeks. In setting out one person should hold the tree in an upright position against the notch in the tree setter while another shovels or fills in the loose soil around it, first spreading out the roots and rootlets in as natural a position as possible. The surface or friable soil should be put in first among the roots, care being taken to fill in every interstice, thus bringing all the roots in direct contact with the soil. When the hole is two-thirds full firm the earth thoroughly about the roots, but before doing this draw the tree up to its permanent position. The top three to four inches of soil should not be tramped. A basin should be scooped out around the tree which will hold at least ten gallons of water, and unless heavy rains should intervene to fill it up water should be applied either by bucket or by irrigation. The following day draw in loose soil to fill up this basin, reducing it to a fine condition of tilth, but do not tramp in. Guard against setting too deeply, but allow for the settling of the soil, so that when once established the tree will stand about as it did at the time of removal from the nursery rows. In the hot interior valleys of California it is also very important to protect the trunks with Yucca tree protectors until they can supply their own shade.

As has been suggested previously, above all things have your ground in the very best condition of tilth. The

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If you have money to loan we will find you good real estate security, or if you want to borrow we can place your application in good hands, and we make no charge for this service.

THE OLDEST BANK IN HOOD RIVER VALLEY

importance of this one point cannot be dwelt upon too forcibly, for it not only insures more rapid work on the part of the men setting your trees, but in addition to this, not having any clods to contend with, the fine loose soil packs around the roots when tramped in, and if for any reason there should be no opportunity of settling the trees with water after planting there is very little danger of their drying out. Before proceeding with the planting of an orchard or vineyard the land should be laid off having one side and end of the field at right angles. When there are no regular subdivisions to work from, and particularly where extensive plantings are to be carried on, these base lines should be established with a transit. Nothing is more unsightly than to have your trees or vines out of line, and by following out the suggestion of having these base lines at right angles there is very little probability of this occurring. There are two methods of planting, the square, which is the most universally used, and the equilateral triangle. A stake about half an inch square and one foot long split out of redwood will be found to be a very convenient size as a marker for the setting of the trees. Dip about six inches of one end in whitewash, as they can then be readily seen, and should any of the stakes be out of line it will be noticed at once. Before digging the holes it is necessary to have a tree setting board. This is easily made out of a piece of 1x4 four feet long with an inch hole at each end and a notch in the center. Place the notched center against the stake where the tree is to be planted and push a stake into the ground through the holes at each end of the planter and remove the center stake. The hole may now be dug, and this should not be less than eighteen inches in diam-

eter and eighteen inches deep. After the hole is dug replace the board over the end stakes in its former position, then plant the tree with the trunk resting against the center notch in the board and it will be in identically the same place as the stake which was removed to dig the hole.

The Square Method.—Having the corners fixed, the next step is to lay off the ground. In order to fully understand the matter we will suppose that the trees are to be planted twenty-four feet apart. To set stakes for ten trees for each stretch of the wire it will be necessary to have a wire 240 feet long with a short two-foot link at each end for a three-inch iron ring, through which the iron pegs are pushed into the ground after it is drawn taut, to hold it in place. Use a No. 10 gauge galvanized wire and at each twenty-four-foot point have a small piece of wire wrapped around it and soldered into place. Before proceeding with the laying out of the ground set stakes twenty-four feet apart along one of the base lines. Having set the stakes along the outside line, start at the same end of the field again and set another line of stakes, parallel with the first line and the length of the chain distant from it. Follow out this method until the entire field is laid out in checks. With the check lines established it is only necessary now to set stakes at the twenty-four-foot marks on the wire where the trees are to be planted.

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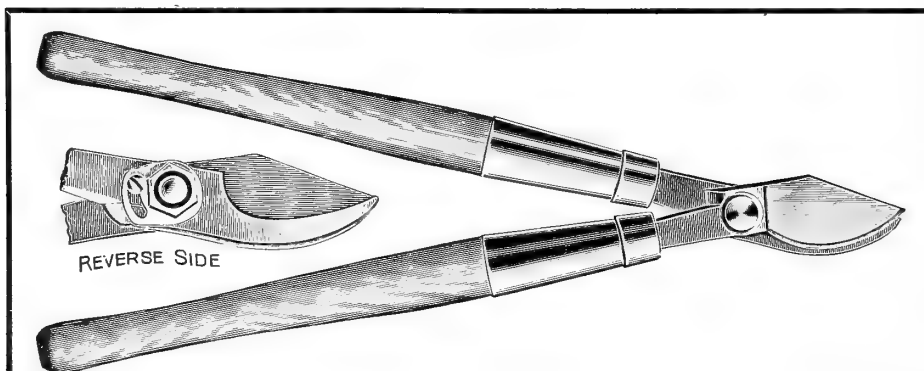
Northern grown, non-irrigated trees on hardy roots are long lived. They come into bearing early and bear heavily. We can supply standard varieties A No. 1 apple trees, one year old, at attractive prices. We grow ornamental stock, shade trees, small fruits, forest seedlings, etc., in quantity. Send for catalog. First prize Middle West "Special," Fourth National Apple Show, Spokane.

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Equilateral Triangular, or Hexagonal Method.—By this method of planting all the trees are equally distant from each other and the ground is equally divided in all directions. The arrangement admits fifteen per cent more trees to the acre than the setting in squares and the ground can be worked in three different directions. Objections are urged to it, however, in that it does not admit of thinning trees by removal of alternate rows, as is sometimes desirable, and that one has to take a zigzag course in driving through the orchard. In planting tracts of any size we do not recommend it. The system should be confined to planting small parcels of land where it is necessary to use every foot of available space.

Fruit growing is a business pure and simple, and in its successful operation is quite as apt to call forth the best energies of brain and brawn of those who are in the business as in any other line of commercial activity. Just in the proportion that the orchard receives intensive and intelligent care will it give corresponding returns for the investment of capital, time and labor. Above all things do not plant too many varieties if you desire to be a factor among the commercial fruit growers. No greater mistake can be made. As an illustration, in planting ten acres of peaches and having on each acre a different variety, when this orchard comes into bearing there are so many varieties and so limited a quantity of each that the commercial packer of dried or canned fruits does not feel inclined to pay what the fruit is worth because there is not enough of any one kind to make it an object for him to handle it.

Growers in new localities are often concerned over the fact that there will be no outlet for the product. The handling and marketing of fruit has assumed such vast proportions that there are always commercial institutions eager enough to enter a new field and exploit it as soon as the production is large enough to encourage the building of packing houses for the handling of any particular product. Another serious mistake on the part of many growers is to endeavor to harvest enormous crops when their trees are only two or three years old. The result of this unwise policy in many cases is to sacrifice the tree to such an extent that just when it should be bringing profitable returns (it was burdened to heavily when young) it either dies or it takes years of extraordinary care to restore it to its proper vigor. It is just as much a mistake to expect too much from a young tree as it is to require a child to do a man's work. The care bestowed for the first two or three years in cultivating, pruning and irrigating, where the rainfall is insufficient to carry the trees through the long, dry summer months, is the foundation for the upbuilding of a plant which will redound to the credit of the owner and give him ample returns for his intelligent care and years of hard work. The tendency toward overpro-

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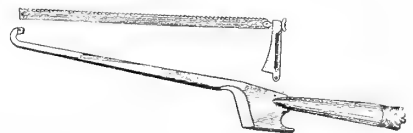
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HOOD RIVER, OREGON

duction in young trees is easily eliminated by pruning. Next to thorough cultivation there is nothing which is more vital to the life of a tree than this one thing. It is difficult to lay down specific rules on this point, but there are basic ones which can generally be observed in the handling of most deciduous trees, with some exceptions.

After a tree is set never fail to cut it back. This is now the general practice among the most successful orchardists throughout California, and is the result of years of experience. The following winter from three to four branches, properly distributed around the body of the tree, should be allowed to remain to form the head, and each one of these branches should have at least one-half of its growth removed, cutting away all laterals from them also. These leaders will eventually form the framework of the tree. Above all things do not shorten in a lateral

starting near the terminal point of any of the branches unless you wish to have a hideous crook in your tree. It is a great mistake to think that unless these small laterals are allowed to remain the tree will not start. The result of the first year's pruning will cause the trees to make an immense growth, and will also induce them to grow stocky. The second winter heavy thinning will have to be followed, and the pruning should be done with a view of causing the framework branches to spread out. After thinning half the growth of the current season should be cut off and again remove all laterals from the framework branches. To the novice this severe cutting seems suicidal, but the results obtained have been so very satisfactory that the soundness of this method cannot be questioned. The third year leave from two to three laterals properly distributed on each of the main stems, but they in turn should be cut back at least one-half. The third year's cutting need not be so severe, but the thinning and shortening in of the fruit bearing branches should be carefully followed out. It is safe to assume that the trees in the fourth year have reached an age when they should bring ample returns, still pruning should be carefully followed out each season. Failure to prune severely when the trees are young means that there will be a lot of long spindling branches with practically all the new growth at the tip ends. A heavy crop may be harvested the third year, but

the branches will bend down under their heavy load, become sunburned and even break off in some cases, thus sacrificing a tree to the rapacity of a grower who in his eagerness to harvest a crop has killed the "goose that lays the golden egg." The many advantages of this method of pruning are: (1) It makes a low heading and a more stocky tree, affording an umbrageous head, and thus protecting it from the hot rays of the scorching summer sun; (2) it enhances the carrying capacity of the tree, thus avoiding artificial props when maturing a crop of fruit; (3) it expedites the harvesting of the crop by rendering it more accessible to the pickers, thus economizing time and expense; (4) it prolongs the life of the tree by reason of conserving its vital forces and rendering it less liable to damage in the breaking of limbs and taxing its strength by carrying its fruits "close in."

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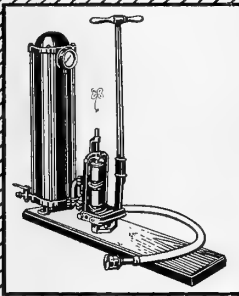
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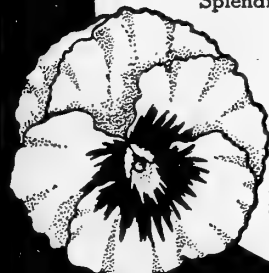
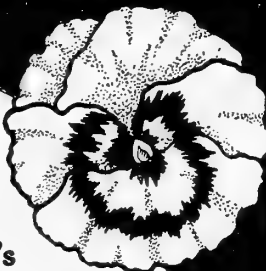
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128 MARKET STREET

SAN FRANCISCO

Restoring Old Orchards in California

By Charles H. Shinn, North Fork, California

NEARLY everything which is written about California describes districts whose climate and resources are similar to those of Southern France and Italy. This article, however, has to do with the problems of living in the Californian Sierras, at an elevation of three thousand feet above the sea, and close to snow peaks. More specifically it deals with the restoring of an old orchard. The soil is granite; the slopes are steep and brush covered. It is far from all but the local market. Many fruits are out of the question, for some snow falls every winter, and frosts are both late and early.

People came into this region long ago, when there was much placer mining along the foothill creeks; they took up land claims, built cabins and often planted small orchards. In many cases they moved away when the mines gave out. So it happens that we have at the present time in a land of very attractive mountains and foothills lying east of such prosperous towns as Fresno, Madera and Merced some hundreds of practically abandoned old farms waiting for men with knowledge, energy and a little capital to pick up and put into shape again. The particular "abandoned orchard" of which I write was on a farm of a hundred and sixty acres, which, with the build-

ings, fences and a good deal of clearing, was bought for three hundred dollars. One of the assets was the "the orchard," once a very good one, but now overgrown, broken down and seemingly worthless. "Root it out at once," said the neighbors. Three old pear trees, several plum trees, half a dozen peach trees and some sixty apple trees. That was the total, and they looked about hopeless, even to an old nurseryman.

The pear trees were badly blighted. They were Bartletts, and that fine variety has "gone back" on the growers in many parts of California. I made a solution of sulphuric acid, one part acid to ten of water, and dipped my pruning tools in it. Then I went all over the trees and cut out all the blight and "die-back," pruning with extreme care and very closely. Then I took a cloth and treated every cut with the solution of acid. Then I burned all the prunings. That was eight years ago, and the pears have borne large crops every year since without a sign of blight. The peach trees were large, had not been pruned for years and seemed worthless. No side branches, no limbs or sprouts near the ground and the tops half dead. The only thing to do in this case was to cut them off waist high and trust

to the outstarting of dormant branch buds. Reduced to stubs like these, the judicious neighbors remarked that it would have been easier to dig them up at once. Of course, all the cuts were painted. The trees lived up to what was expected of them, made new heads and in a couple of years began to bear in good style. The plum trees only needed a drastic pruning to take a new start. The late spring frosts generally catch the Japanese plums. The prunes get through in safety. The apple trees were the main problem of the orchard. They were old-fashioned sorts, mainly Kentucky Red Streaks, Winesaps and the larger crabs. Large areas of the tops were dead; some trees were badly gophered; many had holes or rotten places in their trunks. Some showed "die-back" and blight. All were broken down by cattle. They were large old trees, and still continued to yield some fruit. It took many long hours of hard work to put the apple trees in shape. The long tops were headed back by cutting off from one-half to three-fourths in length. They were thoroughly thinned out and opened up to light and air. Dead wood was taken out and the diseased spots doctored. Each tree formed a separate problem, and in each case a plan of pruning was thought out which would give it a new and accessible head of bearing wood in a few years. As a fact, however, the old apple orchard yielded quite a crop the very next season, and has continued to do better each year since.

There are thousands of old, neglected apple and pear trees in all parts of the United States. I never see one that I do not wish that I could get hold of it and restore its usefulness. As

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84 BELL STREET

SEATTLE, U. S. A.

long as the roots are healthy an old tree can be restored and made to form a new top. I have no doubt that the asset of "the old orchard" is more often neglected when people buy farms than any other single item. Every old tree needs to be thoroughly cultivated and to have plenty of fertilizer applied. It may need root pruning, too, so as to induce the growth of new roots. In the case of my own orchard root pruning was not necessary because the granite soil was so open that the roots had gone deeply down, not spreading out on the surface. But in many cases the neglected roots need pruning as much as the neglected tops do. In that case plenty of moisture and the enriching of the soil are necessary, so that the new young roots can have a better chance to start. "Keep a balance between the roots and the top," was the advice of the ancient nurseryman of my boyhood's home valley. The roots' growth is limited strictly by the roots of the other orchard trees, by the nature of the soil and by the crop. Head in the top, open it out all you like, but feed the roots if you want a big heavy bearing tree.

Each year the pruning of this old orchard and the care of younger trees planted since becomes a greater pleasure, for one remembers a thousand little details about each tree and learns to prune accordingly. As each tree has a somewhat different slope, and receives air, light and moisture in different degrees, it appears to develop idiosyncrasies all its own. It is no longer merely a common every-day Kentucky Red Streak, but "that particular old tree with the reddest apples" whose trunk has to be shaded from the afternoon sun with a piece of board, because my drastic surgery of eight years ago dug out a piece of dead wood four inches wide and four feet long over the scar of which the new wood is still growing toward a complete recovery. That White Winter Pearmain is not like the rest of them; its condition in the days that were compelled me to bore holes through its limbs in several directions, draw them together with a pulley, set the nuts on washers and screw them in tightly. The bark has covered them now; the tree is safe and sound again, having healed up the splits and breaks which went nearly down to the ground. And isn't all this a better way than to dig out such interesting old trees which belong to the pioneer period?

I knew a California apple tree once whose history was like this: It was grafted from a tree which went from Illinois to pioneer Oregon planted in the dirt-filled box of a farm wagon and watered all the way across the plains. It was grown in the first Oregon nursery. It was bought when one year old for five dollars, carried on a pack mule some three hundred miles and planted in 1853 on a "flat" by Trinity River, near the mining village of Douglass. The first apples it bore sold for half a dollar apiece. In 1876,

when I saw it, the great tree—a Rhode Island Greening—was bearing a crop of about half a ton of very large apples. Afterward a miner wanted to sluice off this flat, so he paid fifty dollars for the old tree and swept it out of existence—a fifty-year-old and famous pioneer apple tree.

There are stray flakes of gold in the black sand along the creeks by our orchard, but the largest "placers" on earth would not persuade us to sell one of our old, but rejuvenated apple

trees. We restored them, gave them a new lease of life and made the hillside orchard a thing of beauty and use. We hope that for a hundred years to come, and more, those old crabs and Winesaps, and all the rest of them will continue to flourish here.

Editor Better Fruit:

The writer has always kept a complete file of your magazines, and I assure you that we get a great deal of good information from them. Yours very truly, Schmidt Lithograph Co., E. Shelley Morgan, Manager.

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References { 1st National Bank, White Salmon, Washington
Butler Banking Company, Hood River, Oregon
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Department of Publicity of Governors’ Special

By P. H. Doyle

THOROUGHLY aroused at last, through the immigration reports of the Canadian government showing conclusively that the tide of immigration that formerly helped to populate and build up our American West has been diverted and is flowing to the Canadian West in ever increasing numbers, the states of the American Northwest have at last decided upon concerted action looking toward checking this startling exodus from the Eastern States to the Dominion. With this end in view practically every Western and Northwestern State is participating, on a larger or smaller scale, in the many land shows that are being held in the East at this time. Through the medium of the excellent exhibits of the states’ resources, as ocular substantiation of the claims set forth in the literature and statistics distributed at these shows, the individual states hope to prove to the people of the East that the opportunities presented to them in their own West are greater than those offered to the homeseekers who move to Canada.

Immigration statistics show that the United States is losing its population at the rate of 200,000 persons each year, this being the number of homeseekers who are drawn from the crowded centers of population in the Eastern United States to Western

Canada by the glittering promises of marvelous harvests on cheap lands offered by the Canadian immigration agents. This is the state of affairs which has led to the holding of the numerous land shows. As a fitting climax to the advertising campaign inaugurated by the West, the Northwestern States and Colorado and California have united in what is said to be the most unique method of advertising their resources that has ever been conceived. The plan is the sending of a special train, bearing comprehensive exhibits of each state participating, on a tour of the principal cities of the East, at each of which stops will be made for the purpose of displaying the exhibits and telling of the progress of the West both from an agricultural and industrial standpoint.

While this method of displaying the resources of the West is in itself new, the unique feature of the tour will be the fact that the governors of the various states will accompany the exhibits as the official representatives of the states. It is said that the present is the first time in the history of the United States that a congress of chief executives have banded for any similar purpose. The remarkable finesse of the movement from a publicity standpoint is seen in the presence of the governors, for while the visit of an

exhibit train to any particular city would create a certain amount of interest in the inhabitants thereof, the fact that such a coterie of celebrities lend their presence to the project adds a distinction that would not otherwise obtain, and assures for the tour the greatest possible amount of publicity. The fact that the gubernatorial party will be joined from time to time by the governors of the states in which the special train happens to be journeying at the moment, senators, congressmen, correspondents of various newspapers and others adds to the value of the plan from a publicity standpoint.

After visiting twenty-one Eastern cities, the special will return to St. Paul, Minnesota, with its party augmented by the addition of the senators and members of congress of the various Northwestern States, where a conference, lasting three days, will be held to devise uniformity of action by the Northwestern States and their

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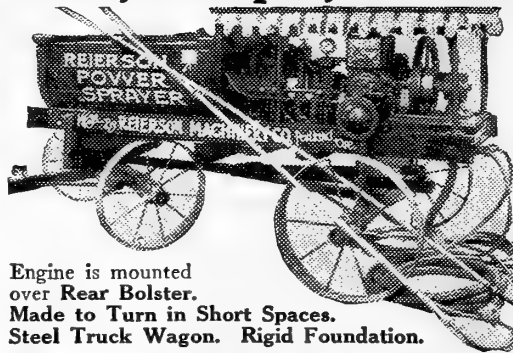
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immigration departments in the matter of offsetting Canadian emigration. That the United States government itself is cognizant of the efforts being made in this matter and desires to assist, seems assured from the fact that no less a personage than President Taft has added his semi-official indorsement to the tour of the governors by formally inviting the party to visit him while en tour. With the sole exception of Governor Hiram W. Johnson of California, who, it is said, has called a special session of the legislature which will be in session at the time of the tour, each one of the chief executives of the ten states participating will be on the special when it leaves St. Paul on the evening of November 27, on its memorable tour. Whether the hopes of its promoters and the good wishes of the Western people will bear fruit must be left to the near future, when a comparison of the immigration statistics will show whether the vast number of home-seekers will have been persuaded to develop their own country or an alien one.

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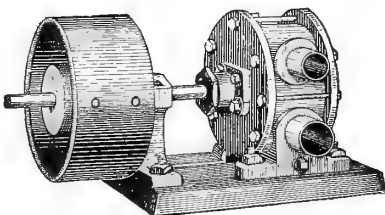
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Frost Fighting Studies in the Rogue River Valley

By C. I. Lewis and F. R. Brown, Oregon Agricultural College Experiment Station, Corvallis

(Continued from last issue)

A Test with 100 Troutman Heaters Per Acre, April 20.—A test was made in this block April 20 with 100 heaters per acre, or a total of 195 heaters. The outside temperature at 4 o'clock was 29 degrees. A light drift of about two miles per hour came from the south. The heaters were lighted at 4 o'clock, and beginning at 4:15 readings were taken every fifteen minutes, with six thermometers on the inside of the heated area and three on the outside. The outside thermometers were placed 200 feet from the edge of the heated area. This block of trees was such that it was possible to arrange the heaters in a square 294 feet each way, and having a strip on the south and one on the north which were not heated. At 4:45 the drift almost entirely ceased and a very dense smudge formed. At this time the outside temperature also rose slightly. Observations were taken May 10, and it was noticed that the farther the trees were from the heated area the more damage was done by frost. At 5 o'clock a cold drift set in from the southeast, varying from southeast, south to southwest. The sun rose at 5:40. At a few minutes past 6 smudge from the Bear Creek Orchards, which were located about three-quarters of a mile to the southeast, reached the plot, but just before it reached the orchard the temperature of the outside thermometer dropped one degree and remained there until the smudge had reached us, when it again rose to its former position. This was seemingly due to a bank of cold air which immediately preceded the smudge. The following chart will give the temperatures maintained during that period:

Inside	4:15	4:30	4:45	5:00	5:15	5:30	5:45	6:00	
Temp...	32	33	33	32	32	31	31.5	32	
Temp...	34	34	34	35	34	32	31	32	
Temp...	34	35	34	32	33	32	32	33	
Temp...	34	35	34	34	34	33	33	33	
Temp...	35	34	34	34	32	33	34	32	
Temp...	32	33	33	32	31	32	32	31	
Average.	33.5	34	33.7	33.2	32.7	32.2	32.2	32.2	
Outside	Temp...	29	29	30	29	28	28	28.5	29
Temp...	29 <td>29 <td>29 <td>29 <td>28 <td>28 <td>28 <td>28 <td>29</td> </td></td></td></td></td></td></td>	29 <td>29 <td>29 <td>28 <td>28 <td>28 <td>28 <td>29</td> </td></td></td></td></td></td>	29 <td>29 <td>28 <td>28 <td>28 <td>28 <td>29</td> </td></td></td></td></td>	29 <td>28 <td>28 <td>28 <td>28 <td>29</td> </td></td></td></td>	28 <td>28 <td>28 <td>28 <td>29</td> </td></td></td>	28 <td>28 <td>28 <td>29</td> </td></td>	28 <td>28 <td>29</td> </td>	28 <td>29</td>	29
Temp...	29.5	29.5	30	29	28.5	29	29	30	
Average.	29.1	29.1	29.6	29	28.2	28.3	28.5	29.3	
Increase.	4.4	4.9	4.1	4.2	4.5	3.9	3.7	2.9	

Highest increase, 4.9; lowest increase, 2.9; average increase, 4.1.

Maximum Burning Time of the Troutman Heaters Filled to the Capacity, Which Is Five Quarts of Oil.—The oil used for this burning was a 20-degree "slop" distillate. Three hundred and three heaters were lighted at 2 a. m. The outside temperature at this time was 34 degrees. The arrangement of heaters in the plot was 21x31 feet. During this night there was no danger of frost, but as the season was getting late and no maximum test had been carried out for this heater, it was thought best to carry it out regardless of the temperatures. It was noticed that the coldest time of this morning occurred shortly after 2 a. m. The following chart will show the temperatures maintained during the burning period with 100 heaters per acre:

Inside	2:30	3:00	4:00	5:00	
Temperature	36	49	48	48	
Temperature	36	48.5	47	46	
Temperature	36	48.5	47	47	
Temperature	36	49	47	47	
Temperature	37	49	48	48	
Temperature	37	49	48	47	
Temperature	38	49	48	49	
Temperature	48	48.5	48	47	
Average	36.7	48.7	47.6	48.6	
Outside	Temperature <th>34</th> <th>44</th> <th>44</th> <th>44</th>	34	44	44	44
Temperature	34	45	45	44.5	
Temperature	34	45	44	44	
Temperature	34	44	44.5	44	
Average	34	44.5	44.4	44.1	
Increase	2.1	4.2	3.2	4.5	

Highest increase, 4.5; lowest, 2.1; average, 3.6. At 6 a. m. 9 heaters were out; at 6:30 a. m. 34 heaters were out; at 7 a. m. 71 heaters were out; at 7:30 a. m. 190 heaters were out; at 8 a. m. 276 heaters were out; by 8:30 a. m. all had burned out. Average burning time, 5½ hours. Outside temperature had raised to 44 degrees.

After 5 o'clock the outside temperatures had raised so high that it was not thought of value to continue registering temperatures. In all of the pots, after they had gone out, there remained from one to four inches of heavy residue which would not burn, and when cool was very hard. This was partially due to the fact that on two previous occasions the heaters had been extinguished with about one quart of oil left in the bottom and refilled without emptying. Probably each time the lighter oils had burned away and the residue mentioned above was an accumulated residue rather than the product left from one burning. The average increase of tempera-

ture with the heaters arranged 17x25 feet was 3.6 degrees for a period of three hours, and with the same heaters in the same block arranged 21x21 feet an average increase of 4.3 degrees was obtained.

Maximum Burning Time for the Bolton Heaters Without the Carbon Arrester.—One hundred heaters filled to their capacity of one gallon were lighted at 2 a. m. April 26. These had also been rearranged, so they were placed 21x21 feet apart. As there was no danger of frost during the night temperatures were taken once every hour. The following chart will show the temperatures maintained during the burning time:

Inside	2:30	3:00	4:00	5:00	
Temperature	36	47	48	48	
Temperature	37	49	48	48.5	
Temperature	36	47	47	48	
Average	36.2	47.5	47.5	48.1	
Outside	Temperature <th>34</th> <th>44</th> <th>44</th> <th>44</th>	34	44	44	44
Temperature	34	44	45	44.5	
Temperature	34	45	44	44	
Average	34.1	44.5	44.3	44.1	
Increase	2.1	3	3.2	4	

Highest increase, 4 degrees; lowest, 2.1; average, 3.1. Average burning time, 4¼ hours. At 5 a. m. 3 heaters had gone out; at 5:30 a. m. 21 heaters had gone out; at 6 a. m. 46 heaters had gone out; at 6:30 a. m. 91 heaters had gone out; at 7 a. m. 99 heaters had gone out.

NOTICE

Owing to the fact that the Eastern Land Shows and Governors' special train will draw a number of our representative fruit growers out of the state during the month of December, the executive board of the Washington State Horticultural Association has postponed the next annual meeting at Clarkston to January 4, 5 and 6, 1912. Will you kindly notify all whom you think may be interested?

L. M. BROWN, Secretary.

Walla Walla, Washington, October 3, 1911.

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This test was carried on at the same time and under the same conditions as the Troutman test. At 6:30, when 91 of the heaters were out, a count was made of those which had burned clean. 82 of the 91 heaters had burned clean, leaving nothing but a heavy coat of soot around the upper part of the sides of the heaters. Of the nine that contained a residue four had only a quarter of an inch in depth, part of which was soot which had been scraped down before. Two contained one inch of heavy residue and the other three not more than two inches of heavy residue. Of these three, two, when relighted, burned clean. The other, however, contained some water and would burn no more.

Maximum Test of the Troutman Heater with a Measured Gallon of "Slop" Distillate.—This was carried on April 26, at the same time of the other two maximum burning time tests. In this block, however, temperatures were taken every fifteen minutes until 5:45. This test was carried on in the block of Red Cheek Pippins with the heaters arranged in the square 21x21 feet. 195 heaters were lighted at 2:35, and the following charts will show the temperatures maintained and the length of burning time:

Inside	3:15	3:30	3:45	4:00	4:20	4:50	5:20	5:45
Temp...	47	47	48	48	48	48	48	48
Temp...	47	48	48	48	48	48	48	48
Temp...	48	48	48	48	48	48	48	48
Temp...	48	48	49	49	49	48	48	48
Temp...	48	48	48	48	48	48	48	48
Temp...	46	46	46	46	46	46	46	46
Average.	47.3	47.5	47.8	47.8	47.8	47.7	47.7	47.7
Outside								
Temp...	44	44	44	44	44	44	44	44
Temp...	44	45	44	45	45	44.5	44	44
Temp...	44	44	44	44.5	44.5	44	44	44
Temp...	44	44.3	44	44.5	44.5	44.2	44	44
Average.	44	44.3	44	44.5	44.5	44.2	44	44
Increase.	3.2	3.8	3.3	3.3	3.5	3.7	3.7	3.7

Highest increase, 3.8 degrees; lowest, 3.2 degrees; average, 3.5 degrees. At 6 a. m. 9 pots were out; at 6:30 a. m. 67 pots were out; at 7 a. m. 156 pots were out; at 7:30 a. m. 166 pots were out; at 8 a. m. 195 pots were out. Average burning time, 4½ hours.

A Test with the Troutman Heaters with the Covers Inverted, Acting as a Carbon Arrester, April 29.—This test was carried out in a block of Red Cheeks with 193 heaters lighted. The arrangement was the same as in previous tests. The test was made on the morning of April 29. This was the coldest morning throughout the valley which was experienced during the season, the temperature in many places going as low as 22 degrees. However, in the orchard where the test was carried out 26 degrees was the lowest temperature recorded. The heaters were lighted at 3:30 a. m., when the outside temperature was 29 degrees and the mercury falling. The first reading was taken at 4 o'clock, when the outside temperature was 28 degrees. The following chart will show the temperatures maintained from 4 o'clock until 5:30. After 5:30 the temperature outside rose steadily until 6 o'clock, but no reading was taken, as the heaters were put out. Between 5 and 5:30 the inside temperatures began to drop, so that the covers were entirely removed and the heaters allowed to burn free. This was necessary largely because of the large amount of soot which collected on the covers. The

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Assistant General Passenger Agent
PORTLAND



amount of oil consumed during this burning period of two and one-half hours was 135 gallons and one quart, or an average of 2.8 quarts per heater. A very gentle drift from the south was noticed during this entire test. The temperature during the next day was quite high until about noon, when it became cloudy and a cool breeze began blowing.

Inside	4:00	4:30	5:00	5:30
Temperature	31	32	32	30
Temperature	32	34	32	29.5
Temperature	31.5	33	31.5	29.5
Temperature	31	33	32	30
Temperature	32	34	36	31
Temperature	30.5	31	31	29
Average	31.4	32.9	32.4	29.8
Outside				
Temperature	28	28.5	27	27
Temperature	27.5	28	26.5	26

Average 27.7 28.7 26.7 26.5
Average increase..... 3.7 4.2 5.7 3.3
Average for entire period, 4.2 degrees; average with arresters, 4.5 degrees.

The morning of May 6, when a frost had been predicted, a test was made in the Burrell orchard with the Bolton orchard heaters, burning a 14-degree fuel oil. The trees were 24 feet apart and eight or nine years of age. Nine thermometers were used in the heated area and three on the outside. About 2.3 acres of young Bartlett's, with 47 heaters per acre, were used. These were lighted at 3:45, with the outside temperature at 32 degrees. Readings were taken every half hour until 5 o'clock, when they were taken every

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fifteen minutes. At 5:45 the temperatures had risen so much on the outside and the sun was shining upon some of the thermometers, so that no attempt was made to take a reading. A few of the heaters burned out within an hour and a half, due to the fact that eight previous firings had been made with no attempt to clean out the residue. In two heaters which were examined fully a half gallon of thick deposit was found, and in many of the other heaters which went out shortly after 6 o'clock almost as much residue was left. A steady wind was blowing from the south at about three miles per hour, making it quite difficult to form a heavy smudge. However, by 4:30 the north half of the block was sheltered by a very dense smudge.

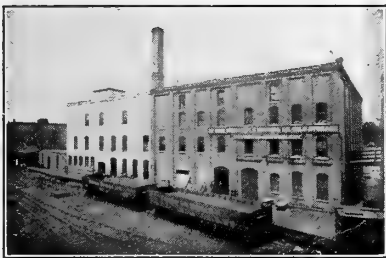
Inside	4:00	4:30	5:00	5:15	5:30
Temperature..	32	34	34	33	33
Temperature..	32	34	33	33	33
Temperature..	32	36	36	34	34
Temperature..	35	34	35	34	34
Temperature..	34	34	35	34	34.5
Temperature..	34	34	34	34	34
Temperature..	34	34	34	34	33.5
Temperature..	34	34	34	34	34
Temperature..	34	33	34	33	33.5
Average	33.4	34.1	34.3	33.7	33.7
Outside					
Temperature..	32	32	32	31	32
Temperature..	33	32	32	31	33
Temperature..	33	32	32	31	32.5
Average	32.6	32	32	31	32.5
Increase .....	.8	2.1	2.3	2.7	2.2

Average increase, 2.02 degrees.

The results of the work this season are very gratifying, for after one of the most trying seasons in the history of the valley there still remains a fair crop of fruit. In the orchards where the test was carried out a good crop was saved in the apples and pears, and

with the exception of the d'Anjous no injury occurred. The d'Anjou pears were located between the other varieties, and a portion of each variety was used in each block. There was also a strip across the end of each variety which was not in the heated area. There was considerable ringing and russetting in the d'Anjous, but practically none on the other varieties. This injury occurred both where the heaters were used and where they were not, and from all indications it would seem that it was the effect of a late frost, and occurred on a night when no heating was done. The fact that the d'Anjous were the only ones injured would indicate that under the conditions experienced this season the d'Anjous are more susceptible to frost injury than the other varieties. This also indicates that the danger point for frost injury has not as yet been definitely worked out.

Observations Taken in the Different Orchards Throughout the Valley and Experiences of Some of the Growers with Wood Fires.—Mr. Allen, of the Hollywood orchard, during the past three years has practiced smudging, but previous to this year, 1911, has used nothing but manure smudges. In 1909-1910 he saved his entire crop without using wood. In 1911, when the cold period of April 12 and 13 came, he decided that the temperature would be too low to be safe with only manure smudges, as the ground was very cold. He then placed wood in



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his orchard at 60 feet apart where the trees were 30 feet apart. On his fifty acres he used nine cords of wood to make the first fires. The first three nights he had used approximately five cords of wood. His trees being small, he found that he was unable to save the entire crop in that way. In fact around the outer edge and across one end of his orchard the fruit was almost entirely killed, and throughout the entire block a great many blossoms were injured. However, on a large per cent of the heated area enough fruit was saved to make a fair crop. The lowest temperature which he noticed inside the heated area was 26 degrees. On the morning of April 13, at 4:30 o'clock the temperature reached 29 degrees, and at 5 o'clock had reached

27 degrees. On the morning of April 14, at 2:15, the temperature had reached 26 degrees, and on the morning of April 15, at 5 o'clock, the temperature reached 26 degrees. Mr. Allen uses a Cederborg alarm, which he finds to be reliable. The arrangement of the alarm he has changed somewhat from the original plan. He uses two sets of batteries, one for the current through the thermometer and the other for the bell. He has two points on his thermometer, one at 33 degrees, which rings first, at which time he notes the hour and returns to bed. The second point is at 31 degrees, and when the temperature reaches this point and rings the alarm he notes the time required for the temperature to drop the two degrees and estimates at that rate how long it will be before the danger period is reached and before it will be necessary to fire. The advantages and disadvantages of the Cederborg alarm will be taken up in another place, so nothing more need be said here. Mr. Allen found it necessary to use fifteen to eighteen men in handling wood fires on fifty acres. His wood cost him \$6.25 per cord, but could have been obtained at \$5.25 earlier in the season. He practices firing when the temperature reaches 30 degrees.

The Midvale Orchard.—This orchard consists principally of young trees. However, there was a block of about an acre and a half of eighteen-year-old trees—Bartletts and Winter Nelis. Mr. Norris places his fires 50 feet apart

and alternates them so he gets a very even distribution of the fires throughout his block. He had in this block thirty fires, using old rails and a pile of manure for each fire, which he added late in the morning, just before the sun rose, to obtain a smudge. He states that while having only thirty fires to look after he found that it was too much work for one man to do and be sure of saving his crop. On the morning of April 14, when the temperature dropped to 26 degrees, he was unable to keep his fires going well enough to be sure he was saving his entire crop. However, enough of his bloom remained so that he will have a good crop of pears, with the exception of a few Comice and Bartletts on the outer edge.

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The Buckeye Orchard.—The Houston Brothers, of the Buckeye Orchard, were successful in saving their crop of Bartletts of about three acres, where during the previous seasons no frosts were experienced. The danger during the present season, however, was so evident that they made preparations to protect their crop. Their orchard is in a long, narrow strip, and very difficult to heat. However, with the

fires 40 feet apart where the trees are 24 feet apart they were able to protect the fruit entirely. The coldest temperature which they noted during the season was 26 degrees, occurring on the morning of April 15. The cost of firing was as follows: Distributing material, two men and a team one day, \$7; one man on duty lighting, \$2.50; two extra men to light fires, two and one-half hours, \$2. The fence rails and manure which were used cost nothing. Figuring three acres in the block, the cost of the first firing averaged \$3.83 per acre. The second firing was less, due to the fact that most of the material used in the second firing was left from the material placed for the first firing. It required one man one-half day to pile the material, so that the cost of firing the second time averaged \$2.33 per acre, not counting the cost of fuel. A third firing, however, would have been as expensive as the first firing.

Mr. Workman's Orchard.—In this orchard four rows of Howells were

severely injured, due to the fact that they were long rows and difficult to heat. An attempt was made to protect them with two rows of wood fires 60 feet apart. In a four-acre block of Bartletts 30 feet apart, trees about twelve years of age, about 50 per cent of the bloom was damaged, but enough was saved to insure a good crop. Old rails were used in this orchard, the fires being placed 30x60 feet apart. After each firing it required two men and a team almost a day to prepare for the next firing. The lowest temperature noticed in this orchard was 25 degrees on April 15.

J. G. Gore's Orchard.—Old rails were used in this orchard, being placed 40x60 feet apart. Crude oil was used to assist in firing, as the rails were

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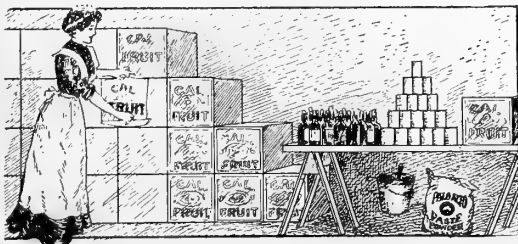
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damp. There were eight acres in this block, and no damage was noticed. Apples adjoining were damaged about 20 per cent. In the center of the block of apples little or no damage was noticed. Mr. Gore found it very difficult to obtain a satisfactory temperature during the first two nights of firing, principally because just previously considerable rain had fallen, causing the rails to burn very slowly.

Mr. Phipps' Orchard.—This orchard was equipped with coal heaters, but wood fires were used to assist in smudging. The coal used in the heaters was obtained about a mile and a half from the ranch and cost \$5 per ton at the mine. The grade of coal was only fair, but proved quite satisfactory for short burning periods. Mr.

Phipps states that he would use 100 heaters to the acre, but only fired 50 at a time. In using the 100 heaters he would then be prepared to fire for seven or eight hours in succession. Twenty to twenty-five pounds of coal were used in each heater. The method of lighting is to place a small amount of kindling in the bottom of the heater with a piece of oil-soaked waste sticking out through the bottom. This waste ignites very easily and soon fires the coal. Mr. Phipps figures the cost of firing with coal heaters to be about five dollars per acre for each firing, twenty pounds of coal being estimated to burn about three hours. He also states that he has good success with wood fires, but would use nothing but a good grade of fir cordwood for that purpose, and if such were used the cost of firing would be approximately ten dollars per acre for one night's burning from five to six hours. Mr. Phipps states that in no case would he prepare less than 100 fires per acre, using 50 at first, having as many more to fall back on in case he was unable to hold the temperature.

Palmer Orchard.—This consists of young trees five, six and seven years of age, and gave promise of producing a very heavy crop of pears this year. Mr. Palmer protected the crop one night, but the second night, between 5 and 6 a. m. April 15, the temperature dropped to 25 degrees and damaged his crop so severely that he made no further effort to protect it. On this morning the temperature at 5 o'clock inside the heated area was 29 degrees and on the outside 26 degrees. Between 5 and 6 o'clock the temperature dropped both inside and outside of the heated area to 25 degrees, and while he had a double number of heaters in his orchard it was too late to save his crop after the drop was noticed. He placed about 150 heaters per acre, and at the time of the damage 75 per acre were burning. At this time in a small block of peaches a great percentage of them were killed. In an orchard adjoining Mr. Palmer's the man saved the fruit on seven isolated trees by burning from five to seven fires around each tree. For this purpose he used wood.

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THREE RIVERS, MICHIGAN

The Merritt Orchard.—This consists of four acres of Spitzenberg and Newtown apples. Eighty heaters per acre were placed in this block. The early frosts which threatened to damage the pears did no injury to this orchard, and the first firing was done April 25. Four firings were made—April 25, 26, 29 and May 5. The trees are 24 feet apart, very large and almost meet between rows. The coldest temperature occurred April 29, when 24

degrees was registered. Part of the orchard was supplied with a double row of heaters for reinforcement in case of a long firing time.

A. C. Fiero Orchard.—One block of old trees 20 feet apart, consisting of about three acres, were protected, using about 110 heaters per acre. However, only 50 per cent were lighted at first, and when they had burned out the remainder were fired. In this way the firing period was doubled. In this block practically no damage was done. In a block of young trees just across the road, where the trees were 35 feet apart and only one pot to the tree was used, about 50 per cent of the fruit was damaged, and on one or two small trees the entire crop was killed, the coldest temperature occurring April 29, and the thermometer registering 23 degrees. The cost, not counting refilling, was \$3.50 per acre for one firing, where one gallon of oil was used. It required two men and a team one day to fill a thousand heaters. A total of ten firings was necessary in this orchard. Both the "slop" distillate and the crude oil were used, and no difference was noticed in the temperature maintained by the two. The burning time, however, with the crude oil was slightly longer for the first firing, but shortened with each successive firing, due to the fact that each time a considerable amount of heavy residue was left in the pots. It was noticed in the young orchard, where 35 heaters per acre were used, that it was impossible to hold the temperature above the outside temperature, so practically all the advantage gained in smudging was a heavy bank of smoke, which remained in the orchard till late in the morning.

The Foothills Orchard.—This forty-acre orchard contains Winter Nelis, d'Anjou and Bartlett pears. It lies with a slight slope to the southeast, there being usually a fairly good air drainage from the northwest to the southeast. Seventy-one Bolton or Fresno heaters were used per acre, half of which were lighted at a time. With an outside temperature of 26 degrees they were able to maintain a temperature of 30 degrees within the heated area, and in some places the temperatures ranged from 31 to 33 degrees. However, when the outside temperature dropped to 25 degrees they were unable to keep the inside temperature above 29 degrees. Ten thermometers were used in this block. Most of them were of the cheaper grade, but all were tested and compared with a standard Taylor thermometer. Fuel oil testing 15½ degrees was used in this orchard. This cost \$3.77 per 100 gallons at their siding, which was about two miles from the orchard. There was no trouble whatever in this orchard with the pots boiling over. This is largely due to the fact that the oil was taken from the bottom of the tank, and each time the water was allowed to drain off before the oil was taken out. Fuel was distributed to the heaters by means of a galvanized iron tank, mounted on a wagon. The usual trouble with a heavy residue forming in the bottom of the heaters was noticed in this orchard. However, Mr. Carpenter thinks he has a means of overcoming this difficulty. A small knife with a tin box attachment is run around the pot, collecting this residue immediately after the pots are extinguished. This means a waste of considerable material during the season. The practice of emptying this heavy residue onto the soil is questionable. Mr. Carpenter practiced keeping his

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fires going until 7:30 a. m. This was from an hour to an hour and a half longer than in most of the other orchards. This orchard was one of three where a single frosted flower could not be found inside the heated area. An extra row of heaters was used on the outside for reinforcement and were placed about fifteen to twenty feet from the first row of trees. All of the varieties were setting a heavy crop except the Winter Nelis. These were planted in alternate rows with the Bartletts, and with the exception of a few trees on the northeast corner, where the soil is considerably lighter and the bloom earlier no pears were setting. Of those few trees which were noticed to bloom earlier a fair crop had set. Four men and a team were required to fill two thousand heaters in a half day. Mr. Carpenter states that if crude oil is used it requires one more day to unload the car on the siding than if the distillates are used, as the latter will run much more freely and can be handled faster. In this orchard it was noticed that the heaters having once been burned had to be refilled before they could be relighted. The coldest temperature occurred April 29, when the thermometer reached 25 degrees for a short time. Nine firings were necessary during the season.

Eden Valley or Burrell Orchard.—This orchard consists of a block of Winter Nelis, Bartlett, Howell and Bosc, and comprises about forty-two acres. With the exception of about three acres of young Bartletts this is in a solid block, the trees about 18 years of age and 24 feet apart. Sixty-five heaters per acre were used, burning a fuel oil testing 14 degrees. Five cheap thermometers which had been tested the year before were used in this block. The pears were not injured on the inside of the heated area of the large block. On the east and south the outer row was slightly damaged, and in the block of young Bartletts some damage was noticed. However, there will be a good crop on the entire tract, with the exception of the Winter Nelis, which did not set well. Only a few of the smaller trees in the Winter Nelis block had more than a very light set. One row of heaters was used outside of the orchard for reinforcement, but was set only about eight feet from the outside row, so was not effective. Next year

Mr. Roth plans on adding an extra row twenty feet from the outside row of trees. Fourteen to sixteen men are used to light the heaters. Refilling the heaters is the greatest expense in heating this orchard. A storage tank for the crude oil, with a capacity of 10,000 gallons, is used. The lowest outside temperature noted during the season was 24 degrees. This occurred April 29. At the same time the lowest inside temperature was 29 degrees. The Bol-

ton or Fresno heater was used in all eleven firings which were made in this orchard during the season.

The Snowy Butte Orchard.—In this orchard, which consists of Winter Nelis pears planted in a solid block, 140 heaters per acre were used. Two were placed in the center of each square of trees, which were 24 feet apart. Only half of the pots were lighted at a time, the remaining half being held in reserve in case the cold spell extended over a long period. No frost injury was noticed in this orchard, but the pears were setting very lightly. A few trees on the outside of the heated area were examined and showed the effect of frost very badly.

Bear Creek Orchard.—The Bear Creek Orchard was divided into three different blocks. In the first, consisting of young Comice and Bartlett, the trees are 24 feet apart, and a heater was placed for each tree, making about 70 heaters per acre. Only half were lighted when the temperature reached 30 degrees, and as long as the inside

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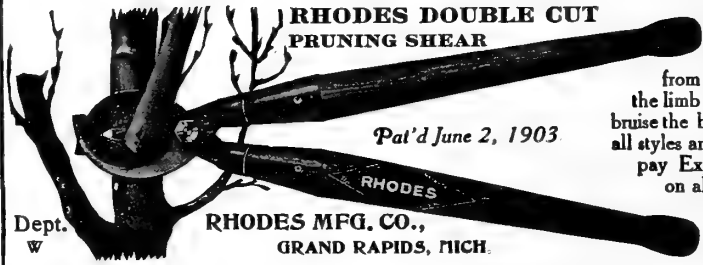
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temperature remained above that no more were lighted. This number of heaters proved enough protection in that block during this season, and on May 12, when an examination was made, the pears were in good condition and a heavy crop had set, with only a few showing any frost injury. The second block consisted of old Bartlett trees, which were large enough to almost meet between the rows, forming a very good screen for holding the heat. It was noticed that a much higher temperature could be maintained with 35 heaters per acre than in the other plot, and that at any time 70 heaters per acre would be ample protection in a block of this kind. No injury from frost was noticed, and even a few Comice trees 50 to 150 feet away from the heated area showed only a slight injury from frost. In the third block, which is known as block 12, the trees are younger, somewhat smaller and placed thirty feet apart. Sixty heaters per acre were used. In this block considerable difficulty was experienced in maintaining a satisfactory temperature, and some damage occurred. However, enough of the crop was saved to insure a fair yield, with perhaps only a small percentage of the fruit scarred with frost injury. It is the plan of the foreman of this orchard to double the number of heaters in this block next year in order to be able to absolutely protect the crop in this block from all injury. Mr. Brooke uses a Cederborg alarm. In conjunction with the local branch of the weather bureau this makes a very satisfactory combination. Mr. Brooke states that he has been very well pleased with the Cederborg alarm, and is planning to install an alarm for each block, fitting up his packing house for sleeping quarters during the frost season. In this way he will be able to know in what place the danger is and at once be ready to protect that block. He has tried the Cederborg thermometers and found them very satisfactory, and is planning on using more. He also expects to keep an accurate record

both of the inside and outside temperature on the nights when it is necessary to fire. The fuel used in this orchard was 14 degrees fuel oil and 20-degree "slop" distillate. He finds that there is very little difference between the two so far as the production of heat and smudge is concerned. The crude oil has a slightly longer burning time.

Orchards Near Eagle Point.—There were two separate blocks in this vicinity, both of old trees twenty feet apart, so large that they met in the center of the row. In the large block of Spitzenbergs there was a heavy bloom, but all of the blossoms examined on a number of trees throughout the orchard were either killed or severely injured by frost. In a small tract of about three acres near the creek a great deal of damage was found. However, a few of the tops of the trees in this block will probably have a fair set of apples. Near the creek the damage seemed to be less than at the opposite end of the orchard. No attempt was made to protect this orchard, since there was no record of previous frost injury in the orchard. On the morning of April 29 a temperature of 22 degrees was noticed. A few pear trees near the house apparently escaped with only partial injury. These were also near the creek, and all showed considerable damage, but will have enough pears left to make a fair crop.

The Problem of the Failure of the Winter Nelis Pears to Set.—After the frost season was apparently over and the growing season fairly well started, a great deal of comment was heard from all sides in regard to the setting



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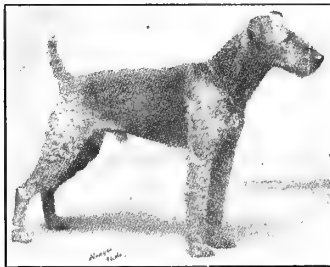
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of Winter Nelis pears. At first this comment came principally from those orchardists who had used oil for smudging, and at first was attributed to the fact that the oil deposited from the soot on the blossoms had prevented the insects from working and effecting pollination. As the season advanced and this complaint became more general an investigation was carried on in most of the orchards of the valley to ascertain if possible some reason for the non-setting of the Winter Nelis pears. First working upon the basis that the failure was due to the cold, cloudy weather which prevailed during the blooming period and not to the effect of smudging, the investigation was begun in those orchards where heating with oil was practiced. A comparison of the results in these orchard and those orchards which were heated with wood fires was made. The first important fact in relation to this problem concerns itself with the blooming period of the different varieties. As has been stated elsewhere in this bulletin, the excessive warm weather between March 27 and April 5 had forced the Bartlett, Howell, d'Anjou and Comice pears into full bloom. At the same time the Bosc and Winter Nelis were developing, and in fact the Boscs were very nearly as far along as the early varieties. However, the cold period beginning about April 5 seemed to check the bloom on the Winter Nelis so that the buds opened very slowly and they did not come into full bloom until about April 15, and later. This was just at the time of the two heavy smudgings and gave rise to the idea that the lack of pol-

lenation was due to smudging. It was noticed in the Marshall orchard that the Monday following the smudging on Saturday that the blossoms were not coated with soot. A heavy wind on Sunday had blown the petals from the Bartletts and d'Anjous to a considerable extent. On examining the Winter Nelis it was found that very little soot had collected on the open flowers, due to the fact that a large percentage of the buds had only been partially opened previous to Saturday morning, but that the larger percentage had entirely opened on Sunday and Mon-

day. Thus the flowers and pollen of these buds were protected from any deposit of soot. Later an examination of this block showed that much of the fruit which was setting on the Winter Nelis trees in this orchard was around the lower part of the trees on the lower branches, where in all cases the heaviest deposit of soot was noticed. In the Foothills Orchards of Mr. Carpenter, where the Winter Nelis were alternated with Bartletts, the same lack of setting was noticed, with the exception of a few trees in one corner of the orchard where they bloomed slightly



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earlier. These few trees set quite a full crop. In the Gore orchard, and in the Workman orchard adjoining, where wood fires were used, the same results were noticed with the Winter Nelis pears. In the Midvale Orchard, which consisted of a few rows of Winter Nelis and about the same number of Bartletts, it was noticed that some of the Winter Nelis trees near the Bartletts were setting a full crop, but others in the same row did not, and practically all of the second row from the Bartletts were setting very poorly. In some instances a single branch on a tree would be heavily laden, with only

a few on the remainder of the tree. In this orchard the Bartletts were in full bloom when the cold weather came on, or about April 5, and the Winter Nelis had been held back for at least ten days. Apples adjoining the pear orchard were entirely killed on the morning of April 29, as no attempt was made to smudge. The pears were all saved by the wood fires used. In two small blocks which were heated with wood fires entirely very few Winter Nelis pears were found to be setting fruit. In the Snowy Butte Orchard, which consists of about fifteen acres of Winter Nelis pears in

a solid block, only a few scattering trees have set a crop. A very peculiar thing was noticed in this orchard—occasionally two-thirds of a tree would be heavily loaded, while all around there was no fruit. Furthermore, a great many trees had one, two and three limbs which bore heavy crops, while the rest of the tree had but a few.

Having investigated the principal orchards which were heated or smudged with oil, wood or manure, the next step was to hunt up an orchard which had not been heated or smudged, and where it was known that the soot could not have done the

injury. Such an orchard was found along the side hill between Jacksonville and Central Point. This orchard belonged to Mr. Griffiths, and the same condition prevailed here and in two adjoining orchards as had been found in the orchards which had been heated. In an orchard owned by the York Real Estate Company, which has a large number of varieties, it was noticed that all of the pears were setting and free from injury by frost, except the Winter Nelis. This orchard is located on the steep hillside, extending a short distance on top of the hill. Two small trees on top of the hill were setting a heavy crop. Very small Winter Nelis trees were also setting a fair crop. The large trees in this orchard were setting only a few scattering fruits. These were near some of the small trees mentioned, and in each case surrounded by other varieties which were bearing heavily. In an orchard at the foot of this hill which was not heated four rows of Winter Nelis pears were planted, alternating with one row of Comice. No effect due to pollination was noticed between the two. There was one very small tree which was setting a full crop. After going over a large number of orchards and finding that under all conditions, whether heated or not, the Winter Nelis pears showed similar peculiarities in setting, it would appear as though this condition was due to the kind of weather which prevailed during the blooming period. The investigations carried on this year were not conclusive, and simply opened up a problem of some magnitude for future solution.

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☐ The Pacific Monthly has become noted for having published some of the best verse appearing in any of the magazines. Charles Badger Clark, Jr., contributes his inimitable cowboy poems exclusively to The Pacific Monthly. Berton Braley, George Sterling, Elizabeth Lambert Wood, Wm. Maxwell, and other well known poets are represented by their best work in our pages.

☐ A feature that has won many friends for The Pacific Monthly has been our descriptive and industrial articles. During the coming year one or more such articles will be published each month. Articles now scheduled for early publication are: "Money in Live Stock on the Pacific Coast", "Success with Apples", "Nut Culture in the Northwest", "Success with Small Fruits", "Fodder Crops in the Western States".

☐ In addition to these articles the Progress and Development Section will give each month authoritative information as to the resources and opportunities to be found in the West. To those who are planning to come West, the descriptive illustrated articles on various sections of the West will be invaluable.

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the agronomy department of this institution we are enabled to present a summary of the temperatures at Corvallis during the season of frosts. As in Southern Oregon, during the latter part of March the weather was extremely warm; in fact the month of March averaged about three and one-half degrees above normal. This had a tendency to force the buds into full bloom. The warm period was followed by a succession of cool days and frosty nights. The following temperatures for April are given:

Date	Minimum Temp.	*Dew-point	Time Temperature remained below danger point
April 2....	29	38	4:30 to 6:30 a. m.
April 6....	28	34	5:00 to 6:00 a. m.
April 11....	31	34	4:00 to 7:00 a. m.
April 12....	29	..	3:30 to 6:30 a. m.
April 13....	25	32	5:00 to 6:00 a. m.
April 14....	27	33	4:30 to 6:30 a. m.
April 15....	30	39	5:30 to 6:00 a. m.

*Dewpoint night before taken between 6 and

On April 17 and 29 the temperature reached 31 degrees for a short time only. During the time of the most severe frost, and especially April 13, when the temperature reached 25 degrees, most of the fruit was in full bloom, especially the cherries, peaches, prunes and pears. Apples were hardly far enough out to be seriously injured.

By comparing these temperatures with the tables of temperatures reputed to be injurious one would expect a very light fruit crop in the Willamette Valley. However, such is not the case, for there was a good set of apples and pears. Cherries were slightly injured, some of them probably 50 per cent. Peaches were hurt more than any of the other fruits, in some places as much as 60 to 75 per cent being injured. In some places prunes were badly hurt and in other places hardly injured. An average of about 40 to 50 per cent injury to this crop would probably be a fair estimate. At Corvallis, where the temperatures were taken, the most serious injury was noticed on some of the earlier varieties of strawberries. With these figures before us it would seem as though an arbitrary table of temperatures for frost injury could not be made, as the humidity of the air and the weather conditions generally seemed to cause a very wide variation in the effect of the frosts. It may be possible in the future to work out figures under certain conditions which would be arbitrary, but that will necessarily be a rather difficult problem. In most of the tables



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which are found in print we find the temperatures at which injury will occur between 27 and 30 degrees. With all kinds of fruits, both in the Rogue River Valley and in the Willamette Valley, it was noticed that these temperatures did not apply, for in many instances peaches passed through a temperature of 27 and 28 degrees without injury. In other cases pears and apples in the bud appeared to be injured at a temperature of 29 degrees. It might be well, however, to state that under normal conditions the general rule seems to be that unless there is a large amount of moisture in the air a temperature of 29 to 30 degrees will be dangerous to most varieties. The peach is generally considered much more susceptible to frost injury than the pear. However, in one orchard where peach fillers were used with pears the pears were about 50 per cent killed, and no injury was found on the peaches, so that further investigation may prove that supposition incorrect.

Summary.—(1) Six and one-half acres of seventeen-year-old pears were used in one block and two acres of apples in another. The apples planted 34½ feet apart were apparently as easy to heat as the pears planted 25 feet apart. (2) The latter part of March was very warm, followed by a very cold April. Only a little rain fell and some snow, but the days were cloudy. The pears were in full bloom by April 10. From April 12 to May 5 six frosts were recorded. The lowest temperatures for each being 29, 27,

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25½, 28, 26 and 31 degrees, respectively. (3) Two grades of oil were used—28-degree distillate and 20-degree "slop" distillate. The cost of the latter was \$6.25 per 100 gallons. The heavy fuel oil left an inch of residue for each firing. This would not burn, and if left in the heater decreased the burning time. Oils with a paraffine base are to be preferred to those having an asphalt base. (4) Bausch and Lomb laboratory thermometers graduated to 300 degrees were used in this work. Two certified thermometers were used to test these at 32 degrees. At least one thermometer per acre should be used and should be tested each season. A thermometer with a long cylindrical

bulb and graduated to 120 degrees is the best. The round bulb type is not sensitive enough. (5) Two types of heaters were used—the Bolton orchard heater of the lard pail type with a capacity of one gallon and the Troutman heater with a center draft and holding five quarts. These were both made of light sheet iron and cost about twenty cents each. (6) The local branch of the United States Weather Bureau, the telephone companies and frost alarms are all used to warn the fruit growers when the temperature reaches the danger point. Some patent alarms are used, but cannot be depended upon entirely. (7) Storage tanks of three types, cement, galvan-

ized iron and wood are used. The latter are of little value. Cement tanks are best for large amounts of oil and for use where they can be placed on the ground. Galvanized iron tanks are good where small amounts of oil are stored, and are especially valuable where it is necessary to elevate the tank. (8) At 30 degrees outside temperature no increase was obtained with 20 heaters per acre. With 39 Troutman heaters per acre an average increase of 1 degree was obtained. The same heaters gave an increase of 3½ degrees with 100 heaters per acre, arranged 17 by 25 feet, and 4.1 degrees when arranged 21 by 21 feet. The Bolton heater with the carbon arrester gave an average of 1.3 degrees with 100 heaters per acre and arranged 17 by 25 feet, and without the arrester gave an average of 4 degrees. (9) The Troutman heaters gave an average burning time of five and one-half hours with five quarts of oil and four and one-half hours with four quarts of oil. There was some trouble with a residue with these heaters. The Bolton heaters averaged four and one-quarter hours with four quarts of oil without the carbon arrester and eight hours with the attachment. One quart of 20 to 30-degree distillate will burn for one hour with these heaters under most conditions. (10) The average cost per acre for a four-hour period is \$5.10 for oil, not counting the equipment, and for wood under the same condition the cost would be \$5.40, as more labor is required. Oil is the best fuel, as less help is required and an even temperature may be maintained. Oil should be handled by a gravity system so far as possible. (11) Under the conditions experienced this season there is absolutely no doubt but that a crop can be saved by orchard heating. A very good example was furnished by the block of apples where the rows that were heated have a crop and the farther away the trees were from the heated area the less fruit was saved. D'Anjou pears showed a slight injury from a late frost, indicating that they were more susceptible to injury than other varieties. Winter Nelis pears did not set a good crop, but that is probably due to weather conditions and not the effect of frost or smudging. (12) The effect of the low temperatures in the Willamette Valley indicates that no arbitrary table of temperatures for frost injury has been worked out for all conditions. The temperature dropped below 29 degrees on several nights and as low as 25 degrees at one time, and was below 28 for more than two hours. A fair crop of fruit is left. The early varieties of strawberries were injured the most.

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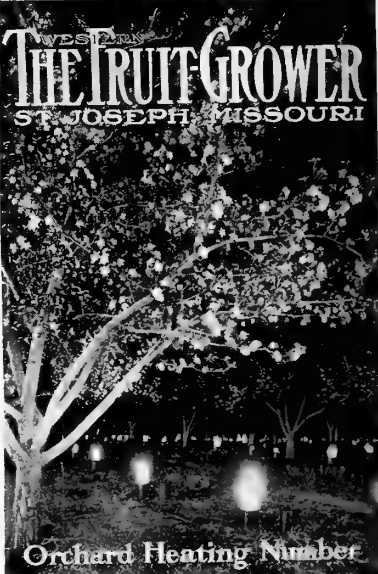
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NORTHWEST GROWERS' UNIONS AND ASSOCIATIONS

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Oregon

Eugene Fruit Growers' Association, Eugene; Ashland Fruit and Produce Association, Ashland; Hood River Fruit Growers' Union, Hood River; Hood River Apple Growers' Union, Hood River; Grand Ronde Valley Fruit Growers' Union, La Grande; Milton Fruit Growers' Union, Milton; Douglas County Fruit Growers' Association, Roseburg; Willamette Valley Prune Association, Salem; Mosier Fruit Growers' Association, Mosier; The Dalles Fruit Growers' Union, The Dalles; Salem Fruit Union, Salem; Albany Fruit Growers' Union, Albany; Coos Bay Fruit Growers' Association, Marshfield; Estacada Fruit Growers' Association, Estacada; Umpqua Valley Fruit Growers' Association, Roseburg; Hyland Fruit Growers of Yamhill County, Sheridan; Newburg Apple Growers' Association, Newburg; Dufur Valley Fruit Growers' Union, Dufur; McMinnville Fruit Growers' Association, McMinnville; Coquille Valley Fruit Growers' Union, Myrtle Point; Stanfield Fruit Growers' Association, Stanfield; Oregon City Fruit and Produce Association, Oregon City; Lincoln County Fruit Growers' Union, Toledo; Rogue River Fruit and Produce Association, Medford; Mount Hood Fruit Growers' Association, Sandy; Northeast Gaston Farmers' Association, Forest Grove; Dallas Fruit Growers' Association, Dallas; Northwest Fruit Exchange, Portland; Springbrook Fruit Growers' Union, Springbrook; Cove Fruit Growers' Association, Cove; Santiam Fruit Growers' Association, Lebanon; Washington County Fruit Growers' Association, Hillsboro; Benton County Fruit Growers' Association, Corvallis; Sutherlin Fruit Growers' Association, Sutherlin.

Washington

Kennewick Fruit Growers' Association, Kennewick; Wenatchee Fruit Growers' Union, Wenatchee; Puyallup and Sumner Fruit Growers' Association, Puyallup; Vashon Island Fruit Growers' Association, Vashon; Mt. Vernon Fruit Growers' Association, Mt. Vernon; White Salmon Fruit Growers' Union, White Salmon; Thurston County Fruit Growers' Union, Tumwater; Bay Island Fruit Growers' Association, Tacoma; Yakima Valley Fruit and Produce Growers' Association, Granger; Buckley Fruit Growers' Association, Buckley; Lewis River Fruit Growers' Union, Woodland; Yakima County Horticultural Union, North Yakima; White River Valley Fruit and Berry Growers' Association, Kent; Lake Chelan Fruit Growers' Association, Chelan; Zillah Fruit Growers' Association, Toppenish; Kiona Fruit Growers' Union, Kiona; Mason County Fruit Growers' Association, Shelton; Clarks-

ton Fruit Growers' Association, Clarkston; Walla Walla Fruit and Vegetable Union, Walla Walla; The Ridgefield Fruit Growers' Association, Ridgefield; Felida Prune Growers' Association, Vancouver; Grandview Fruit Growers' Association, Grandview; Yakima Valley Fruit Growers' Association, North Yakima; Southwest Washington Fruit Growers' Association, Chehalis; The Touchet Valley Fruit and Produce Union, Dayton; Lewis County Fruit Growers' Association, Centralia; The Green Bluffs Fruit Growers' Association, Mead; Garfield Fruit Growers' Union, Garfield; Goldendale Fruit and Produce Association, Goldendale; Spokane Inland Fruit Growers' Association, Kelso; Elma Fruit and Produce Association, Elma; Granger Fruit Growers' Association, Granger; Cashmere Fruit Growers' Union, Cashmere; Stevens County Fruit Growers' Union, Myers Falls; Dryden Fruit Growers' Union, Dryden; White Salmon Valley Apple Growers' Union, Underwood.

Idaho

Southern Idaho Fruit Shippers' Association, Boise; New Plymouth Fruit Growers' Association, New Plymouth; Payette Valley Apple Growers' Union, Payette; Parma-Roswell Fruit Growers' Association, Parma; Weiser Fruit and Produce Growers' Association, Weiser; Council Valley Fruit Growers' Association, Council; Nampa Fruit Growers' Association, Nampa; Lewiston Orchard Producers' Association, Lewiston; Boise Valley Fruit Growers' Association, Boise; Caldwell Fruit Growers' Association, Caldwell; Emmett Fruit Growers' Association, Emmett; Twin Falls Fruit Growers' Association, Twin Falls; Weiser River Fruit Growers' Association, Weiser; Fruit Growers' Association, Moscow.

Colorado

San Juan Fruit and Produce Growers' Association, Durango; Fremont County Fruit Growers' Association, Canon City; Rocky Ford Melon Growers' Association, Rocky Ford; Plateau and Debeque Fruit, Honey and Produce Association, Debeque; The Producers' Association, Debeque; Surface Creek Fruit Growers' Association, Austin; Longmont Produce Exchange, Longmont; Manzanola Fruit Association, Manzanola; Delta County Fruit Growers' Association, Delta; Boulder County Fruit Growers' Association, Boulder; Fort Collins Beet Growers' Association, Fort Collins; La Junta Melon and Produce Company, La Junta; Rifle Fruit and Produce Association, Rifle; North Fork Fruit Growers' Association, Paonia; Fruita Fruit and Produce Association, Fruita; Grand Junction Fruit Growers' Association, Clifton, Palisade, Grand Junction; Palisade Fruit Growers' Association, Palisade; Peach Growers' Association, Palisade; Colorado Fruit and Commercial Company, Grand Junction; Montrose Fruit and Produce Association, Montrose; Hotchkiss

Fruit Growers' Association, Hotchkiss; Paonia Fruit Exchange, Paonia; Colorado Fruit Growers' Association, Delta; Crawford Fruit Growers' Association, Crawford; Amity Cantaloupe Growers' Association, Amity; Pent County Melon Growers' Association, Las Animas; Capitol Hill Melon Growers' Association, Rocky Ford; Denver Fruit and Vegetable Association, Denver; Fair Mount Melon Growers' Association, Swink; Fowler Melon Growers' Association, Fowler; Granada Melon Growers' Association, Granada; Grand Valley Fruit and Produce Association, Grand Junction; Independent Fruit Growers' Association, Grand Junction; Kouns Party Cantaloupe Growers' Association, Rocky Ford; Lamar Melon Growers' Association, Lamar; Loveland Fruit Growers' Association, Loveland; Manzanola Orchard Association, Manzanola; Newdale Melon Growers' Association, Swink; Roaring Fork Potato Growers' Association, Carbondale; Woods Melon Growers' Association, Las Animas.

Montana

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

Utah

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

New Mexico

San Juan Fruit and Produce Association, Farmington.

British Columbia

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



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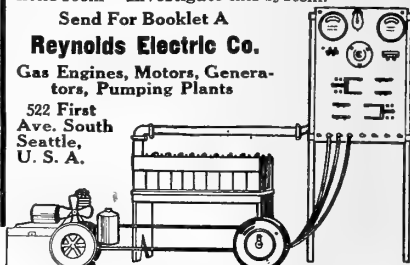
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Gas Engines, Motors, Generators, Pumping Plants
522 First Ave. South Seattle, U. S. A.



Faculty Stronger Than Ever
More Progressive Than Ever

Results Better Than Ever
Attendance Larger Than Ever

ATTEND THE BEST

Behnke-Walker Business College

PORTLAND, OREGON

BUTTE POTATO & PRODUCE CO.

BUTTE, MONTANA

Jobbers of All Farm and Orchard Products

We have a large outlet for fruits and vegetables. We want to hear from shippers.

A. J. KNIEVEL, President and Manager
Sixteen years' experience on the Butte market.

LINDSAY & CO. LTD.

Wholesale Fruits

HELENA, MONTANA

Established in Helena Quarter of a Century

Branch houses: Great Falls, Missoula and Billings, Montana

Pedigree Trees

[Facsimile of affidavit on file at Ballygreen. Similar one on file for each variety Pedigreed.]

IT is a decided advantage to planters to secure Nursery Stock propagated from the finest **prize winning trees** in the West. **Quality and Pedigree** certified under affidavit. The **Ballygreen System** makes this possible.

OUR trees have the well-balanced roots and tops that skilled horticulturists aim to secure. Such trees produce fruit of quality. We grow exclusively selected **Trees of Certified Pedigree.**

BALLYGREEN SYSTEM
SELECTED-CERTIFIED
PEDIGREE TREES

THIS IS TO CERTIFY that on this 13 day of December A. D., 1910 I cut from bearing trees of
Vineyard variety healthy scions:
Fruit District Wenatchee
Orchard Owned by O. G. France
Age of Trees Nine years old
Coloring of Fruit Very highly colored
Shape of Fruit Long shape
Quality of Fruit Excellent
Remarks: First 10 box 4 tier Spokane National
Apple Show 1909, Second, Car. Spokane National Apple Show 1910.

IN WITNESS WHEREOF, I have hereunto set my hand and seal this 13th day of December, A. D., 1910.
J. J. Breen (SEAL)

WITNESS: *J. J. Breen*

Subscribed and sworn to before me this 10th day of February, A. D., 1911.
J. J. Breen
Notary Public for the State of Washington
residing at Wenatchee

Descriptive Pedigree Book and Price List sent on request. Write us.

Ballygreen Nurseries, Hanford, Wash.

Reliable agents wanted for uncovered territory.

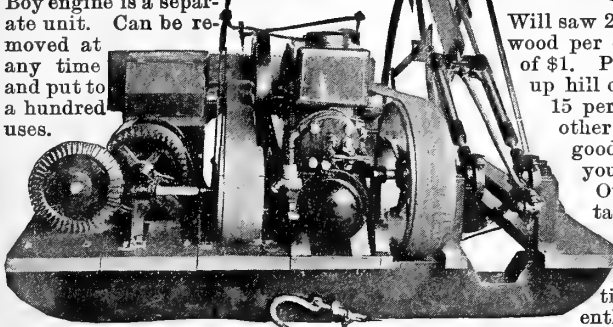
\$20 per day Earning Capacity

Will Pay for Itself in Less Than Three Weeks. Operated by One Man.

Neat, Compact, Simple, Strong, Light, Durable

The 4 h. p. Waterloo Boy engine is a separate unit. Can be removed at any time and put to a hundred uses.

"King of the Woods" Drag Saw



Will saw 20 to 40 cords of wood per day at a cost of \$1. PULLS ITSELF up hill or down. Costs 15 per cent less than other makes not as good. There's more you ought to know.

Our catalog contains complete description and prices: sent FREE with testimonials from enthusiastic users.

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SOLE MANUFACTURERS

Where Apples Thrive and Pay



Lands in the Southeast, costing from \$15 to \$50 an acre, net profits on apples ranging from \$100 to \$500 an acre.

Abundant rainfall and special soils give color and flavor unequalled by fruit grown in any other climate. One Southern tree last year yielded \$124 worth of apples; another tree \$57.

Peaches, pears, plums, berries and pecan nuts yield prolifically. Excellent transportation to profitable markets.

Write for full particulars to
M. V. RICHARDS, Land & Industrial Agt., Southern Ry., Room 13
1320 Penn. Ave., Washington, D.C.

Unvarnished, Cashable Facts About Poultry Profits

If there ever was a straight-from-the-shoulder statement of facts, you'll find it in JOEL M. FOSTER'S book "THE MILLION EGG FARM."

Mr. Foster owns the famous Rancocas Poultry Farm, and in his book he tells his methods for producing upward of *eleven hundred thousand eggs a year*, and piling up a clean annual profit of close to \$20,000.00.

We *know* that the statements in this book are cold facts—because we proved them before publishing

"The Million Egg Farm"

We have sold many thousand copies of this book, and we *know*, from the actual experiences of those who have read and followed it, that these facts can be profitably applied by *you*—whether you have a dozen hens on a back lot, or number your fowls by the thousands.

Up in Scranton, Pa., a clerk, Robert Liddle by name, read this book, followed its directions, and at last reports was cleaning up \$17.00 a day profit on eggs.

In the light of such experiences, we *know* that farmers need this book. That's why we published it and are trying to put it into the hands of every poultry owner.

To *serve* the farmer is the whole purpose of FARM JOURNAL. To serve him with sound advice regarding every branch of farm work.

To enable him to profit by the labor-saving and money-making discoveries of other farmers. To serve the farmer's wife with helpful housekeeping suggestions. To serve the farmer and his entire family with clean, wholesome entertainment.

Upward of four million readers welcome its monthly visits.

You need this paper and *you need* the MILLION EGG FARM book, and you can have

Farm Journal every month for four years and "The Million Egg Farm" at once, postpaid, for only \$1.00

Do yourself and family the favor of sending in the dollar to-day.

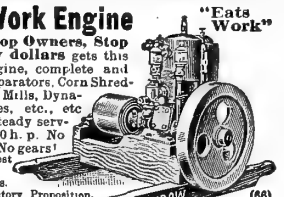
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Let SANDOW Run It!

Wonderful Work Engine

Farmers and Shop Owners, Stop Sweating! A few dollars gets this grand little work engine, complete and ready to run Cream Separators, Corn Shredders, Grist Mills, Feed Mills, Dynamos, Printing Presses, etc., etc. Gives a lifetime of steady service! All Sizes! 2 to 20 h. p. No cranking! No cans! No gears! Only 3 moving parts. Finest construction. Thousands in use. Guaranteed 5 years. Write for Special Introductory Proposition.

DETROIT MOTOR CAR SUPPLY CO., 238 Canton Ave., Detroit, Mich.



COOPER'S SPRAY FLUIDS

Read what Hood River says

Hood River, Oregon, Nov. 27, 1909. This is to certify that I have used Cooper's Tree Spray Fluids, V1, for killing San Jose scale and found it very effectual.

G. R. Castner, County Fruit Inspector.

APTERITE THE SOIL FUMIGANT DESTROYS INSECTS IN THE GROUND

REDUCES LOSSES SAVES PROFITS IT WILL PAY YOU TO INVESTIGATE Write for 1910 booklet (32 pages) Testimony from fruit growers everywhere

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C. G. ROBERTS
247 Ash Street Portland, Oregon

Sole Manufacturers:
William Cooper & Nephews
CHICAGO, ILLINOIS

CREATION



The tone is the Jewel.
The case is the Setting.
The combination is the Steinway—the Perfect Piano.

HE who is blessed with the power to create is blessed with God's greatest gift to man, and if he uses that power to increase the happiness of his fellow men he becomes a benefactor to the human race.

The world owes homage to the men who have devoted their burning energies to the consummation of one purpose, to the final and most perfect development of an ideal.

THE STEINWAY PIANO

Is an example of the grand result of years of persistent, purposeful striving after the very highest musical ideal. Sons have taken up the task where fathers left off, so that alternate generations of genius, working through the finest piano factory in the world, have evolved the Steinway—a piano that has long since been acknowledged the musical masterpiece of the ages.

Priced at \$575, \$625, \$775 and up to \$1,600. Of course you can buy a piano cheaper, but it will be a cheaper piano. Why not get the best?

VICTOR TALKING MACHINES and SHEET MUSIC

Sherman  **Hay & Co.**

SIXTH AND MORRISON
PORTLAND, OREGON

Exclusive Steinway Representatives

ARE YOUR CROP YIELDS SATISFACTORY ?

They are certainly not what they would be if you used Clark's Double Action "Cutaway" Harrow. It requires thorough cultivation to make the soil fertility available for your crops. "Thorough Cultivation," and "Clark's Double Action 'Cutaway' Harrow" are synonymous. The entire machine is made of steel and iron, except the pole, which is jointed so that there is no weight upon the horses' necks, and can be removed in one minute and used as a tongueless, as shown in cut. This is a big feature in moving from field to field, insuring safety to horses. The disks are of cutlery steel, shaped and forged in our own shops, where the only genuine "Cutaway" disks are made. The Double "Cutaway" does twice as much as an ordinary disk harrow and better at the same cost. The inflexible frame holds the gangs rigidly in their places, and compels them to cut high, hard ridges, carrying the soil into the hollows and leaving the ground level. With the flexible or tandem harrows the gangs conform to the surface and do not cut and level the hard, irregular places. Clark's stir every inch, leaving a finely pulverized seed bed. By setting the inner gangs straight on sharp turns, the Disk turns easily, leaving the ground even. No interlocking of gangs.



Modern farmers disk before they plow their land. It puts fine soil in the bottom of the furrow, where otherwise would lie loose clods that make a strata through which the sub-moisture can not rise. For this no other disk equals Clark's.

What Prof. Bailey Says :

"The Double Action 'Cutaway' Harrow has been satisfactory. I use it almost continuously on our hard clay land with good results."

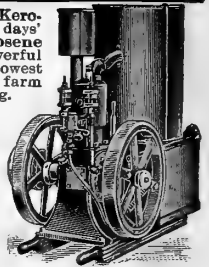
If your dealer can't supply the genuine "Cutaway," write us. Satisfaction guaranteed. Twenty-five years' experience back of every sale. Prompt Shipments. Get our booklet "Intensive Cultivation." It's free. We make a special tool for every crop.

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Use KEROSENE Engine FREE!

Amazing "DETROIT" Kerosene Engine shipped on 15 days' FREE Trial, proves kerosene cheapest, safest, most powerful fuel. If satisfied, pay lowest price ever given on reliable farm engine; if not, pay nothing.



Gasoline Going Up!

Automobile owners are burning up so much gasoline that the world's supply is running short. Gasoline is 90 to 150 higher than coal oil. Still going up. Two pints of coal oil do work of three pints gasoline. No waste, no evaporation, no explosion from coal oil.

Amazing "DETROIT"

The "DETROIT" is the only engine that handles coal oil successfully. Uses alcohol, gasoline and benzine, too. Starts without cranking. Basic patent—only three moving parts—no cams—no sprockets—no gears—no valves—the utmost in simplicity, power and strength. Mounted on skids. All sizes, 2 to 20 h. p. in stock ready to ship. Complete engine tested just before crating. Comes all ready to run. Pumps, saws, threshes, churns, separates milk, grinds feed, shells corn, runs home electric-lighting plant. Prices (stripped), \$29.50 up. Sent any place on 15 days' Free Trial. Don't buy an engine till you investigate amazing, money-saving, power-saving "DETROIT." Thousands in use. Costs only postal to find out. If you are first in your neighborhood to write, we will allow you Special Extra-Low Introductory price. Write! Detroit Engine Works, 507 Bellevue Ave., Detroit, Mich.

Make Big Money Drilling Wells



IMPROVED STANDARD DRILLING MACHINE One Man Can Handle Has a record of drilling 130 feet and driving casing in one day. Only three levers. Extra large rope sheaves. Positively will drill every kind of formation. Avoid delays from sending back East. Buy from us. We build these up-to-date machines. Will tell you all in catalog. Write for it. REIERSON MACHINERY CO., MANFRS., PORTLAND, OREGON

The Law Says SPRAY NOW For San Jose Scale

All infected fruit trees one year old and over with lime and sulphur solution."

Sec. 47, Revised Code 1909.

The State Commissioner reports "Ninetenths of all fruit is infected and

THOUSANDS OF BOXES CONDEMNED

Annually because of this disease.

LILLY'S LIME and SULPHUR

Is a scientifically mixed solution endorsed by the State Agricultural College because of its concentrated form. In wet weather use a 2-8 solution; in dry weather 1-11 solution, in December and again in February. Send for Lilly's Spray Book and prices. Chas. H. Lilly Company, Seattle, Wash.

Johnson's Big 1912 Book

That he calls

"POULTRY SERMONS"

—READY FOR YOU

Send a postal sure this time for Johnson's book—the best and biggest ever in 36 years—hundreds of actual new photographs showing

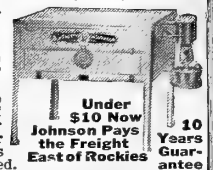
Old Trusty Incubators

Used by many hundreds of thousands of most successful poultry raisers.

40, 60 or 90 Days' Trial

Under \$10 now, 10 years' guarantee.

Johnson pays the Freight east of Rockies. 75 per cent bigger hatches guaranteed.



Under \$10 Now Johnson Pays the Freight East of Rockies 10 Years Guarantee

M. M. JOHNSON (Incubator Man) Clay Center, Neb.

Use Labels! It Pays

*A GOOD COMBINATION
AND A WINNER*

*1ST GOOD FRUIT
2ND GOOD PACKING
3RD GOOD LABELS*

THE LABEL HELPS.

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408 WELLS FARGO BLDG.

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FREE EXPERT ADVICE

By Professor A. Van Holderbeke, five years Washington State Horticulturist,

TO FRUIT GROWERS

Purchasing high grade nursery stock, guaranteed true to name, from the

Van Holderbeke Nursery Company

Main Offices:
Columbia Building
Spokane, Washington

RELIABLE
AGENTS
WANTED

Nurseries:
Spokane Valley and
Kennewick, Washington

BETTER FRUIT

Has no peer in the Northwest

And so we have established

THE FRUIT JOURNAL

along similar lines in behalf of the great irrigated fruit districts of the Rocky Mountain region, a companion paper to this, your favorite fruit magazine.

We have made it up-to-date, clean, high class editorially, mechanically and pictorially.

The subscription rate is \$1.00 per year. It is worth it.

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FRUIT JOURNAL**

Grand Junction, Colorado

NEW ORLEANS

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Commission

LAUX & APPEL

All Fruits in Season

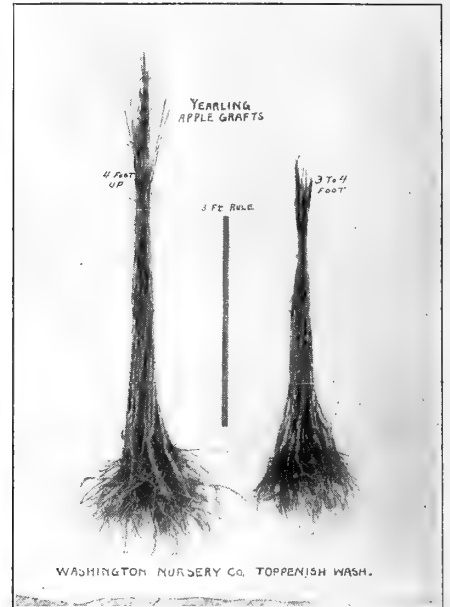
Storage for 50 Cars

The Acknowledged
FANCY FRUIT HOUSE
of New Orleans

THE HOUSE
YOU WANT



Eighty-Acre Field of Yearling Grafts, Washington Nursery Co., Fall 1911



Yearling Grafts from this Field, as Shipped November 11

In this field we planted over two million apple grafts in March, 1911, and enough more in adjacent fields to make over three and one-quarter million in all. We had a 75 per cent stand, as shown above, one of the finest sights imaginable, and probably not equaled in its class in the United States.

Those Are Some of the Trees We Shipped

Read what the customers say. Dozens more letters like these on file:

TESTIMONIALS

Washington

- Anacortes, Nov. 13, 1911. "This is about as nice a lot of trees that I ever had the pleasure of opening up, and the customers were well pleased with their stock." A. F. Schreiber.
- Goldendale, Nov. 15, 1911. "Am well pleased with my trees." E. S. Seitzinger.
- Spokane, East 1504 14th Ave., Nov. 14, 1911. "Such a shipment as this 425 Wagener's it is a pleasure to turn over to a man who trusted to me to order for him and select the nursery." Herman Thoeni.
- Pasco, Nov. 20, 1911. "The trees came in fine shape and they were more than I expected. The rose bushes were also fine. Thanking you for your courteous treatment." A. R. Byquist.
- Orting, Nov. 20, 1911. "I am happy to report to you that everyone without exception who received trees or shrubbery spoke in highest terms of praise and declared it the best lot ever delivered in Orting." J. C. Jacques.
- Seattle, 3113 King St., Nov. 18, 1911. "I unpacked the Greenwood box, found everything in good condition, packing perfect, trees fine." Levi Wright.
- Ellensburg, Sept. 21, 1911. "Will say that I am well pleased with the stock supplied last spring. You will remember you could not furnish first grade, but sent the best you had. Stock has made a splendid growth." A. E. Gaston.

Walla Walla, Nov. 3, 1911. "The trees, rose bush, one Perfection currant, came yesterday, but we were not aware of the fact until this a. m. However, they were a fine lot of trees, etc., and we feel that every one will grow, as we set them out before 10 o'clock this a. m. We wish to express our thanks for your generosity in the replace. We appreciate the kindness. We have a fine lot of trees from your place." J. R. Phillips.

Pullman, Nov. 6, 1911. "Your shipment has been received and nearly all delivered. Our customers are very much pleased with their orders, declaring them to be the best trees ever received at this point."

Oregon

- Hermiston, Nov. 13, 1911. "The patrons here were uniformly well pleased with their stock; it is the finest I have ever seen in twenty-five years' experience in the nursery business, and its superb, clean quality will impress confidence upon every grower who has seen or used it." C. L. Swain.
- Huntington, Nov. 14, 1911. "I am pleased with the trees sent me for delivery, and all that were there when consignment arrived said they were the finest lot of trees they had ever seen, delivered and packed." C. J. Hanson.

Dundee, Nov. 15, 1911. "Please find enclosed postal order for \$9.28 for my trees. They are all O. K. Am well pleased with them." J. M. Shutt.

Forest Grove, Nov. 15, 1911. "I have just unpacked the trees you sent and they appear in splendid condition." Charles Roper.

Baker, Nov. 15, 1911. "The stock is in good condition, the packing first class." David Kelley.

Idaho

Caldwell, Nov. 20, 1911. "Each customer was well pleased with the nursery stock sent them and I wish to thank you for them also for myself for filling the order with what I call first-class stock." J. E. Bird.

Moscow, Box 677, Oct. 17, 1911. "Of the 600 trees I bought from your Mr. Perry in Spokane last fall and which were delivered to me this spring, will say that they did some remarkable growing. In fact, some grew more than I would like to have had them grow. Rome Beauties and Spitz grew 28 inches." Wm. Buchholz.

Cataldo, Nov. 4, 1911. "Nursery stock received yesterday; was in fine condition." W. I. French.

California

Bogus, Oct. 23, 1911. "Have had good success with your trees we ordered through your agent in this locality." Jones Bros.

WE WANT YOUR BUSINESS

We grow all sorts of *Fruit, Shade and Ornamental Stock*. It's our business to grow good trees and to pack and deliver them properly. We want your business. Write us.

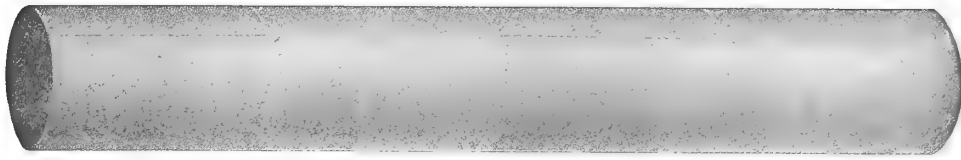
Washington Nursery Co.

TOPPENISH, WASHINGTON



Always room for more good salesmen. Write us for particulars

ANYTHING IN SHEET STEEL



STEEL PIPES SAVE WATER

STEEL PIPES SAVE LABOR

YOU DO NOT HAVE TO WAIT FOR STEEL PIPES TO
"SOAK UP" AND THEY LAST INDEFINITELY

WE MANUFACTURE

Galvanized Steel Pipe

Storage Tanks

Galvanized Steel Culverts

Pressure Tanks

Asphaltum Coated Pipe

Steel Flumes

Columbia Hydraulic Rams

COLUMBIA ENGINEERING WORKS, Portland, Oregon



THE RESULT

OF YOUR YEARS OF STUDY, WAITING
LABOR AND INVESTMENT

Depends on the Trees You Plant

All trees are not alike, as some people erroneously suppose. They differ in vigor of constitution. This regulates their ability to transplant successfully; to make a good growth the first year in your orchard (which is the critical period), to commence early bearing, to perfectly mature their fruit. In short, it means success or failure to you.

Orenco trees are succeeding from Southern California to Northern British Columbia. Why?

Because they have a strong, rugged constitution.

Plant Orenco trees and get results. Address

**OREGON
NURSERY COMPANY**

ORENCO, OREGON

The result of planting Orenco's dependable, profitable trees.
What kind are you going to plant?

To Fruit Growers of the Northwest

THE HOUSE of STEINHARDT & KELLY, New York, take great pleasure in advising the Fruit Growers of the Northwest that they have again acquired on a purchase basis large blocks of their products consisting mainly of Apples and Pears. No concern in the East has so consistently used its best efforts on behalf of the Growers of the Northwest, and we herewith desire to thank them for their co-operation in giving us their support by putting up the most magnificent pack of fruit the East has ever seen.

Particularly do we desire to commend the Growers of the Hood River Valley of Oregon, the Wenatchee Valley of Washington, the Bitter Root Valley of Montana, the Mosier Valley of Oregon and among individual packers and shippers the Wenatchee Produce Company of Wenatchee.

Steinhardt & Kelly

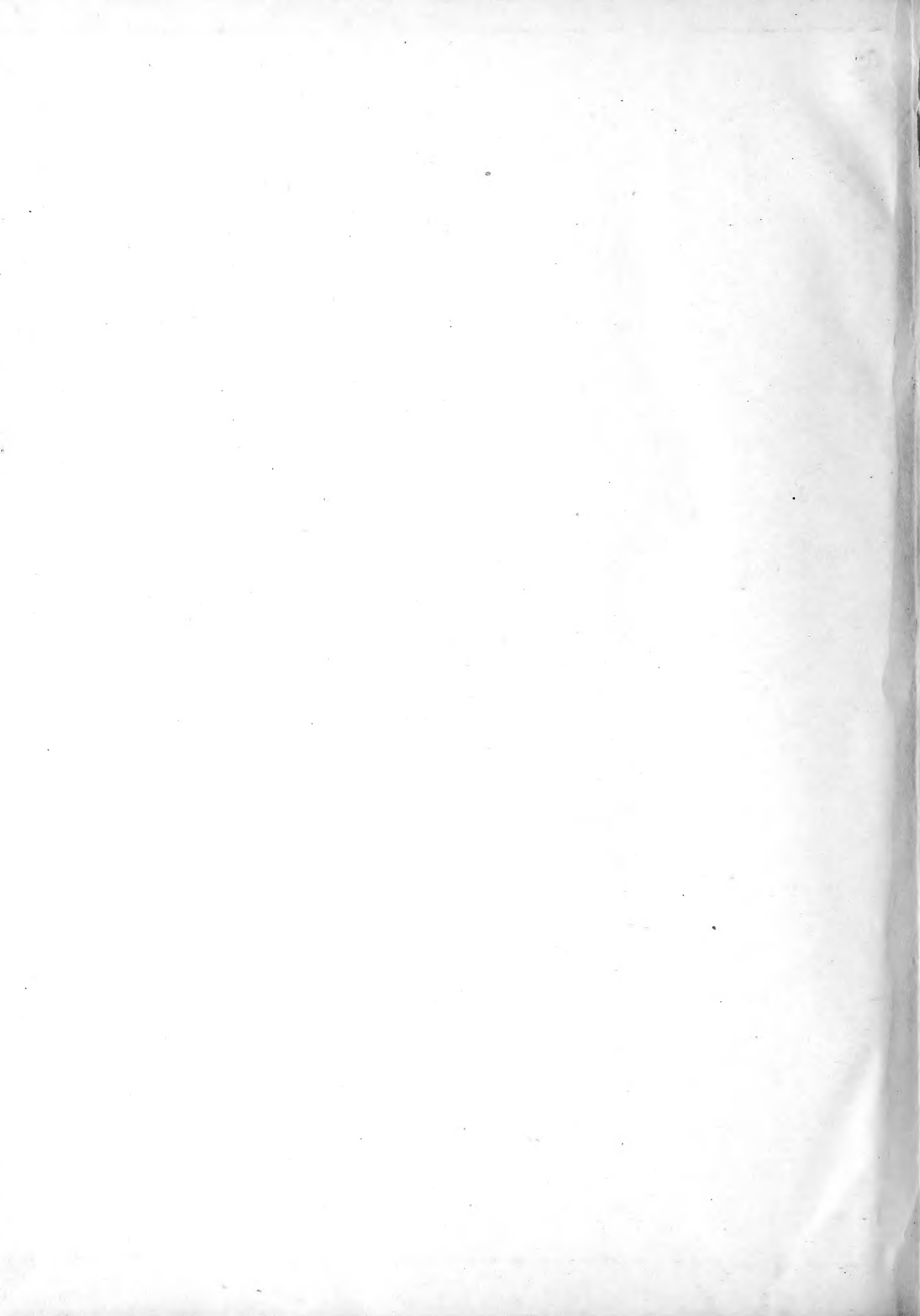
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